

INDIA INFRASTRUCTURE REPORT 2013 | 14

The Road to Universal Health Coverage



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IDFC FOUNDATION



Orient BlackSwan

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ABBREVIATIONS

AABY	Aam Aadmi Bima Yojana
ACT UP	AIDS Coalition to Unleash Power
AD	Advance Directives
AECS	Aravind Eye Care System
AEFI	Adverse Events Following Immunisation
AFP	Acute Flaccid Paralysis
AHS	Annual Health Survey
AIDS	Acquired Immunodeficiency Syndrome
AIIMS	All-India Institute of Medical Sciences
AMC	Advance Market Commitment
ANM	Auxiliary Nurse Midwife
ANM	Auxiliary Nurse Midwifery
API	Active Pharmaceutical Ingredients
ARR	Absolute Risk Reduction
ASHA	Accredited Social Health Activist
AUD	Alcohol-Use Disorder
AYUSH	Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homeopathy
BCG	Bacillus Calmette-Guérin
BDS	Bachelor of Dental Surgery
BEmOC	Basic Emergency Obstetric Care
BIMAROU	Bihar, Madhya Pradesh, Rajasthan, Odisha and Uttar Pradesh
BIS	Bureau of Indian Standards
BMC	Brihanmumbai Municipal Corporation
BMI	Body Mass Index
BNESIB	Board of Nursing Education, South India Branch
BOOT	Build-Operate-Own-Transfer
BoP	Base of the Pyramid
BOT	Build-Operate-Transfer
BP	Blood Pressure
BPL	Below Poverty Line

BRHC	Bachelor of Rural Healthcare
BRHM	Bachelor of Rural Health Medicine
BRICS	Brazil, Russia, India, China and South Africa
BRMS	Bachelor of Rural Medicine and Surgery
BSc	Bachelor of Science
BSES	Bombay Suburban Electric Supply
BTP	Bridge Training Programme
CAGR	Compound Annual Growth Rate
CBHI	Community-based Health Insurance
CBHI	Central Bureau of Health Intelligence
CBHMI	Community-based Health Micro-Insurance
CBP	Cost-plus Based Pricing
CCH	Christian Coalition for Health
CCT	Conditional Cash Transfer
CCU	Cardiac Care Unit
CDA	Central Drugs Authority
CDC	Centre for Disease Classification
CDSCO	Central Drugs Standard Control Organisation
CEA	Clinical Establishments Act
CEE	Common Entrance Examination
CES	Coverage Evaluation Survey
CES	Consumption Expenditure Survey
CEmOC	Comprehensive Emergency Obstetric Care
CGHS	Central Government Health Scheme
CHAI	Catholic Health Association of India
CHB	Christian Hospital, Bissamcuttack
CHC	Community Health Centre
CHD	Coronary Heart Disease
CIOMS	Council for International Organisations of Medical Sciences
CIRM	Centre for Insurance and Risk Management
CMAI	Christian Medical Association of India
CMC	Christian Medical College
CMC	Community Mobilisation Co-ordinator
CME	Continuous Medical Education
CMK	Chief Minister Kalaigner
CML	Chronic Myeloid Leukemia
COPD	Chronic Obstructive Pulmonary Disease
COPSI	Community Care for People with Schizophrenia in India
COTPA	Cigarettes and Other Tobacco Products Act
CQI	Continuous Quality Improvement
CR4	Four Firm Concentration Ratio
CRD	Chronic Respiratory Diseases
CRHM	CARE Rural Health Mission
CRHP	Comprehensive Rural Health Project
CSO	Civil Society Organisation
CSR	Corporate Social Responsibility
CSS	Centrally-Sponsored Scheme
CT	Computerised Tomography
CVD	Cardiovascular Disease
DALY	Disability Adjusted Life Years

DBF	Design-Build-Finance
DCGI	Drugs Controller General of India
DCI	Dentist Council of India
DDU	Deen Dayal Upadhyaya
DDMS	Drug Distribution Management System
DGFASLI	Directorate General Factory Advice Service & Labour Institutes
DGHS	Directorate General of Health Services
DHKC	District Hospital and Knowledge Centre
DLHS	District Level Household and Facility Survey
DMHP	District Mental Health Programme
DMSC	Durbar Mahila Samanway Committee
DOTS	Directly Observed Treatment, Short Course
DPCO	Drug Price Control Order
DPHPM	Department of Public Health and Preventive Medicines
DPT	Diphtheria, Pertussis and Tetanus
DQAG	District-level Quality Assurance Groups
ECG	Electrocardiogram
EDL	Essential Drugs List
EHA	Emmanuel Hospital Association
EHP	Essential Health Package
EMC	Emergency Medical Care
EPI	Expanded Programme of Immunisation
ERF	Economic Research Foundation
ESIS	Employees' State Insurance Scheme
EY	Ernst & Young
FAO	Food and Agriculture Organisation
FCTC	Framework Convention on Tobacco Control
FDC	Fixed Dose Combination
FFH	Family Friendly Hospital
FFHI	Family Friendly Hospital Initiative
FICCI	Federation of Indian Chambers of Commerce and Industry
FKO	Field Key Officer
FRU	First Referral Unit
FSP	Financial Sustainability Plan
GACVS	Global Advisory Committee on Vaccine Safety
GATS	Global Adult Tobacco Survey
GAVI	Global Alliance for Vaccines and Immunisation
GDP	Gross Domestic Product
GHRC	Global Hospital and Research Centre
GIPA	Greater Involvement of People living with HIV and AIDS
GIVS	Global Immunisation Vision and Strategy
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GNM	General Nursing and Midwifery
GNP	Gross National Product
GP	General Physician
GSDP	Gross State Domestic Product
GSK	GlaxoSmithKline
HCE	Healthcare Expenditure
HDC	Hospital Development Committee
HDI	Human Development Index

HDR	Human Development Report
HER	Higher Education and Research
HEW	Health Extension Worker
HIV	Human Immunodeficiency Virus
HLEG	High Level Expert Group
HMI	Health Micro-insurance
HMIS	Health Management Information System
HMRI	Health Management and Research Institute
HPV	Human Papilloma Virus
HPS	High Performing States
HR	Human Resource
HSR	Health Sector Reforms
GPS	Global Positioning System
IBEF	India Brand Equity Foundation
ICDS	Integrated Child Development Services
ICMR	Indian Council of Medical Research
ICTPH	IKP Centre for Technologies in Public Health
ICT	Information and Communications Technology
IDD	Iodine Deficiency Disorders
IDF	International Diabetes Federation
IDSP	Integrated Disease Surveillance Project
IHD	Ischemic Heart Disease
IHDS	India Human Development Survey
IHME	Institute for Health Metrics and Evaluation
IFA	Iron Folic Acid
IFPMA	International Federation of Pharmaceutical Manufacturers' Association
IGEHRC	Indira Gandhi Eye Hospital and Research Centre
IGNOAPS	Indira Gandhi National Old Age Pension Scheme
ILO	International Labour Organisation
ILR	Ice-lined Refrigerator
IMF	International Monetary Fund
IMR	Infant Mortality Rate
INC	Indian Nursing Council
IPC	Indian Penal Code
IPD	In-Patient Department
IPHS	Indian Public Health Standards
IPV	Intimate Partner Violence
IRDA	Insurance Regulatory and Development Authority
ISDN	Integrated Services Digital Network
ISRO	Indian Space Research Organisation
IT	Information Technology
ITSU	Immunisation Technical Support Unit
JE	Japanese Encephalitis
JNNURM	Jawaharlal Nehru National Urban Renewal Mission
JSSK	Janani Shishu Suraksha Karyakram
JSY	Janani Suraksha Yojana
KBK	Kalahandi, Balangir and Koraput
KMSC	Kerala Medical Services Corporation
LAICO	Lions Aravind Institute of Community Ophthalmology
LBW	Low Birth Weight

LEB	Life Expectancy at Birth
LPS	Low Performing States
LRI	Lower Respiratory Infections
M&M	Morbidity and Mortality
MAPE	Maximum Allowable Post Manufacturing Expenses
MAT	Moving Annual Total
MBBS	Bachelor of Medicine, Bachelor of Surgery
MBP	Market-based Pricing
MCH	Maternal and Child Health
MCI	Medical Council of India
MD	Doctor of Medicine
MDG	Millennium Development Goal
MDM	Mid-day Meal
MDMS	Medical Diagnosis Management System
MDR	Multi-Drug Resistant
MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
MHB	Mental Healthcare Bill
MHCP	Mental Healthcare Plan
MIBE	Mid-India Branch of Education
MIF	Microinsurance Innovation Facility
MMR	Maternal Mortality Ratio
MMU	Mobile Medical Unit
MNC	Multinational Corporation
MNCH	Maternal, Neonatal and Child Health
MP	Member of Parliament
MoHFW	Ministry of Health and Family Welfare
MoLE	Ministry of Labour and Employment
MoSPI	Ministry of Statistics and Programme Implementation
MoWCD	Ministry of Women and Child Development
mOPV	Monovalent Oral Polio Vaccine
MoU	Memorandum of Understanding
MRI	Magnetic Resonance Imaging
MRP	Mixed Recall Period
NABH	National Accreditation Board for Hospitals and Healthcare Providers
NABH	National Accreditation Board of Health
NABL	National Accreditation Board for Testing and Calibration Laboratories
NACO	National AIDS Control Organisation
NBHE	National Board for Health Education
NBE	National Board for Examinations
NCCP	National Cancer Control Programme
NCD	Non-Communicable Disease
NCHER	National Council for Higher Education and Research
NCHRH	National Commission for Human Resources for Health
ND	Neuro-Developmental Disorder
NDRDA	National Drug Regulatory and Development Authority
NEAC	National Evaluation and Assessment Committee
NFHS	National Family Health Survey
NFSA	National Food Security Act
NGCP	National Goitre Control Programme
NGO	Non-Governmental Organisation

NH	Narayana Health
NHM	National Health Mission
NHP	National Health Package
NHPPT	National Health Promotion and Protection Trust
NHRDA	National Health Regulatory and Development Authority
NHS	National Health Services
NHSRC	National Health Systems Resource Centre
NHWETC	National Healthcare Workforce Education and Training Commission
NHWIC	National Healthcare Workforce Information Commission
NHWPC	National Healthcare Workforce Planning Commission
NID	National Immunisation Day
NIDDCP	National Iodine Deficiency Disorders Control Programme
NIMHANS	National Institute of Mental Health and Neurosciences
NIN	National Institute of Nutrition
NIOH	National Institute for Occupational Health
NIS	National Immunisation Schedule
NKC	National Knowledge Commission
NLEM	National List of Essential Medicines
NMHP	National Mental Health Programme
NMR	Neonatal Mortality Rate
NNMB	National Nutrition Monitoring Bureau
NNT	Neonatal Tetanus
NNT	Numbers Needed to Treat
NNV	Numbers Needed to Vaccinate
NPC	Non-Physician Clinician
NPCB	National Programme for Control of Blindness
NPCDCS	National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke
NPHCE	National Programme for the Healthcare of the Elderly
NPPA	National Pharmaceuticals Pricing Authority
NPPCC	National Programme for Prevention and Control of Cancer
NPPP	National Pharmaceutical Pricing Policy
NPSP	National Polio Surveillance Project
NR	Nominated Representative
NRHM	National Rural Health Mission
NRI	Non-Resident Indian
NSE	Non-State Entity
NSP	Non-State Player
NSSO	National Sample Survey Organisation
NTCP	National Tobacco Control Programme
NUHM	National Urban Health Mission
OAE	Own-Account Enterprise
OBC	Other Backward Class
OECD	Organisation for Economic Co-operation and Development
OOP	Out-of-Pocket
OpASHA	Operation ASHA
OPD	Out-Patient Department
OPV	Oral Polio Vaccine
ORS	Oral Rehydration Solution
OSH	Occupational Safety and Health

OSMC	Odisha State Medical Corporation
OTC	Over-the-counter
PACS	Poorest Area Civil Society
PCI	Pharmacy Council of India
PCV	Pneumococcal Conjugate Vaccine
PDP	Product Development Partnership
PDS	Public Distribution System
PEI	Polio Eradication Initiative
PFI	Private Finance Initiative
PHC	Primary Health Centre
PHFI	Public Health Foundation of India
PIP	Project Implementation Plan
PISP	Population-based Individual Screening Protocol
PLWHA	People Living With HIV and AIDS
PPCP	Public-Private Community Partnership
PPP	Public-Private Partnership
PPP	Purchasing Power Parity
PRI	Panchayati Raj Institution
PWC	Patient Welfare Committee
QA	Quality Assurance
QAC	Quality Assurance Cell/Committee
QALY	Quality Adjusted Life Years
QC	Quality Circle
QCI	Quality Council of India
QMS	Quality Management Systems
R&D	Research and Development
RAC	Rajiv Aarogyasri Community
RBI	Reserve Bank of India
RBSK	Rashtriya Bal Swasthya Karyakram
RCH	Reproductive Child Health
RDA	Recommended Dietary Allowances
RFID	Radio-Frequency Identification
RGCT	Rajiv Gandhi Charitable Trust
RITA	Regular In-Training Assessment
RKS	Rogi Kalyan Samiti
RMA	Rural Medical Assistant
RMHC	Rural Micro-Health Centre
RMP	Registered Medical Practitioner
RMSC	Rajasthan Medical Services Corporation
RNTCP	Revised National Tuberculosis Control Programme
RRA	Rapid Risk Assessment
RSBY	Rashtriya Swasthya Bima Yojana
SAP	Structural Adjustment Programme
SARS	Severe Acute Respiratory Syndrome
SC	Scheduled Caste
SD	Standard Deviation
SE	Social Enterprise
SEBI	Securities and Exchange Board of India
SEWA	Self-Employed Women's Association
SHG	Self-Help Group

SHWETC	State Healthcare Workforce Education and Training Commission
SHWIC	State Healthcare Workforce Information Commission
SMS	Sawai Man Singh
SNA	State Nodal Agency
SoP	Standard Operating Procedure
SQAC	State-level Quality Assurance Committee
SRS	Sample Registration System
ST	Scheduled Tribe
STI	Sexually Transmitted Infections
TAC	Treatment Action Campaign
TB	Tuberculosis
TBA	Traditional Birth Attendant
TNAI	Trained Nurses Association of India
TNMSC	Tamil Nadu Medical Services Corporation
TPA	Third Party Administrator
TRIPS	Trade Related Intellectual Property Rights
TT	Tetanus Toxoid
U5MR	Under-five Mortality Rate
UDBT	Unbanked Direct Blood Transfusion
UHC	Universal Health Coverage
UIP	Universal Immunisation Programme
UMHRC	Uttaranchal Mobile Hospital and Research Centre
UN	United Nations
UNU	United Nations University
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
USFDA	United States Food and Drug Authority
VAPP	Vaccine Associated Paralytic Poliomyelitis
VHC	Village Health Champion
VPD	Vaccine Preventable Disease
VAS	Vajpayee Arogyasri Scheme
VHND	Village Health and Nutrition Days
VHSC	Village Health and Sanitation Committee
VHSNC	Village Health, Sanitation and Nutrition Committee
VHW	Village Health Worker
WEF	World Economic Forum
WHO	World Health Organisation
WPI	Wholesale Price Index
YLD	Years Lived with Disability
YLL	Years of Life Lost

FOREWORD

A key measure of the social and economic development of a country is the health of its population. This year, in our *India Infrastructure Report (IIR)* series, we discuss some of the issues and challenges in the health sector. In doing so, we continue with our focus on social infrastructure, having covered various aspects of the education sector, including the role of private sector, in the last issue.

Like many others, the health sector is also a story of ‘two Indias.’ The first is where some of the finest hospitals are located and which provide modern, state-of-art healthcare facilities and services, attracting patients from all over the world, but available to only few who can avail of such expensive services. The second is where the rest of the population has little or no access to good quality healthcare. As a consequence, India ranks below its economic peers and most of its neighbours on many basic health indicators. Even today, morbidity and mortality due to diarrhoea, communicable and vector-borne diseases, pregnancy and child-birth, and poor health conditions and care of infants continue to remain high. A matter of even bigger concern is that drug resistant forms of many diseases thought to have been controlled have now emerged as new threats. The health crisis is further accentuated by the rising incidence of chronic, non-communicable diseases and lifestyle diseases, both physical and mental.

The public health system in India is weak and inadequate. Although the Indian Constitution has made both the central and state governments responsible for providing health services, not enough importance has been given to healthcare. Decades of low spending on the health sector has resulted in massive deficiencies in health infrastructure and a shortage of qualified healthcare providers. Most public healthcare facilities are poorly equipped, understaffed and badly managed, while the few relatively better ones are overcrowded. Typically public health centres are characterised by poor accessibility, staff absenteeism, shortage of medical supplies and technology, unhygienic environments, and poor quality of services. The relative failure of government healthcare systems has resulted in people turning to private providers, who are often unqualified and have little or no formal training. The private sector in health is largely unregulated and varies hugely in quality. The expansion of private sector in healthcare has been accompanied by a shift towards curative care with marginalisation of the preventive care systems, neglect of primary care, and growth of tertiary care facilities with a strong commercial focus, resulting in a high dependence on clinical investigations, over-diagnosis and over-treatment. The level of private healthcare spending is among the highest in the world and places a disproportionate economic burden on people. The worst victims are the urban poor and the bulk of the population living in rural areas. Instances of chronic indebtedness and impoverishing effects of household spending on health are many and rising. The reduced focus on preventive healthcare adds to the financial insecurity.

Over the last two decades, the Government of India has introduced health programmes like the National Rural Health Mission (NRHM), Janani Suraksha Yojana (JSY), and the Rashtriya Swasthya Bima Yojana (RSBY), intended

to improve weak public health systems. Some improvements in basic health indicators, such as life expectancy at birth, maternal and infant mortality rates may be attributed to these efforts. India has recently celebrated its polio-free status and containment of HIV/AIDS. However, increased public expenditure on these has not yielded the desired results so far. Public spending through NRHM being norm-based has an input focus, and ignores the linkage with health outcomes. Moreover, NRHM, which was originally conceived for comprehensive healthcare, has been reduced to one more women and child health welfare programme. JSY introduced to improve maternal and child mortality through deliveries in public institutions, have failed to ensure quality of institutional care. ASHAs, the community health workers, brought in to facilitate primary care, institutional deliveries, and to counsel rural women on family welfare, pregnancy and care of new-borns, have been assigned an over-ambitious role. In fact, the conditional cash incentive offered to ASHAs may actually discourage them to counsel women on birth control. RSBY, intended to provide financial security for health expenses to the poor and unorganised workers, does not cover the costs of medicines and consultancies, which are large components of health spending. Even, the much celebrated polio-eradicated status is now being questioned as instances of new strains of the disease have been reported. The immunisation programme is yet to receive the thrust it ought to be given, and the proposal to expand the list of essential vaccines with new cocktail vaccines is being questioned on grounds of efficiency. Sadly, government efforts to empower and engage communities in the planning and delivery of healthcare remain unfulfilled. Government initiatives to leveraging private sector efficiencies and capacities through Public-Private Partnerships (PPPs) have also not been very successful. Finally, efforts through the introduction of legislations to address critical issues of drugs and devices, mental health and human resources, are still pending.

Providing access to good quality healthcare at an affordable cost to all, thus, remains a humongous challenge for the government. It is time to put healthcare reforms at the top of the development agenda of the country. Drawing upon the suggestions of the High-Level Expert Group on Universal Health Coverage (UHC), the government in the Twelfth Plan period has proposed higher expenditure on health to meet an expanded health mission aimed at improving access to comprehensive healthcare for the population.

This *India Infrastructure Report (IIR)* discusses the many dimensions of the health sector and the different layers of complexity. A key observation in the *Report* is that the states would have to take on greater fiscal responsibility for the success of UHC. Most states are not well-prepared for this effort and any unilateral effort from the central government would not yield the desired outcome. Second, the government should leverage the private sector to effectively deliver curative tertiary care and healthcare services, by putting in place a health-specific PPP policy and strengthening the capacity of implementing agencies. To extend primary and secondary healthcare to the people in rural and remote areas, non-state entities and their networks could be harnessed by making regulatory norms flexible and outcome-oriented. Third, preventive healthcare has to be prioritised for maximum impact on health benefits at a minimal cost. The government has to recognise that this should be publicly funded and cannot be achieved through private financing. Fourth, community participation for successfully implementing UHC would require building capacity and awareness of communities through ongoing training and education.

This *IIR* brings together perspectives and suggestions of experts deeply committed to the health sector. I hope that it will contribute to the evolving literature on this sector; help raise public awareness on issues related to UHC in India; and become a significant input for policy formulation. I would like to thank the authors, editors and all those who have contributed to the production of this *Report*.

Rajiv B. Lall
Executive Chairman
IDFC Limited

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This year's *India Infrastructure Report (IIR)* on the theme 'The Road to Universal Health Coverage,' continues with the discussion on social infrastructure initiated in the last *IIR*. The health sector for long has not been given the necessary attention by both central and state governments and this is reflected in very poor health outcomes for the population. This *IIR* covers the issues and challenges faced in providing good quality and affordable healthcare to all.

Our biggest challenge was to differentiate this *Report* from other publications on similar area, and define a framework accordingly. The broad contours of the *Report* have evolved from the discussions we have held with several experts on the subject. For this, we are deeply obligated to Imrana Qadeer, Rama Baru, Billy Stewart, Bobby John, Oommen John and Rajeev Ahuja for their deep insights and for spending a lot of time in patiently explaining to us the complex issues of the health sector. We are also very grateful to Keshav Desiraju, former Secretary, Ministry of Health and Family Welfare (MoHFW), and C. K. Mishra, Additional Secretary (Health), MoHFW, for their valuable suggestions on the structure and content of the *Report*.

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Sambit Basu

THE ROAD TO UNIVERSAL HEALTH COVERAGE: AN OVERVIEW

Sambit Basu and Sourabh Ghosh

The health sector in India reflects the dual nature of our economy. Today, the country boasts of several world-class hospitals, modern specialty healthcare facilities and wellness centres, which provide healthcare to affluent Indians and medical tourists¹ who can afford these services. Sadly, however, a vast majority of the Indians have very limited or no access to affordable good quality healthcare. Despite experiencing spectacular economic progress over the last two decades, India ranks a pitiful 136 out of 187 countries on human development index (HDI) (HDR 2013). On several of the very basic health indicators, like infant and maternal mortality rates, morbidity rates and immunisation coverage, India ranks below several Asian (viz., Thailand and China) and neighbouring countries (like Sri Lanka and Bangladesh). Most people do not have access to clean drinking water and sanitation facilities, which increases the disease burden significantly. The health crisis is aggravated by a rising incidence of chronic and non-infectious diseases, catalysed by several factors, including improvement in life expectancy at birth (LEB) to 65 years, changing demographics with a large young population, rise in income and aspirations of the people, and changing consumption patterns and lifestyle. Given

all its potentials and a large young population, the prosperity of the country would depend on how quickly and well it is able to strengthen its crumbling social infrastructure—education and health—and ensure preventive, promotive and curative healthcare for all at affordable prices.

Most people seeking healthcare services have the agonising choice between poor quality public facilities and costly, yet undependable, private services served by a large number of often dishonest and unqualified practitioners. The rural population has limited access to comprehensive healthcare. Over the years, preventive and primary healthcare care has been marginalised, with the focus having shifted to curative tertiary care, higher importance of clinical medicine and extremely high dependence on clinical investigations. This state of the health sector is the result of decades of poor policies, appallingly low public investments and neglect of the basic right of every citizen to a healthy life.

This is not the vision of the healthcare sector that leaders in the early years of independent India had conceived. The Bhore Committee in 1946, and the National Planning Committee of the Indian National Congress in 1948, had recognised that diseases are

¹ Medical tourism is expanding in a big way in India thereby providing immense opportunities for future investments. It is expected to grow at an estimated rate of 30 per cent per year; by 2015 its worth would be close to Rs 10,000 crore (Hamid 2013, Reddy and Qadeer 2010).

rooted in the poverty of the people; that India had to plan for a large population under conditions of scarcity of personnel, infrastructure and technology; and that public health was an interdisciplinary effort requiring multiple inputs. With time, however, the priorities in healthcare shifted to urban institutional growth, specialisation of professionals, and a physician-based system with a clear separation of clinical practice and disease control (or public health), with the latter getting relegated primarily to rural areas managed by inadequate numbers of doctors and paramedics (Qadeer, Chapter 1). Attention to public health in India diminished from 1950s onwards. First, medical services started gaining precedence over public health services. Second, there was a shift in focus of the central and state governments towards single-issue programmes involving curative services, starting with the malaria eradication programme that was launched in 1953. Third, separation of public health engineering services, as it became more complex, from the health departments in the early 1970s led to undermining the health department's capacity to undertake critical interventions in areas of environmental health and hygiene in a co-ordinated manner. As a result, environmental health and hygiene-related services that were earlier provided by the sanitary inspectors got completely undermined (Das Gupta et al. 2009, 2010). The government's commitment as a welfare state to provide comprehensive healthcare to all its citizens was given up from the 1980s, when the Sixth Plan opened up medical care to private and voluntary sectors. The private sector grew through the 1980s, and the 1990s saw the emergence of the corporate sector in health as a conscious government policy. During this period, the country was going through structural adjustments involving withdrawal of state investments in welfare and encouraging the private sector by shifting subsidies from the public to the private sector.

This evolution of the sector saw decades of low public spending on healthcare. The public expenditure on healthcare, at less than a per cent of gross domestic product (GDP), which in per capita terms itself ranked very low globally, remained stagnant for many years. Even this limited public spending remained skewed towards curative tertiary care as against preventive, primary and secondary care. Although the Constitution of India has put health as a concurrent subject, with the bulk of responsibility, covering public health, water and sanitation, hospitals and dispensaries, kept with the state, the states themselves failed to accord enough priority to the health sector and spent very limited amount out

of their budget. The central government spending was mainly on the programmes, which as such had very little impact on the health outcomes, and completely neglected those aspects that had high impact on disease control at a reasonably low cost. Low spending for many years has resulted in inadequacies in health infrastructure and public facilities, severe shortage of doctors and medical staff at all levels, poor availability of essential drugs and medical devices at all public health facilities. All of these coupled with inefficient management and complete neglect of public health facilities forced people to turn to the private sector, which was costly and varied in quality. In 2004, only 22 per cent of rural and 19 per cent of urban people seeking out-patient care took treatment in government facilities, and only 42 per cent in rural and 38 per cent in urban took hospitalised treatment in government facilities (NSSO 2006). Thus, the government's failure to deliver quality healthcare at affordable price imposed tremendous financial burden on the people, which was evidenced by the rapid rise in their out-of-pocket (OOP) expense. This was so onerous that nearly 28 per cent of the rural people chose not to get their ailments treated (*ibid.*).

With the achievement of high GDP growth rate over the last decade, the Government of India had the required fiscal space to undertake higher social spending. Recognising the crisis in the health sector and particularly the plight of about 70 per cent of the population living in rural areas, the government introduced the National Rural Health Mission (NRHM) in 2005 to provide accessible, affordable and quality healthcare to the rural population, especially for the vulnerable groups. Other programmes, like the Janani Suraksha Yojana (JSY) and Janani Shishu Suraksha Karyakram (JSSK), were also launched to address the concerns about woman and child health. Further, considering the heavy financial cost of healthcare borne by the poor, particularly to meet hospital care, the Rashtriya Swasthya Bima Yojana (RSBY) was launched in 2008 with an effort to provide financial protection to below poverty line (BPL) households and to some specific categories of workers in the unorganised sector (Planning Commission 2011a). Since the inception of these programmes, some progress has been made as reflected in select health outcomes. According to latest estimates, there have been reductions in infant mortality rate (IMR) from 66 in 2001 to 42 in 2012, under-five mortality rate (U5MR) from 85 in 2001 to 52 in 2012, maternal mortality ratio (MMR) from 301 in 2001–03 to 178 in 2010–12, and improvement in LEB for males and females from

62.3 years and 64.6 years in 1999–2003 to 67.3 years and 69.6 years in 2011–15 respectively (ORG 2011, MoHFW 2013a, MoHFW 2014a). Further, in January 2014, India has completed three years without a single case of wild polio with the World Health Organisation (WHO) certifying India's 'Polio Free' status in March 2014 (MoHFW 2014b, 2014c).

In spite of the progress made, India is likely to miss a majority of the Millennium Development Goals (MDGs) by a significant margin as it steps into the target year 2015 (see Table 2). The situation is likely to worsen in the future if appropriate measures are not taken in a holistic manner. Thus, to ensure that all people receive quality health services without any financial difficulty, India has to move towards universal health coverage (UHC), and further to universal healthcare. In this endeavour, the government in the Twelfth Five Year Plan has extended the NRHM till 2017 (NHM 2014, MoHFW 2013b) under the over-arching National Health Mission (NHM). The National Urban Health Mission (NUHM) was launched in 2013 as a sub-mission of NHM for providing quality primary healthcare services primarily to the urban poor and other vulnerable sections (MoHFW 2013c).² With the ultimate objective of moving towards UHC, a number of steps have to be taken to ensure adequacy of funding, infrastructure and human resource to improve access and meet the healthcare demands at all levels—primary to tertiary, measures to reduce financial burden of the people seeking quality healthcare, thrust on preventive measures through an efficient immunisation programme and public health, availability and affordability of drugs and devices, delivery of healthcare services to all by involving the private and other non-state entities, coverage of diseases taking into consideration emerging epidemiological priorities, and a conducive legal regulatory framework.

This *India Infrastructure Report* looks at the challenges along the road towards UHC. In this process, the report explores several questions. These include—do central and state governments demonstrate preparedness to scale up spending to meet the UHC requirement? How can comprehensive healthcare be covered under UHC? Given the high dependence on private sector for treatment and high OOP expenditure, what would be

required to make healthcare financially less onerous? Is there a need to revisit and expand the immunisation programme for UHC? Is the triple burden of nutrition sufficiently well understood and addressed? If engaging the private sector is often associated with irrational diagnostics, over-prescription, unnecessary clinical procedures, and other aberrant behaviour, what is required to bridge this trust deficit? How can the government better collaborate with the private sector to leverage the strengths of public-private partnership (PPP)? Can the private sector deliver affordable and quality healthcare in the rural areas? Is it possible to tap the potential of non-state entities (NSEs) and community participation to achieve UHC? Is the present UHC framework conducive for engaging with the NSEs? How should UHC be designed to tackle the emerging priorities associated with non-communicable diseases (NCDs) and mental health?

HEALTH PROFILE OF THE POPULATION

India's world ranking in health outcomes is embarrassingly low. Out of 194 countries, India ranks 139 for LEB, 164 for neonatal mortality rate (NMR), 145 for IMR, 145 for U5MR, 122 for MMR, and 162 for immunisation coverage against measles among one-year olds (WHO 2013a, MoHFW 2013a). On some of the key health indicators, India's present performance is worse than most countries except for a few African countries, like Nigeria, and South Asian countries, like Pakistan (see Table 1).

This is a matter of concern, as the improvement in health due to initiatives taken in India over the last decade is not enough for it to achieve the MDGs and it would miss the target for U5MR and IMR (owing to the continuing impact of NMR) and MMR by a significant margin (see Table 2). India would also miss the targets of immunisation against measles as well as proportion of births attended by skilled health personnel. While India has made significant progress in combating HIV/AIDS, malaria and tuberculosis, more needs to be done to reverse the prevalence of their incidences.

Although, it appears that the MDG target of providing households with improved drinking water³ was achieved

² NUHM for the first five years would focus on 779 cities and towns with more than 50,000 population. NRHM would cover towns with less than 50,000 population (MoHFW 2013a and 2013b).

³ Drinking water and sanitation although fall under the MDG of ensuring environmental sustainability, have enormous health implications. The MDG target is halving the proportion of households without access to improved drinking water sources from its 1990 level of about 34 per cent. As per *Census of India* (2011), close to 90 per cent of the households have access to improved drinking water sources.

TABLE 1 Cross-country Data on Select Health Indicators

Countries	LEB (in years) (2011)	NMR (per 1,000 live births) (2011)	IMR (per 1,000 live births) (2011)	U5MR (per 1,000 live births) (2011)	MMR (per 100,000 live births) (2010)	Immunisation against measles for one-year old (per cent) (2011)
Bangladesh	70	26	37	46	240	96
Brazil	74	10	14	16	56	97
Canada	82	4	5	6	12	98
Chile	79	5	8	9	25	91
China	76	9	13	15	37	99
Columbia	78	11	15	18	92	88
Ghana	64	29	52	78	350	91
India	65	31	42*	52*	178	74^
Mexico	75	7	13	16	50	98
Nigeria	53	39	78	124	630	71
Pakistan	67	36	59	72	260	80
Sri Lanka	75	8	11	12	35	99
Thailand	74	8	11	12	48	98
United Kingdom	80	3	4	5	12	90
United States	79	4	6	8	21	90

Notes: LEB: Life Expectancy at Birth, NMR: Neonatal Mortality Rate, IMR: Infant Mortality Rate, U5MR: Under-five Mortality Rate, MMR: Maternal Mortality Ratio. U5MR is number of child deaths before 5 years age per 1,000 live births. NMR is number of infant deaths before 28 days from birth per 1,000 live births. IMR is number of deaths in 0–1 year age-group per 1,000 live births. *Data on IMR and U5MR for India is for 2012. ^Data on immunisation for India is for 2009.

Sources: WHO (2013a), MoHFW (2013a), ORGI (2013a).

TABLE 2 Progress of India Towards Achieving Health-related MDGs

GOAL 4: REDUCE CHILD MORTALITY			
<i>Target: Reduce by two-thirds, between 1990 and 2015, the Under-Five Mortality Rate (U5MR)</i>			
Indicators	Earlier Levels	Goals for 2015	Current Levels
U5MR (per 1,000 live births)	125 (1990)	42	52 (2012)
Infant Mortality Rate (IMR) (per 1,000 live births)	80 (1990)	28	42 (2012)
Proportion of one year-old children immunised against measles	42.2% (1992–93)	100%	74.1% (2009)
GOAL 5: IMPROVE MATERNAL HEALTH			
<i>Target: Reduce by two-thirds, between 1990 and 2015, the Maternal Mortality Ratio (MMR)</i>			
Indicators	Earlier Levels	Goals for 2015	Current Levels
MMR (per 100,000 live births)	437 (1990)	109	178 (2010–12)
Proportion of births attended by skilled health personnel	34.2% (1992–93)	100%	76.2% (2009)
GOAL 6: COMBAT HIV / AIDS, MALARIA & OTHER DISEASES			
<i>Target: To have halted by 2015 and begun to reverse the spread of HIV/AIDS</i>			
Indicators	Earlier Levels	Current Levels	
HIV prevalence among pregnant women aged 15–24 years (in %)	0.91 (1998)	0.39 (2010–11)	
Condom use rate of the contraceptive prevalence rate (Condom use to overall contraceptive use among currently married women, 15–49 years)	2.4% (1992–93)	5.2% (2005–06)	
Condom use at last high-risk sex	40.1% (2001)	74% (2010)	
Proportion of population aged 15–24 years with comprehensive correct knowledge of HIV/AIDS	17.6% (2001)	32.9% (2006)	

(contd...)

(Table 2 continued)

Target: To have halted by 2015 and begun to reverse the incidence of malaria and other major diseases		
Indicators	Earlier Levels	Current Levels
Incidence rates associated with malaria (per lakh population)	201 (2000)	87.49 (2012)
Death rates associated with malaria (per lakh population)	0.092 (2000)	0.042 (2012)
Prevalence rates associated with tuberculosis (per lakh population) for all types	586 (1990)	230 (2012)
Death rates associated with tuberculosis (per lakh population)	42 (1990)	22 (2012)
Proportion of tuberculosis cases detected and cured under directly observed treatment short course		
New Smear Positive (NSP) case detection (% of expected cases)	55% (2001)	71% (2011)
Cure rate (% of patient who were put on treatment and successfully completed treatment)		82% (2001)
88% (2011)		

GOAL 7: ENSURE ENVIRONMENTAL SUSTAINABILITY			
<i>Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation</i>			
Indicators	Earlier Levels	Goals for 2015	Current Levels
Proportion of households without access to improved drinking water sources	34% (1990)	17%	11.3% (2011)
Proportion of households having no access to improved sanitation	76% (1990)	38%	49.8% (2011)

Sources: NFHS-1 (1995), DLHS-3 (2010), CES (2010), Census of India (2011), Nair (2012), NHIP (2012), MoHFW (2013a), MoSPI (2013, 2014), NVBDCP (2013), WHO (2013b), ORGI (2013a, 2013b).

in 2007–08 (MoSPI 2013), but the actual situation is that large number of these households get contaminated water. Given that nearly 50 per cent of the households still do not have access to improved sanitation facilities, India is currently far from reaching the 2015 target (Census of India 2011, MoSPI 2013). Lack of access to clean drinking water and sanitation facilities, together with a poor sense of hygiene, is possibly the key reason for the incidence of diarrhoea and hence morbidity and mortality (M&M) among under-five children. High incidence of diarrhoea, in turn, causes malnutrition arising from low micronutrient absorption due to gut inflammation or a condition called environmental enteropathy (Fan 2013). A study by Checkley et al. (2008) found that five or more episodes of diarrhoea are associated with a 25 per cent probability of stunting.

Child and Maternal Mortality

Child and maternal mortality rates are indicators of a country's general medical and public health conditions. India has poor child and maternal health conditions, along with practices of female infanticide, early marriage and adolescence childbirth (Sharma 2008, Paul 2014).

High Child Mortality

India continues to report a large U5MR that stood at 52 in 2012 with the rural U5MR (58) being considerably higher than the urban U5MR (32). While Kerala, Tamil Nadu, Maharashtra, Delhi and Punjab had

the lowest levels of U5MR in 2012, Assam, Madhya Pradesh, Odisha, Uttar Pradesh and Rajasthan had the highest levels (ORG 2013a). Perinatal conditions, respiratory infections, diarrhoeal diseases, and parasitic diseases are the biggest contributors to child deaths in India (ORG 2009). A bulk of the child deaths in India occur during the initial phases of life as can be seen from the high IMR, which stood at 42 in 2012 with the rural IMR (46) being considerably higher than the urban IMR (28) (MoHFW 2013a). Manipur, Goa, Kerala and Nagaland are the best performers in terms of reduction in IMR to levels below 20 in 2012. Madhya Pradesh, Assam, Odisha and Uttar Pradesh are the worst performers in terms of reduction in IMR with levels above 50 in 2012.

Although IMR has been on a downward trend, the overall progress has been far from satisfactory owing to the continuing high rates of neonatal deaths that form the bulk of infant deaths. As a matter of fact, the share of NMR in IMR has gone up from about 64 per cent in 2005 to about 69 per cent in 2012. Moreover, the share of new-born deaths within a week to total infant deaths was about 53 per cent in 2012 (MoHFW 2011, ORGI 2013a). Among neonatal deaths, with 309,300 first-day deaths (11 per 1,000 live births), India accounted for 29 per cent of all first-day deaths in the world in 2011 (Save the Children 2013).

A significant contributor towards infant deaths in India is female infanticide which along with female

foeticide continues illegally due to preference for the male child. As per separate estimates, around 4.8 lakh girl children were selectively aborted per year between 1995 and 2005 (Bhalotra and Cochrane 2010) and about 12 per cent of all missing women can be attributed to infanticide at birth (Anderson and Ray 2012). The impact of female infanticide and foeticide can be seen in India's declining child sex ratio which fell from 927 females per 1,000 males in the 0–6 age group in 2001 to 919 in 2011. This has been primarily due to the rural child sex ratio which declined from 934 in 2001 to 923 in 2011 (*Census of India* 2001, 2011). Haryana, Punjab, Jammu and Kashmir, Delhi, Rajasthan, Gujarat, Uttarakhand, Maharashtra, Uttar Pradesh and Himachal Pradesh have the lowest overall as well as rural child sex ratio in the country. Gender bias can also be observed in the overall healthcare and treatment seeking behaviour of parents with respect to their children (IRDR 2013). Girls are less likely to be immunised as compared to boys, particularly among less educated mothers; and parents are likely to consult health professionals sooner, travel longer distances and incur greater expenditure for a boy-child than for a girl-child (NFHS-3 2007, Pandey et al. 2002).

The limited improvement in IMR has been largely due to the relatively larger decline in the post-neonatal mortality rate which is partly due to nutrition, health and immunisation programmes (Rammohan et al. 2013).

High Maternal Mortality

MMR in India has improved from 254 in 2004–06 to 212 in 2007–09 and further to 178 in 2010–12 (ORGI 2011, 2013b). However, except for Kerala, Tamil Nadu and Maharashtra, the rest of the major states still have three-digit MMRs. Assam has the highest MMR of 328 followed by Uttar Pradesh, Uttarakhand, Rajasthan, Odisha, Madhya Pradesh, Chhattisgarh, Bihar and Jharkhand all having figures of more than 200.

Dominant causes of maternal death are sepsis and haemorrhage, which can be prevented through proper antenatal check-ups and timely identification of high-risk pregnancies. However, in 2007–08, only 19 per cent of mothers (15 per cent in rural and 29 per cent in urban areas) had full antenatal check-up (DLHS-3 2010), which improved to about 27 per cent (23 per cent in rural areas and 36 per cent in urban areas) in 2009 (CES 2010).

Deliveries with the assistance of skilled birth attendants—whether in institutions or at home—help prevent maternal deaths (IRDR 2013). As per CES (2010), the proportion of institutional deliveries was

about 73 per cent (68 per cent in rural areas and 86 per cent in urban areas) in 2009, with only 3 per cent of the home deliveries handled by skilled professionals.

Poor Nutritional Status

There has been a substantial increase in per capita income and reduction in poverty; relatively low cost of food especially subsidised foodgrains supplied through the public distribution system (PDS) has resulted in improvement in the energy intake of the low income groups. However, despite the government initiatives through the Integrated Child Development Services (ICDS), the world's largest food supplementation programme covering pre-school children, pregnant and lactating women, about one-third of Indian infants have low birth weight and 20 per cent are stunted at birth. About half of the pre-school children are stunted and underweight while about a third are wasted. Among infants, underweight rates remain unaltered between birth and three months when most of the infants are exclusively breast-fed. With many women introducing animal milk between 3–5 months, this has resulted in an increase in morbidity among infants due to infections, which further leads to under-nourishment. The proportion of families where energy intake is adequate for adults but not for children, has increased in rural areas. This is primarily due to poor child-feeding and caring practices and not poverty and food insecurity.

India is also witnessing a gradual increase in the prevalence of over-nutrition and associated health problems, in addition to the existing problems of under-nutrition and micronutrient deficiencies. In terms of Body Mass Index (BMI), over-nutrition is lowest in pre-school children and highest in adults. Initially, the rise in over-nutrition was seen only in the urban affluent segments of the population; now this problem is seen across rural and urban areas alike, owing to the steep reduction in physical activity in occupational and domestic domains. This might lead to a steep escalation in the incidence of NCDs. However, with the over-nutrition rates being low in India, Ramachandran (Chapter 2) is of the opinion that it can still be tackled through promotion of appropriate diet and exercise regime.

There is very little awareness that micronutrient deficiency, which is the third component of poor nutrition, is widely prevalent in India. A large section of the population is anaemic, which accounts for substantial morbidity in children and even mortality in pregnant women. Also, a large number of Indians lack access

to iodised salt. The root-cause of the problem is that foodgrains alone cannot provide a balanced meal needed for optimal nutrition. According to Ramachandran (Chapter 2), educating people on nutrition and health can go a long way in tackling the problems of under-nutrition, over-nutrition and micro-nutrient deficiency.

Dual Burden of Diseases

India faces a dual burden of diseases. While some of the infectious diseases are almost eliminated, many communicable diseases, such as dengue, tuberculosis, malaria, pneumonia, once considered under control are occurring once again and are often taking drug-resistant forms. The continued incidence of communicable diseases can be attributed to inferior quality housing, inadequate and poor quality water supply, bad sewage and waste management system, poor public infrastructure, and weak public health system. Alongside the persistent high communicable diseases, the NCDs too are rising.

The complete transition from communicable diseases to NCDs is regarded as the result of successful public health interventions. However, the overall public health system in India has been grossly neglected. As a consequence, India continues to face large incidences of M&M associated with communicable diseases, a significant share of which is vector-borne in nature (see Table 3). This could have been effectively addressed

through preventive public health interventions, including pest control, provisioning of safe drinking water and sanitation, clinical services like screening and vaccinations, and health education.

The profile of M&M changes with the change in the age structure of the population. While population below 15 years age is more likely to be affected by communicable diseases, NCDs are more prevalent among the elderly population of 60 years and above. However, with economic, demographic and epidemiological transition, India is witnessing an increase in tobacco and alcohol use, unhealthy diet, and sedentary lifestyles amongst the age group of 30–59 years, causing rise in NCDs such as cardiovascular disease (CVD), diabetes, cancer and chronic obstructive pulmonary disease (COPD) (Mohan and Prabhakar, Chapter 17). With India experiencing a rise in youth and working age population (*Census of India 2001,2011*) and also rise in LEB, the burden of NCDs will increase. Coronary heart disease and diabetes are the two major NCDs (see Table 4) that are not only affecting the elderly population in India, but are increasingly affecting the middle-aged population. Cancer cases in India are rising rapidly, and are estimated to increase from around 9.8 lakhs in 2010 to about 10.6 lakhs by 2015 and 11.5 lakhs by 2020 (NHP 2012).

In terms of disability-adjusted life years (DALY)⁴ which is a measure of overall disease burden, the

TABLE 3 Morbidity and Mortality Associated with Major Communicable Diseases in India ('000)

Diseases	2005		2008		2010		2011		2012	
	Cases	Deaths								
Acute Respiratory Infection	22,453	2	27,451	5	26,140	3	26,300	2	31,685	4
Acute Diarrhoea	9,047	2	11,409	3	10,742	2	10,231	1	11,702	2
Typhoid	568	0*	934	0*	1,085	0*	1,062	0*	1,478	0*
Tuberculosis	1,293	NA	1,517	66	1,522	64	1,516	63	1,468	NA
Malaria	1,816	1	1,526	1	1,600	1	1,311	1	1,068	1
Hepatitis	152	1	92	1	89	0*	94	1	119	1
Dengue	12	0*	13	0*	28	0*	19	0*	47	0*
Measles	37	0*	44	0*	31	0*	34	0*	23	0*
Kala-Azar	31	0*	34	0*	29	0*	33	0*	19	0*
Chikunguniya	NA	NR	95	NA	48	NR	20	NR	16	NR
Cholera	3	0*	3	0*	5	0*	2	0*	2	0*
Japanese Encephalitis	7	2	0*	0*	1	0*	1	0*	1	0*

Notes: NA: Not available; NR: Not reported. 'Zero' does not imply 'no' death.

Sources: NHP (2005, 2006, 2008, 2009, 2010, 2011, 2012), NRHM (2013), NVBDCP (2013).

⁴ DALY is given by the number of years of life lost (YLL) due to premature mortality, and number of years lived with disability (YLD).

TABLE 4 Numbers of Estimated Cases of Coronary Heart Disease and Diabetes in India ('000)

Diseases	2000	2005	2010
Coronary Heart Disease	27,041	35,887	46,969
Diabetes	25,814	31,040	37,672

Source: NHP (2012).

TABLE 5 Estimated Total DALY ('000) and Share (%) by Cause for India in 2004

Causes	Total DALY ('000)	Share (%)
Communicable, maternal, perinatal and nutritional conditions	134,078	43.9
Non-communicable diseases	131,256	43.0
Injuries	39,779	13.0
All causes	305,113	100.0

Note: DALY: Disability-Adjusted Life Years.

Source: WHO (2009).

share of NCDs in the estimated total DALY in 2004 was 43 per cent (Table 5), almost equal to the share of communicable, maternal, perinatal and nutritional conditions (WHO 2009).

PUBLIC EXPENDITURE AND INFRASTRUCTURE DEFICIT

Low public expenditure on health in India is possibly the most important factor responsible for the persistent poor health outcomes. Public spending on health has always been very low and is amongst the lowest in the world (Table 6). In 2010, India's total expenditure on health stood at 3.7 per cent of GDP (WHO 2013a). The combined health expenditure by central and state governments continued to remain at around 1 per cent of GDP by the end of eleventh FYP, with private spending being around 3 per cent of GDP (Planning Commission 2013, WHO 2013).

Over the Tenth and Eleventh Five Year Plans, despite large allocations for NRHM, public expenditure on core health⁵ as a proportion of GDP was 0.93 per cent and 1.03 per cent respectively (see Table 7). Public expenditure on broad health⁶ as a proportion of GDP was less than 2 per cent in 2011–12. The overall

TABLE 6 Cross-country Expenditure on Health (2010)

Countries	Total Health Expenditure as percentage of GDP	Public Health Expenditure percentage of GDP	Private Health Expenditure percentage of GDP
Bangladesh	3.7	1.4	2.3
Brazil	9.0	4.2	4.8
Canada	11.4	8.1	3.3
Chile	7.4	3.5	3.9
China	5.0	2.7	2.3
Columbia	6.5	4.8	1.7
Ghana	5.2	3.0	2.2
India	3.7	1.0	2.7
Mexico	6.3	3.1	3.2
Nigeria	5.4	1.7	3.7
Pakistan	1.0	0.8	0.2
Sri Lanka	3.5	1.6	1.9
Thailand	3.9	2.9	1.0
United Kingdom	9.6	8.0	1.6
United States	17.6	8.5	9.1

Source: WHO (2013a).

public spending is low primarily because many states, particularly the low-income states, could not avail the central grants as they could not finance their component of spending. Although income and health spending may be correlated, but states may not prioritise spending on the health sector even when they have a rise in income. Per capita gross state domestic product (GSDP) and per capita spending on health are correlated with health outcomes. Gupta and Chowdhury (Chapter 4) observes that some of the states, like Arunachal Pradesh, Delhi, Goa, Kerala, Maharashtra, Manipur, Nagaland, Sikkim, Tamil Nadu, West Bengal and Tripura, with higher per capita income and per capita spending on health have been able to meet their MDGs inspite of the decline in the share of health in GSDP.

However, as observed by Gupta and Chowdhury (Chapter 4), for most states the share of public health spending in total social sector spending has declined between 2001–02 and 2009–10, with the exception of the North-Eastern states, Gujarat and Uttar Pradesh. The North-Eastern states have a higher than average share of health in social sector spending, while

⁵ Core health includes healthcare expenditure of central ministries (MoHFW, MoLE, etc.) on health.

⁶ Broad health includes drinking water and sanitation, mid-day meal and ICDS schemes.

TABLE 7 Public Expenditure on Health (Rs Crore)

Years	Centre core health	States core health	Core health as percentage of GDP			Broad health as percentage of GDP		
			Centre	States	Total	Centre	States	Total
X Plan	47,077	107,046	0.28	0.64	0.93	0.56	1.18	1.74
2007–08	16,055	30,536	0.32	0.61	0.93	0.71	1.17	1.88
2008–09	19,604	36,346	0.35	0.65	0.99	0.75	1.22	1.97
2009–10	25,652	44,748	0.40	0.69	1.09	0.78	1.24	2.02
2010–11	27,466	55,955	0.35	0.72	1.07	0.75	1.27	2.02
2011–12	30,587	62,343	0.34	0.69	1.04	0.74	1.19	1.93
XI Plan	119,364	229,928	0.35	0.68	1.03	0.75	1.22	1.97

Source: Planning Commission (2013).

the economically developed Gujarat, Haryana and Maharashtra spend less than the average share of health in social sector expenditure. Gupta and Chowdhury (Chapter 4) are of the view that the Centre is playing and will need to play a bigger financial role in the

implementation of UHC relative to the states, since the states' funding seem more difficult to garner.

In view of the low levels of public expenditure in health, the High Level Expert Group (HLEG) on UHC has recommended (see Box 1) an increase of the combined

BOX 1 Major Recommendations of the HLEG on UHC

- **Health Financing and Financial Protection:** The government should increase public expenditure on health to at least 2.5 per cent by the end of the Twelfth Plan, and to at least 3 per cent of GDP by 2022. General taxation should be used as the principal source of healthcare financing. Specific purpose transfers should be introduced to equalise the levels of per capita public spending on health across different states. Spending on primary healthcare should account for at least 70 per cent of all healthcare expenditure. The capacities developed by the MoLE for the RSBY should be leveraged as the core of UHC operations and transferred to the MoHFW.
- **Access to Medicines, Vaccines and Technology:** Price controls and price regulation enforced, especially on essential drugs. The Essential Drugs List (EDL) should be revised, and use of drugs rationalised. The public sector should be strengthened to protect the capacity of domestic drug and vaccines industry to meet national needs. Safeguards provided by the Indian patents law and Trade Related Aspects of Intellectual Property Rights (TRIPS) Agreement against the country's ability to produce essential drugs should be protected. The MoHFW should be empowered to strengthen the drug regulatory system.
- **Human Resources for Health:** Institutes of Family Welfare should be strengthened and Regional Faculty Development Centres should be developed to enhance the availability of adequately trained faculty and faculty-sharing across institutions. District Health Knowledge Institutes, a dedicated training system for Community Health Workers, State Health Science Universities and a National Council for Human Resources in Health should be established.
- **Health Service Norms:** A National Health Package (NHP) should be developed that offers, as part of the entitlement of every citizen, essential health services at different levels of the healthcare delivery system. There should be equitable access in urban areas by rationalising services and focusing particularly on the health needs of the urban poor.
- **Management and Institutional Reforms:** All-India and state-level Public Health Service Cadres and a specialised state-level Health Systems Management Cadre should be introduced in order to give greater attention to Public Health and also to strengthen the management of the UHC system. The establishment of a National Health Regulatory and Development Authority (NHRDA), National Drug Regulatory and Development Authority (NDRDA), and National Health Promotion and Protection Trust (NHPPT) is also recommended.
- **Community Participation and Citizen Engagement:** Existing Village Health Committees should be transformed into participatory Health Councils.
- **Gender and Health:** There is a need to improve access to health services for women, girls and other vulnerable genders (going beyond maternal and child health).

Sources: Planning Commission (2011b, 2013).

Centre and states expenditure on health to at least 2.5 per cent of GDP by 2017 and to at least 3 per cent of GDP by 2022. With regard to financing the Twelfth Five Year Plan, projections envisage increasing total public funding on core health from 1.04 per cent of GDP in 2011–12 to 1.87 per cent by the end of the plan period.

However, the current pattern and extent of health-related expenditure by the Centre and the state governments is a major challenge for rolling out UHC in India. The lack of firm estimates on how much UHC might actually cost is a huge challenge owing to the absence of understanding on what should constitute UHC. India is still undecided on what to cover, how much to cover, and whether to go for compulsory or a voluntary system, if all services are to be made free for all. In addition, there is lack of information on how resources are to be pooled for rolling out UHC—whether additional funds need to be raised (Gupta and Chowdhury, Chapter 4). The success of funding UHC would largely depend on the preparedness of the states to prioritise health spending. Finally, it is not just important to know how much to spend, but also how to spend on the implementation plan.

Decades of woefully low public spending on health has resulted in inadequate and poor quality health infrastructure. Years of neglect has led to huge shortfall in the number of existing sub-centres, primary health centres (PHCs) and community health centres (CHCs). Despite NRHM spending, the shortfall in sub-centres and PHCs increased by more than 10 and 9 percentage points respectively between 2005 and 2012, although the shortfall in CHCs decreased from 49.4 per cent in 2005 to 39.9 per cent in 2012 (see Table 8). In 2012, seven states, i.e. Uttar Pradesh, Bihar, Rajasthan, Madhya Pradesh, Maharashtra, West Bengal and Jharkhand, contributed towards 78 per cent of the shortfall in sub-centres, 83 per cent shortfall in PHCs, and 75 per cent shortfall in CHCs (MoHFW 2013d).

Low spending on health infrastructure has also led to inadequate facilities (Table 9) and medical as well as paramedical staff in the existing sub-centres, PHCs

and CHCs. In 2012, more than 25 per cent of the sub-centres did not have regular water and electric supply. More than 10 per cent of the PHCs did not have regular water supply; 8 per cent of PHCs did not have electric supply. About one-third of the PHCs did not have four beds; about half of the PHCs did not have a telephone, computer and a referral transport. The CHCs are no better, as more than 90 per cent of the CHCs did not have all the specialists in place, about 30 per cent did not have the required 30 beds and only 20 per cent had a functional operation theatre. About one-third of the CHCs did not have a new-born care corner, while more than 90 per cent did not have a functioning stabilising unit for new-borns.

Associated with inadequate access to health facilities is the related aspect of quality of the services available at the public facilities. The thrust of public investment, of whatever minimal it has been so far, to improve quality of delivery, has been more input-oriented with insufficient focus on outputs and outcomes. Presently, the public health system in India suffers major quality issues and, despite existing guidelines of the Indian Public Health Standards (IPHS), the public healthcare system has failed to deliver quality service with the situation being worse in rural areas as compared to urban areas. Even if public health institutions in the states get assistance and support from the National Health Systems Resource Centre (NHSRC) for quality certification, according to Srivastava et al. (Chapter 15), it would be unsustainable owing to high cost and lack of ownership for maintaining quality within facilities. Those that received certification, in a number of cases could not maintain the desired standards due to absence of continued efforts.

PRIVATE PROVISIONING OF HEALTHCARE

Reliance on Private Healthcare Providers

The insufficiency of healthcare financing by the government has resulted in inadequacy and inequity

TABLE 8 Number of Sub-centres, PHCs and CHCs Functioning in Rural Areas

Health Facilities	2005			2012		
	Required	Shortfall	% Shortfall	Required	Shortfall	% Shortfall
Sub-centre	158,792	19,269	12.1	189,094	43,776	23.2
PHC	26,022	4,337	16.7	30,565	7,954	26.0
CHC	6,491	3,206	49.4	7,631	3,044	39.9

Note: PHC: Primary Health Centre, CHC: Community Health Centre.

Source: Planning Commission (2011a), MoHFW (2013d).

TABLE 9 Facilities Available at Sub-centres, PHCs, and CHCs in 2012

Proportion (%) of Sub-Centres having:	Regular water supply	74.5
	Electric supply	74.5
	All-weather motorable approach road	93.4
Proportion (%) of PHCs having:	Labour Room	65.9
	Operation Theatre	34.4
	At least 4 beds	67.0
	Referral Transport	46.4
	Telephone	53.1
	Computer	48.3
	Regular water supply	89.3
	Electric supply	92.0
	All-weather motorable approach road	94.2
Proportion (%) of CHCs having:	All 4 Specialists*	18.4
	Computer/Statistical Assistant for MIS/Accountant	83.3
	Functional Laboratory	95.7
	Functional Operation Theatre	80.7
	Functional Labour Room	93.8
	Functioning Stabilisation Units for New-Born	19.5
	New-Born Care Corner	65.7
	At least 30 beds	71.5
	Functional X-Ray machine	53.3
	Referral Transport	94.1
	Allopathic drugs for common ailments	97.8
	AYUSH drugs for common ailments	50.1

Notes: PHC: Primary Health Centre, CHC: Community Health Centre, AYUSH: Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy;

* Specialists include physicians, obstetricians and gynaecologists, surgeons and paediatricians.

Source: MoHFW (2013d).

in terms of availability of and access to public healthcare services. To add to these, the public healthcare system is afflicted severely by a shortage of manpower, high rates of absenteeism, apathy among medical service providers, and largescale corruption, eventually resulting in a failure of delivery of services. As a result of this, people are forced to turn to private service providers. Rise in demand for private healthcare providers in an unregulated environment has also resulted in proliferation of unqualified medical practitioners. Private healthcare thus varies significantly in quality. On the one hand, private sector promises world-class medical facilities to those who can afford to pay, and on the other hand also delivers practitioners with little or no formal training providing poor quality service despite a high price. As per NSSO (2006), about 85 per cent of all healthcare visits were to private providers where the quality of treatment is highly inconsistent and unregulated (Hammer et

al. 2007, IRDR 2013). India Human Development Survey (IHDS)-I documented that while 86 per cent of government doctors had an MBBS degree, only 60 per cent of the private providers had the same degree. Das et al. (2008) pointed out that the gap between knowledge and practice is stark among Indian health practitioners, with the gap being highest among government doctors, followed by private doctors with and without MBBS. Das and Hammer (2004) also observed that the competence necessary to recognise and handle common as well as dangerous conditions is quite low among private practitioners. This is of concern for those who cannot afford high quality private care and end up relying on poorly qualified yet motivated private providers (Barik and Desai, Chapter 5). Thus, asymmetric information leaves people at the mercy of private practitioners, and still not be assured of quality treatment. The dependence on private sector has resulted in huge OOP expense on healthcare.

High Out-of-pocket (OOP) Expenditure

OOP expenditure as a proportion of total health expenditure in India is one of the highest in the world and stood at 62 per cent in 2010 (see Table 10).

TABLE 10 Cross-country OOP Expenditure on Health (2010)

Countries	OOP expenditure as percentage of private health expenditure	OOP expenditure as percentage of total health expenditure
Bangladesh	96.6	61.3
Brazil	57.8	30.6
Canada	49.0	14.2
Chile	69.1	36.5
China	77.2	35.3
Columbia	67.7	17.2
Ghana	66.7	27.9
India	86.0	61.7
Mexico	92.2	47.0
Nigeria	95.6	65.5
Pakistan	90.2	61.3
Sri Lanka	81.9	44.6
Thailand	55.8	14.0
United Kingdom	53.1	8.9
United States	22.7	11.8

Note: OOP: Out-of-pocket.

Source: WHO (2013a), World Bank (2014a, 2014b).

Household OOP expenditure on health is an important indicator of how well the public health system of a country is functioning. OOP expense has an inverse relationship with public expenditure on healthcare, and Gupta and Chowdhury (Chapter 4) have empirically tested this with data from 149 countries. With considerable reduction in access to public healthcare services; those who opt for treatment for illness are constantly faced with the catastrophic burden of expenditure on healthcare due to high OOP spending, and thus are in danger of becoming impoverished (Planning Commission 2012, Chowdhury 2011). A survey by WHO, based on data from 89 countries, finds that around 3.1 per cent of households in low-income countries, 1.8 per cent of households in middle-income countries, and 0.6 per cent of households in high-income countries incur catastrophic expenditures associated with OOP payments for health services (Xu et al. 2007). In India too, it is observed that high OOP

spending creates distress for the financially insecure households. Based on NSSO (2006), Berman et al. (2010) observed that 6.2 per cent of total households (6.6 per cent in rural areas and 5 per cent in urban areas) fell below the poverty line in 2004 due to high OOP expenditure. Barik and Desai (Chapter 5), based on IHDS-I data, further observed that the proportion of households facing catastrophic OOP health payments during 2004–05 varied widely among states, from about 3.5 per cent in Assam to 32.4 per cent in Kerala, and this variation directly reflects the proportion of people seeking treatment from private providers.

Breakdown of primary and secondary healthcare creates huge financial distress for the poor, than hospitalisation. Berman et al. (2010) observed that while only 1.3 per cent of the households fell below the poverty line as a result of in-patient care, 4.9 per cent fell below the poverty line as a result of out-patient care. In India, so far, impoverishing effects arose more from low risk high probability diseases as compared to high risk low probability diseases. However, with growing dependence on private providers and India experiencing epidemiological transition, this is changing fast.

Controlling and managing OOP expenditure of households is a key factor for moving towards UHC. First, it would require a quantum jump in public funding in addition to strengthening of health systems to improve access and more planning from the backward states in particular (Gupta and Chowdhury, Chapter 4). The decision to raise more public resources or consolidating and pooling of resources should be backed by meticulous technical and evidence-based planning before UHC can be rolled out. Second, drugs and devices, which account for a large share of treatment costs, should be made more affordable and accessible at public facilities. Finally, insurance mechanisms, both government and commercial, are fairly basic and often inaccessible in the country, and thus financial protection to complement public spending have to be explored to reduce financial burden.

The number of people impoverished due to spending on medicines, which account for almost two-thirds of the OOP expenditure, increased from 26.4 million in 2004–05 to 34.3 million in 2011–12. Impoverishment due to expenditure on medicines is considerably higher in rural areas primarily due to the government's meagre expenditure on procurement of medicines. In 2010–11, the government (both central and state) allocated only 13 per cent of its healthcare expenditure on procurement of medicines (see Selvaraj and Mehta, Chapter 12).

The financial distress is more as health insurances mostly do not cover medicine expenses. Further, in the absence of effective price regulatory regime, only a few pharmaceutical firms having monopoly power dominate the market and have the power to push through expensive brands. Selvaraj and Mehta (Chapter 12) suggest that to keep medicine prices affordable, the cost plus-based pricing formula should be reinstated as the National Pharmaceutical Pricing Policy (NPPP), 2012 and Drug (Price Control) Order, 2013 are limited in scope and hardly influence price reduction. The problem of affordability was further compounded when India moved from a process patent regime to product patent regime. This led to pharmaceutical firms to charge exorbitant prices for life-saving patented medicines at the pretext of alleged high investments in research and development (R&D). However, evidence suggests that most of the R&D is publicly funded and no firms are making any notable contribution to new drug development. India should make use of the safeguards in the Indian Patents Act and the flexibilities allowed under TRIPS to prevent some of the essential drugs from being patented and monopolised in the interests of public health. This would require a strong political will and a thriving generics industry. Finally, to ensure availability, the National List of Essential Medicines (NLEM) should be revised to include all essential and life-saving medicines.

The regulatory framework of the pharmaceutical industry in India is highly fragmented. While the Department of Pharmaceuticals under the Ministry of Chemicals and Fertilisers is responsible for both price and quality control for pharmaceuticals, the Central Drugs Standard Control Organisation (CDSCO) under the MoHFW is in charge of new drug licensing, and the State Drugs Control Organisations regulate production and sale of medicines. Selvaraj and Mehta (Chapter 12) suggest that consolidating all regulatory functions under the MoHFW would better align medicine production and pricing policies with the public health priorities, and ensure effective policy implementation.

With rapidly growing dependence on clinical investigation and under-reliance on clinical judgement, utilisation of medical devices and diagnostic tests has considerably increased over the last decade. The share of diagnostic tests in total OOP expenditure on healthcare that was only 2 per cent in 1993–94, rose to 6 per cent by 2004–05, and further to 8 per cent in 2011–12, despite diagnostic services being subsidised in the public facilities. Thus, paid use of costly diagnostic

services may have been primarily driven by the private providers, and this not only poses a major financial burden but restricts access to those who can pay. In view of this, Selvaraj and Mehta (Chapter 12) propose that effective regulation of medical devices and financial risk protection for households against expensive diagnostic and device use is essential. Capacity building of medical professionals for rational prescription practices is also needed to ensure efficient, equitable and cost-effective use of medical devices.

The Drugs and Cosmetics (Amendment) Bill, 2013 (introduced in the Rajya Sabha in August 2013) seeks to address a lot of the above-mentioned issues through changes in the regulation of the manufacture, distribution, sale, import and export of drugs, cosmetics and medical devices and to ensure safety, efficacy, quality and conduct of clinical trials. The comprehensive Bill provides for establishing a Central Drugs Authority (CDA) by Central Government with representation from Ministries of Health and Family Welfare, Law, Commerce and Industry, Science and Technology, Chemicals and Fertilisers, Drugs Controller General of India (DCGI), Indian Council of Medical Research (ICMR), Directorate General of Health Services, and other experts nominated by the central government, including those from state licensing authorities thus subsuming the CDSCO. The CDA shall specify guidelines, structures and requirements for the effective functioning of the central and state licensing authorities; and regulate activities of the licensing authorities. The Bill has excluded devices from the definition of drugs and has defined separately. The Bill also provides for medical treatment and compensation in case of injury or death of a person during participation in a clinical trial or due to it. In order to ensure standard quality of drugs, cosmetics, and medical devices, the Bill specifies conditions under which they will be considered misbranded, adulterated, and spurious and specifies penalties and offences for the same (Madhavan and Kala, Chapter 3).

GOVERNMENT INITIATIVES

Recognising the poor health status of the population and its progress against the MDG targets, the government had taken several initiatives over the last two decades to improve access, quality and affordability of healthcare. Although some improvement has been made, there are significant gaps that need to be plugged and innovative as well as effective solutions sought along with adequate public funding to move towards UHC.

National Rural Health Mission (NRHM)

NRHM was launched in 2005, with the aim to provide improved access to inclusive and quality healthcare for those residing in rural areas, particularly women, children, and the poor by increasing public expenditure, reducing imbalance in health infrastructure, decentralising of health services, inducting management and financial personnel into the district health system, operationalising CHCs into functional hospitals meeting Indian Public Health Standards (IPHS), and encouraging community participation in health programmes. It primarily focused on 18 states, including the BIMAROU (Bihar, Madhya Pradesh, Rajasthan, Odisha and Uttar Pradesh) and North-Eastern states, Jammu & Kashmir, Uttarakhand, Himachal Pradesh, Sikkim, Jharkhand and Chhattisgarh. In the Twelfth Five Year Plan, under the over-arching NHM, NRHM has been extended till 2017.

Community participation was recognised as a key component of NRHM. The core elements of community participation were the selection and training of the female health activist or Accredited Social Health Activists (ASHAs), constitution of the Village Health, Sanitation and Nutrition Committees (VHSNCs) and Rogi Kalyan Samitis (RKSs), supporting community planning processes through the provision of untied funds, and strengthening accountability through community monitoring processes. However, besides ASHA, the other initiatives within NRHM have not been rigorously implemented (Das, Chapter 9). RKSs in many places exist only on paper and have not been constituted, and where they have been constituted, they meet irregularly and do not address patient feedback or grievances. Membership profiles are not as per guidelines, and mostly members themselves are not aware of their roles and responsibilities. RKSs have limited ability to influence utilisation of fund from user-fees, and only engage in scrutinising untied fund. VHSNCs are also ineffective as they lack role clarity, have limited capacity to plan and implement untied fund, and meet irregularly.

There is, thus, a need for the community to be made more aware of their entitlements in terms of quality of care and should be motivated to demand the same from the system. To ensure that funds are effectively utilised, and that investments on health infrastructure at the community level yield the desired outcomes and health facilities deliver quality service, VHSNCs and RKSs have to be activated and energised (Srivastava et al., Chapter 15). Das (Chapter 9) suggests community

participation in healthcare right from the planning stage such that the benefits of health reach the most marginalised. Participation of the beneficiaries is essential to put in place an accountability mechanism.

Under NRHM, every village is required to have an adult woman from the village community as an ASHA worker, trained to work as an interface between the community and the public health system. The ASHA worker has to be literate, with minimum formal education upto eighth class (or even less in tribal areas). They are expected to acquire the knowledge and skills required to promote universal immunisation, referral and escort services for reproductive and child health, spread awareness of health-hygiene-family planning, and counsel pregnant women on pre-natal and postnatal care. The ASHA worker is required to provide first contact primary medical care for minor ailments such as diarrhoea, fevers, and first aid for minor injuries. She is also the custodian of essential health-related provisions. ASHA workers are assigned a key role in the government programme JSY. ASHA is supposed to facilitate delivery in a government or an accredited private medical facility under JSY, and are paid Rs 600 per delivery for successfully playing this role. ASHA workers appear to be performing this function well under the JSY because of the monetary rewards but often at the cost of the other responsibilities. The evaluation studies have found that most ASHA workers do not have the required knowledge and skills to execute their multidimensional responsibilities. Regular training is also not conducted to bring the skills of these workers up to the desired levels. Thus, the broad objective with which ASHA was conceived remains unfulfilled. The present incentive mechanism for ASHA though appear to have worked well for institutional deliveries, is not enough to motivate their other activities and rather contradictory in the context of counselling on family planning. ASHA workers need better and regular training, streamlined responsibilities and more appropriate incentives to play their role more effectively. A proper monitoring and coaching system for ASHA workers also needs to be put in place at the block and district levels.

Although there is a wide consensus on the need to have public health facilities in the rural areas, Barik and Desai (Chapter 5) argue that instead of door-step care, the focus has to be more on centralised and well-equipped facilities. Analysing IHDS-I data, they substantiate that despite government's effort to deliver healthcare services at the door-step, the utilisation of

public health services is far from the norm. People rush to private facilities for both short- and long-term illnesses, irrespective of the availability of any government health facility in the locality. This suggests that presence of any public facility in the locality (i.e., a sub-centre) may not be adequate to attract patients; however, when a somewhat better equipped facility like PHC or CHC is present, patients are more likely to use them. The rationale provided for focusing on centralised service delivery is that these facilities will be located in slightly larger towns and hence will be more attractive to doctors and health technicians. Since doctor absenteeism is a serious problem particularly in rural India, setting up facilities where doctors may be more willing to reside might help in reducing this problem. This argument may have several layers of complexities as the issue is of access to at least primary level care for all. Further, since government facilities lack effort rather than competence, any system that increases provider motivation ought to be given serious attention.

Janani Shishu Suraksha Karyakram (JSSK)

Considering the difficulty faced by pregnant women and parents of sickly new-borns and the high cost of delivery and treatment of sickly new-borns, the Government of India launched JSSK in 2011. JSSK entitles pregnant women delivering in public health institutions to costless delivery, including Caesarean sections. The entitlements include drugs and consumables, diet up to three days during normal delivery and upto seven days for Caesarean sections, diagnostics, and blood wherever required. JSSK also provides for free transport from home to institution, between facilities in case of a referral and transportation back home. Similar entitlements are also given to sickly new-borns accessing public health facilities for treatment upto 30 days after birth; and the same benefits are now given to infants.

Janani Suraksha Yojana (JSY)

JSY was launched in 2005, with the objective of reducing maternal and neonatal mortality by promoting institutional delivery among poor pregnant women. It is the largest conditional cash transfer programme in the world, in which payment of cash incentive is made to a

woman for delivering in a government medical facility or in an accredited private medical facility or at home in the presence of a skilled personnel. Initially only women above 19 years of age and belonging to BPL households could avail the benefits for the first two live births. Subsequently, this was relaxed and now any woman from the low performing states, irrespective of poverty status, number of births and age is eligible for these cash incentives. The scheme also financially incentivises ASHA workers for facilitating delivery in government and accredited institutions. The scheme is being implemented in all the states, with a special focus on states having institutional delivery rate of 25 per cent or less. A scheme like this with direct cash transfer to the beneficiary has given rise to intense debate, and the two frequently asked questions are: Has JSY been able to meet its objective of increasing institutional deliveries? The other question being, has JSY been able to meet its primary objective of improving maternal and neonatal mortality by promoting institutional delivery?

Dongre (Chapter 14) analysing DLHS data observes that in the pre-JSY period the gap in institutional deliveries between low performing states (LPS)⁷ and high performing states (HPS)⁸ had been widening and in the post-JSY period there has been a larger increase in the proportion of institutional deliveries in the LPS as compared to the HPS. This is unlikely to have been driven by availability and accessibility of public health facilities because, except for Anganwadis, there has not been much increase in health infrastructure in these LPS. Since JSY incentives are not available for delivery in private medical facilities which are not accredited, the rise in institutional deliveries together with the above can be attributed to the scheme. Thus, conditional cash transfer under JSY has influenced increase in institutional deliveries in public medical facilities and a decline in deliveries at private medical facilities.

Dongre (Chapter 14) further observes that although JSY incentivised institutional deliveries, it may not have resulted in an improvement in MMR and IMR. MMR has been declining in both, the low performing and the high performing states even before JSY was introduced. Thus, it is difficult to isolate the impact of JSY from other factors such as increased incomes, increased awareness, improved access and availability of medical care, on the reduction in MMR. Also, IMR

⁷ States with institutional delivery rate of 25 per cent or less are categorised as LPS.

⁸ States with institutional delivery rate of more than 25 per cent are categorised as HPS.

had declined in both the LPS and HPS even before JSY was implemented, with no visible acceleration in the decline in the LPS in the post-JSY period. There could be several reasons why JSY may not have resulted in an improvement in MMR and IMR. Dongre (Chapter 14) argues that JSY may not have reached those socially disadvantaged women who face the highest risk of death during child birth. Success would depend on the efforts to reach these socially disadvantaged women and make them aware of JSY. Herein, ASHAs should play a more pro-active role in counselling women on the advantages health issues for a pregnant woman and a new-born child. However, the ASHAs focus too much on the JSY monetary benefits, and ignore all other work including counselling women. Another possible reason for JSY not reaching all the women in the target group is the abysmal state of public health infrastructure and quality of care. Srivastava et al. (Chapter 15) state that utilisation has expanded at a much faster rate than institutional capacity, resulting in severe pressure on facilities and gaps in services delivered. In addition to human resource shortages, other shortages include water, cleanliness, beds, linen, medicines, injections and surgical equipment. Patients in government health facilities also experience disrespect, long waiting times, and demands for bribes, which result in general patient apathy in visiting public institutions. Quality improvements of health facilities require efforts to make the system more outcome-oriented and responsive to patients' needs. Thus, JSY should be accompanied with improvement in access and quality of physical and human infrastructure to ensure decline in MMR and IMR with rise in institutional deliveries.

Immunisation in India

Vaccines are an essential component of public healthcare system as they prevent prenatal and postnatal mortality, save mother and child, and provide protection against common diseases. The national immunisation programme was first introduced in India in 1978, and was referred to as the Expanded Programme of Immunisation (EPI). Subsequently, in 1985, it was renamed as Universal Immunisation Programme (UIP). Inspite of having the largest immunisation programme in the world with a birth cohort of 27 million every year, India still continues to lose a large number of children due to vaccine preventable diseases (VPDs) (see Babu et al., Chapter 13). CES (2010) estimated that only 61 per cent of the children (59 per cent in rural areas and 67 per cent in urban areas) aged 12–23 months

TABLE 11 Proportion of Children Aged 12–23 Months Who Received Specific Vaccination (per cent)

<i>Antigens</i>	1992–93	1998–99	2005–06	2009
BCG	62.2	71.6	78.1	86.9
OPV0	4.6	13.1	76.0	66.0
OPV1	66.3	71.4	66.7	82.7
OPV2	59.2	65.0	55.3	77.9
OPV3	51.7	55.1	48.4	70.4
DPT1	67.0	83.6	93.1	82.6
DPT2	61.2	78.2	88.8	78.2
DPT3	53.4	62.8	78.2	71.5
Measles	42.2	50.7	58.8	74.1
Full Immunisation	35.4	42.0	43.5	61.0
Received no vaccination	30.0	14.4	5.1	7.6

Notes: BCG: Bacillus Calmette-Guérin, OPV: Oral Polio Vaccine, DPT: Diphtheria, Pertussis and Tetanus, Full immunisation: A child receiving all these vaccines—BCG, 3 doses of DPT, 3 doses of OPV (excluding OPV0) and 1 dose of measles.

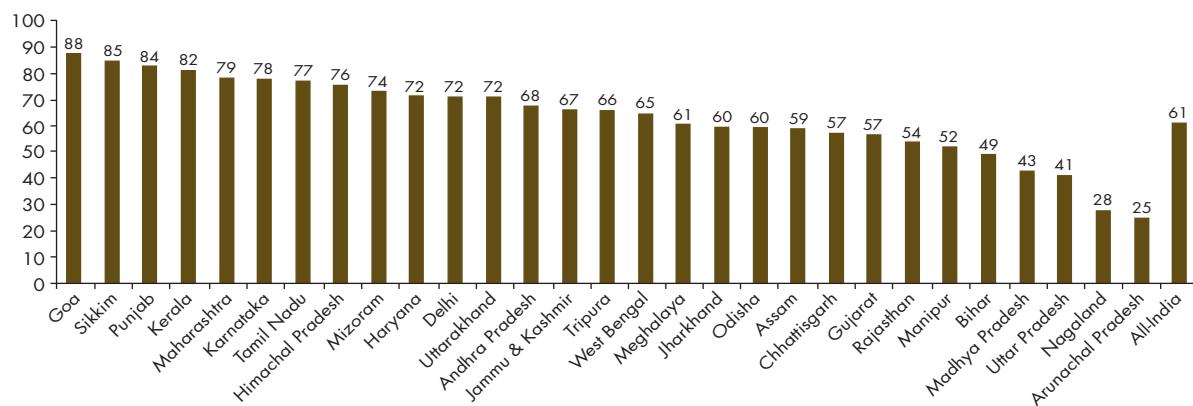
Sources: NFHS-1 (1995), NFHS-2 (2000), NFHS-3 (2007), CES (2010).

were fully immunised in 2009, and almost 8 per cent of the children (9 per cent in rural areas and 5 per cent in urban areas) received no vaccination (see Table 11). Thus, the rural areas are much worse than the urban areas both in terms of full immunisation and in terms of no vaccination for children aged 12–23 months.

Immunisation coverage in India, besides regional variation (see Figure 1), is also characterised by various socio-economic inequities (see Table 12) in terms of gender of child, religion, social group, wealth, and level of maternal education (Babu et al., Chapter 13).

Infrastructure in terms of cold chain points and electricity play a key role in immunisation coverage (Babu et al., Chapter 13). Uttar Pradesh, Jharkhand and Bihar, the poorly performing states in terms of full immunisation coverage, are the ones where each cold chain point serves higher number of sub-centres and covers relatively higher populations. To achieve an optimum level of full immunisation coverage, there is a need to have a cold chain point for every 30,000 persons (Khera et al. 2012). Other supply side challenges that result in missed opportunities to improve immunisation coverage include supply shortages, equipment non-maintenance, lack of training of personnel, poor accountability, inadequate supervision and monitoring, and a lack of coordination between state and central governments. Lack of awareness is also a key barrier to achieve complete immunisation coverage. Low levels of

FIGURE 1 State-wise Proportion of Children Aged 12–23 Months Fully Immunised in 2009 (per cent)



Source: CES (2010).

TABLE 12 Proportion of Children aged 12–23 Months Immunised According to Background Characteristics in 2009 (per cent)

Background Characteristics	Full Immunisation	Received no Vaccination
Gender of child		
Male	61.9	7.9
Female	59.9	7.2
Religion		
Hinduism	61.2	7.0
Islam	55.7	12.0
Sikhism	78.2	3.8
Christianity	65.6	5.6
Other religions	76.6	2.8
Social group		
Scheduled Castes	58.9	7.8
Scheduled Tribes	49.8	9.9
Other Backward Classes	60.6	8.6
Others	66.3	5.5
Wealth quintile		
Lowest	47.3	13.7
Second	61.6	6.3
Middle	66.4	4.2
Fourth	70.0	4.7
Highest	75.5	2.7
Maternal education		
No education	45.3	14.3
< 5 years completed	55.4	9.0
5–7 years completed	64.9	5.1
8–9 years completed	70.6	3.8
10–11 years completed	74.1	2.1
12 or more years completed	76.6	2.0
Total	61.0	7.6

Source: CES (2010).

education negatively impact health-seeking behaviour. Further, a weak VPD surveillance system poses a major hurdle to immunisation coverage. The absence of data on many important VPDs induces a perception that these diseases are not an important public health problem.

Babu et al. (Chapter 13) are of the view that better coverage would require a stronger focus on the management of immunisation programme. For this, the need is to strengthen the integrated mechanism for surveillance of VPDs, involving supervision, monitoring, reporting and planning, coupled with uninterrupted supply of vaccines, efficient logistical arrangements, effective vaccine management with appropriate temperature maintenance, trained manpower, detailed and updated micro-planning for reaching all communities and administration of vaccines appropriately. The availability of the necessary manpower, capacity building, budget and better management and accountability at the block and district levels can result in an improvement in immunisation coverage. Engagement with the marginalised groups to develop locally tailored communication strategies will be useful in creating and sustaining the demand for immunisation services in the community. An integrated approach to public health by establishing better linkages between maternal and child health interventions, nutrition, family planning and adolescent health, and sanitation and hygiene would increase the number of contacts between community and healthcare providers and such a continuum of care can reduce the drop-outs and left-outs from immunisation.

Immunisation coverage is a key component for successful transition and roll out of UHC. However,

the contentious issues are—which vaccines should form part of complete immunisation programme and coverage? What should be the basis for selection of vaccines to form part of the government programme? Babu et al. (Chapter 13) suggest that locally available evidence and economic evaluations, highlighting cost effectiveness of vaccines, should guide the vaccine policy of India. The government therefore should not delay the introduction of newer vaccines at the pretext of unavailability of local data on disease burden. In the absence of reliable evidence, the government should create mechanisms including funding to generate the evidence on disease burden and use the evidence for future introduction of vaccines. All vaccine costs as well as routine immunisation costs are financed by the central government in India, except for the newly introduced Pentavalent vaccine (which combines Hepatitis B and H influenza B vaccines with the older DPT triple antigen), which is being funded by the GAVI Alliance.⁹

Introduction of new vaccines has become a debatable issue, with experts divided on the use of some of the vaccines, mainly on the grounds of cost and effectiveness. After introduction of costly Pentavalent vaccine, deaths of children were reported after its use in Vietnam, Sri Lanka and India. However, all the deaths following Pentavalent use have been classified as not an ‘adverse event following immunisation (AEFI)’ as per the modified Brighton Classification. Puliyl (Chapter 16) argued that the vaccine is being promoted mostly in developing countries by GAVI Alliance and WHO without testing for the safety of the combination vaccine in developed countries that have strong surveillance systems. It is not being used in the Western countries as it is believed that the combination vaccine is less effective than the components used separately. Sakthivel and Mehta (Chapter 12) advocate that absence of effective regulatory oversight is responsible for such cocktail vaccines being marketed and prescribed in India, and the pharmaceutical firms are able to push such vaccines through their network of doctors and pharmacists.

The other concern with the introduction of new vaccines like Pentavalent and Rotavirus in the UIP of developing countries is that initially the costs are very low due to large-scale donor grants, but after inclusion of

the vaccine the full cost implications would be realised once the funding is withdrawn. It thus appears that the introduction of new vaccines into UIP without evaluating the local burden and seriousness of the disease and their economic efficiency, distorts the intention of the Resolution 45.17¹⁰ of the World Health Assembly.

Puliyl (Chapter 16) advocates that blanket prescription of Advance Market Commitment (AMC) of vaccines is inappropriate, and that the relevance of vaccines should depend on the prevalence and magnitude of the problem in a locality. Data on usefulness of vaccines has to be generated locally and reported in terms of absolute risk reduction (ARR), which must be used to decide on vaccine selection for different regions. ARR-based data helps to calculate the numbers needed to treat (NNT), i.e. number of individuals who must be vaccinated, to prevent one case of disease or death. Based on this, the cost of immunisation to avoid one case of disease can be calculated. Interventions having poor risk-benefit ratio, and which are neither cost-effective nor affordable cannot be recommended. Those which are cost-effective and affordable have to be then evaluated on the criteria of efficiency (Puliyl 2014).

Drug Availability and Affordability

Drugs constitute a major share of the health expenditure, and this primarily arises from low public health expenditure and inefficient procurement, management and distribution of medicines. Thus, affordability of public healthcare would depend on efficient utilisation of funds, which require a well-designed and efficiently managed system of procurement and logistics. Recognising the strength of this, Tamil Nadu had introduced a well-managed system of centralised procurement and decentralised distribution of medicines, which was able to bring down the cost of treatment in public facilities by a huge margin and subsequently became the benchmark model adopted and adapted by many other states in India.

Triggered by a massive drug scam in the state, the Tamil Nadu Medical Services Corporation (TNMSC) Ltd. was set up in 1994 through a government order as an autonomous body with sufficient budget allocation. The TNMSC introduced multiple reforms in the domain

⁹ Formerly known as Global Alliance for Vaccines and Immunisation. GAVI's founding partners include WHO, UNICEF, World Bank, Bill & Melinda Gates Children's Vaccine Programme, Rockefeller Foundation, International Federation of Pharmaceutical Manufacturers' Associations (IFPMA) and few other national governments.

¹⁰ Resolution 45.17 of the World Health Assembly calls for integration of cost-effective new vaccines, such as Hepatitis B vaccine, into national immunisation programmes in countries where it is feasible.

of drug purchase, storage and distribution systems. TNMSC extensively used information technology (IT), to develop a system for centralised procurement (tendering and purchasing) of medicines in the Essential Drug List (EDL) for the entire state and decentralised distribution of the same, free of cost, through public health facilities. The medicines purchased are delivered to the warehouses set up in all district headquarters from where they are distributed to the public health facilities based on a value-based passbook system with fixed monetary entitlements. The facilities use scientific techniques to forecast demand of medicines on EDL and can requisition any quantity of medicines as per the EDL within its monetary entitlement but do not have the flexibility to alter the indent (Singh et al. 2012). The success of course depended on several factors, including effective leadership, sufficient budget to cover fixed costs and all preconditions for centralised procurement. The critical preconditions include a robust infrastructure and IT to procure, store and distribute large quantities of drugs to user facilities; trained and skilled personnel; streamlined processes; transparent procurement policy; and quality management framework.

Drawing upon the success of TNMSC, where drug prices came down by 95–99 per cent from printed prices, several other states adopted the model. The Rajasthan Medical Services Corporation (RMSC) Ltd. procurement model is similar to that of TNMSC. Both have a centralised procurement mechanism and in order to meet contingencies, the individual public health facilities are granted control over a defined amount of the procurement budget (Selvaraj and Mehta, Chapter 12). However, the Kerala Medical Services Corporation (KMSC) Ltd. was created by adopting and adapting the TNMSC model. As opposed to the value-based drug allotment of TNMSC, KMSC adopted volume-based indenting where the public facilities submit quarterly and annual indent of drug requirement. In the KMSC, emergencies are dealt with through the release of additional funds from the state government and contingencies do not arise since it offers the public facilities the flexibility to alter their indents several times. The KMSC has a customised IT system that includes real time stock monitoring and is equipped to effectively forecast demand. KMSC undertook centralised purchase of all drugs unlike in TNMSC where 90 per cent of funds are used for purchasing at the central level and 10 per cent at the district level. The Odisha State Medical Corporation (OSMC) Ltd., unlike TNMSC is not autonomous and is part of the Directorate of Health

Services of the state government. OSMC adopted the centralised procurement model but faces problems of governance, poor political support, ineffective leadership and constant reshuffling of the key positions while trying to push for reforms (Singh et al. 2012).

A complete departure from the above is the decentralised model of procurement of medicines at the district level adopted by Chhattisgarh. The Chhattisgarh model fails to reap economies of scale. On the other hand, the Bihar model is a combination of the two systems wherein the rate contracts are drawn up centrally, while the districts have to purchase medicines from the identified suppliers with their allocated funds. There is an absence of a clear process for identifying required medicines, and need-based approach is not followed for purchase of medicines from EDL. Absence of dedicated warehouses and an efficient supply chain system adversely impacts the storage and delivery of medicines (Selvaraj and Mehta, Chapter 12).

The TNMSC model has presented the other states with an opportunity to experiment with their procurement and distribution models with regard to the EDL medicines. However, states should refrain from merely adopting the TNMSC model, which should be adapted based on a detailed analysis of the existing state-specific conditions, and the administrative and monetary capacities of the respective states (Singh et al. 2012).

ENGAGING WITH THE PRIVATE SECTOR

Governments with constrained financial resources have the formidable task of ensuring access to preventive, curative and rehabilitative healthcare to a large population at an affordable cost. Many of the states have low revenue collection, competing demands for revenue, and low priority for spending on health sector. With weak, inefficient and often non-functional public health system, people at large are relying on expensive private healthcare services but are not always assured of the quality of treatment at that cost.

Growth of private health sector could be attributed to several factors, including pro-market policies recognising health sector as an industry, investment stimulus through subsidies and tax concessions, trust deficit of people on public healthcare, willingness of the people to pay for health services, absence of effective regulatory systems to curb unrestrained growth of the private sector, and fiscal constraints of the government leading to systematic neglect of

primary healthcare and poor capacity of public health system to deliver clinical services.

The private healthcare system in India comprises of individual practitioners and institutions (hospitals and nursing homes). Institutions could be classified as: (a) for-profit hospitals and nursing homes, (b) corporate hospitals and (c) not-for-profit NGO and missionary hospitals (Rao 2012). Excepting a few not-for-profit hospitals, the private sector is dominated by the for-profit and corporate hospitals operating mainly in the tertiary health sector. This is because the private sector does not like locking up its capital in investments with long gestation periods and low private returns, and seeks markets where competition is less, monopoly is feasible, and returns on investments are the highest (Qadeer, Chapter 1).

The higher cost of in-patient treatment in the private sector as compared to government hospitals raises the concern of affordability. According to NSSO 60th Round, the average medical expense on account of hospitalisation in the rural areas in 2004 was Rs 3,238 in government hospitals as compared to Rs 7,408 in private hospitals. The corresponding figures for urban areas were Rs 3,877 and Rs 11,553, respectively (NSSO 2006, Rao 2012). The higher costs are not always associated with better quality of treatment in the private sector. While governments at the Centre and states are struggling to raise health sector spending and improve productivity of healthcare delivery, the role of the private sector has been expanding rapidly.

Public-Private Partnership (PPP)

For some time, the government has been engaging with the private sector and experimenting with various PPP models in several parts of the country. Some states have implemented a few PPPs, primarily service delivery PPPs in primary care and diagnostic services, but are unable to scale up and implement more complex engagements. Some of the existing PPP models in the health sector in India are in the domain of: (a) Management of PHCs/urban health centres, CHCs, and specialty care hospitals; (b) Management contracts of mobile health services including emergency transport; (c) Contracting and co-location for laboratory, and diagnostic and other clinical services; (d) Build-operate-transfer (BOT) with subsidy for hospitals, specialty units, diagnostic units, and medical college; (e) Demand-side financing options including vouchers/health cards; (f) Community-based health

insurance and other forms of health coverage; and (g) Contracting non-clinical hospital support services.

Venkat Raman (Chapter 6) highlights some of the key challenges for successfully rolling out PPP projects in the health sector. First, the private sector in health in India consists of non-institutional providers predominantly, who may not meet the minimum qualifying criteria, such as conditions in terms of beds, staff, assets, etc. for engaging with the government. Further, a major deterrent for PPP contracts is that most institutional providers do not have accreditation or compliance to minimal physical standards due to absence of incentive, penalty and regulatory compulsion. Second, there is little understanding on what actually constitutes a PPP in health sector. Officials of health department may find it difficult to design detailed PPP contracts due to lack of technical capacity. Third, governments mostly resort to competitive bidding for selection of private partners based on lowest commercial bid, which in the absence of a mechanism for ensuring quality of service, may defeat the objective of providing efficient healthcare services. Fourth, complexities associated with execution of contract arises from lack of supervision, monitoring, delays in payments, lack of dispute settlement system, local political interference, and other managerial issues. Finally, there is in general a huge trust deficit between government and the private sector, and thus absence of a policy-driven PPP strategy or a dedicated contract management authority may deter large private hospitals to work with the government.

Role of Not-for-profit Providers

The not-for-profit providers are managed by charitable trusts, non-governmental organisations (NGOs), community-based organisations, and faith-based and philanthropic organisations. They are easy to access, provide reasonably high quality services at low cost, and largely cater to socially and economically marginalised communities (Venkat Raman, Chapter 6). The Christian healthcare network, the largest faith-based healthcare network in India, is providing substantial healthcare especially in the hard-to-reach and under-developed areas in 331 districts through innovative and replicable practices like 'shared care', 'home-based care', 'task-shifting' and 'tele-medicine'. Yet, such institutions face the challenge of existence given the minimum standard requirements vis-à-vis human resource and infrastructure and the overall regulatory framework

as per the Clinical Establishments Act (CEA), 2010 (Cherian et al., Chapter 8).

Innovative Practices

Engaging private sector to deliver quality healthcare at affordable prices in rural areas is the critical challenge. Social enterprises (SEs), slowly gaining momentum in India, are trying to address this critical challenge of making rural healthcare delivery viable through different experiments, which involves hub and spoke-based strategy; differential pricing and cross-subsidisation; use of government infrastructure such as post offices to collect monthly premiums, track payments, and issue health insurance cards; and participatory plug and play models. Some such examples of SEs discussed by Madan (Chapter 7) are Vaatsalya Healthcare, Narayana Health, Aravind Eye Care System, Indira Gandhi Eye Hospital and Research Centre, Glocal Healthcare, CARE Rural Health Mission, IKP Centre for Technologies in Public Health (ICTPH), and Operation ASHA (OpASHA). Inherent to SE initiative are proactive efforts towards community awareness and sensitisation. There are several SEs focused on solutions to reach out using technology and participatory models, designed for making delivery to the disadvantaged efficient and effective. On the other hand, some large private healthcare companies are developing initiatives for rural healthcare as an inclusive business model leading to co-creation of business and social value.

For reaching the farthest rural areas, the hub and spoke-based strategy involves a combination of local community-based human resource development and use of tele-medicine and hand-held devices for value delivery. Technology is a major enabler for SE initiatives, and is involved in process efficiencies, process innovation, supply chain management, protocolisation to facilitate diagnosis to treatment, and health management system. Process efficiencies include enrolment, diagnosis and treatments through electronic health records and health management information systems. Efficiency in resource use and outcomes is achieved by focusing on the most common set of ailments which cover majority of the disease burden. Some SEs are in the process of creating epidemiological database for larger outcomes. In SE models, NGOs and other civil society organisations could play an important role as far as last mile outreach is concerned (Madan, Chapter 7).

Financial viability of the SE models depends on their sources of finance and cost recovery. A critical aspect in this is the volume of community demand for the low-priced door-step services. The most common approach is to partner with government healthcare funding schemes such as RSBY of the central government. Most of the models involve health microinsurance which is not easy to implement at scale, and needs strong risk management techniques. Scalability of the SE models would depend on community uptake, the range of healthcare needs they address, their ability to form strategic value-chain partnerships; and whether their innovative service delivery results in improvement in affordability and access to quality healthcare. Another important factor is that of replicability of these models. This would depend on the ability of the models to adapt to new environments and communities while retaining the original essence and values (Madan, Chapter 7).

Qadeer (Chapter 1) is of the view that large companies could use their corporate social responsibility (CSR) mandate to reach out to improve healthcare in the rural areas. The approach should be one of socially responsible partnership in health that accepts the principles of public health and is sensitive to its social and economic dimensions. For this, corporates must not only acknowledge the key components of public health, but utilise CSR funds for investing in healthcare.

Leveraging the Private Sector More Effectively

Engaging with the private sector is an imperative for moving towards UHC. Well-designed PPPs have enormous potential of delivering equitable and affordable quality healthcare. Venkat Raman (Chapter 6) suggests formulating a PPP policy for the health sector that would spell out the vision, objectives, priority areas, political and administrative commitment, financial, legal and institutional framework, fiduciary risks, risk mitigation options, benefits, etc. that would help mitigate the apprehensions of the private sector. Partnership-specific guidelines should be prepared to complement the policy. To ensure effective implementation, there should be a separate PPP cell within the directorate of health services, with sufficient resources (human and financial) and capacity (technical and managerial) to design, contract and manage (supervise, monitor, evaluate, settle disputes, and organise timely release of payments) the partnership contracts. Ensuring quality of delivery and linking performance to incentive mechanisms are

critical for a successful PPP. The government should mandate certification of physical standards with appropriate incentives structure. For this, the state governments should establish state or divisional-level accreditation councils for formal certification. PPPs have to be implemented within a credible regulatory framework at the central and state levels to oversee all health establishments, with independent members from the judiciary, medicine, public health, public and private sectors, and health activists.

With regard to the role of NSEs, Cherian et al. (Chapter 8) advocate that the untapped potential of the not-for-profit facilities, particularly faith-based networks, engaged in healthcare delivery, including comprehensive primary healthcare, medical education, health worker training, and research, need to be leveraged to provide affordable, equitable and quality healthcare particularly to the vulnerable sections of the population of the country. Channels of communication and platforms for discussions among the various key players in healthcare need to be clearly defined, so as to minimise duplication and wastage of limited resources, overcome major gaps in health infrastructure, and to help bridge the gaps in health expenditure and human resources. Innovative practices of the NSEs such as 'shared care', 'home-based care', and 'task-shifting' could be mainstreamed into the health system in order to increase efficiency and maximise utilisation of limited resources.

In order to leverage the social entrepreneurs to improve equity and access in healthcare, Madan (Chapter 7) suggests that engaging with the community and spreading awareness, capacity building of all stakeholders, using local conditions to advantage, and extensive use of IT are critical. Strategic collaborations of SEs with entities within the sector, including corporate players who are serious about developing inclusive business models, should be facilitated and encouraged.

HEALTH INSURANCE FOR INCREASED COVERAGE

Reducing the financial burden on the people due to health expenditure as well as covering the cost to deliver healthcare services is an imperative to ensure a sustainable journey along the road to UHC. Availability, access and quality of primary, secondary and tertiary healthcare in preventing and curing communicable, non-communicable and chronic diseases have serious

financial implications. Where a sudden large expense due to hospitalisation or frequent non-hospitalisation spending on illness can result in impoverishment or financial distress for the economically disadvantaged, financial protection against diseases with any risk probability is essential. It is often advocated that health insurance would provide the necessary financial protection and coverage against onerous health expenditures. Although the insurance industry in India is at a nascent stage, some form of health protection is offered by the government and major private employers. Presently, the government funds a number of health insurance schemes, some state-funded health insurance schemes, Employee State Insurance Scheme (ESIS), Central Government Health Scheme (CGHS), and RSBY.

State Health Insurance Schemes

After the failed experiments with state-level health insurance schemes in Punjab, Kerala and Assam during 2005–07, the Government of Andhra Pradesh launched a health insurance scheme called Rajiv Aarogyasri in 2007 that focused on providing coverage for mostly tertiary care. The benefit package of the scheme was revised to include some of the secondary care diseases. Rajiv Aarogyasri inspired few more state governments—Karnataka, Tamil Nadu, Maharashtra and Gujarat—to start similar tertiary-care insurance schemes. Most of these schemes took a PPP model where the premium on behalf of the beneficiaries was paid by the government to the insurance companies, responsible for implementing the scheme. The main drawback of these state-level health insurance schemes was that the benefits were mostly limited to tertiary care and basic ailments like fever, diarrhoea, smaller surgeries, etc. were not covered. Another limitation was the absence of health insurance cover outside the respective states. This is significant since many of the beneficiaries are migrants workers and would be also vulnerable outside their home state (Jain, Chapter 10).

Rashtriya Swasthya Bima Yojana (RSBY)

Learning from the limitations of the state health insurance schemes, the Government of India launched RSBY in 2008. RSBY was originally limited to BPL families but was later extended to construction workers, beneficiaries of the Mahatma Gandhi Rural Employment Guarantee Scheme (MGNREGS), street vendors, beedi workers, and domestic workers

(Planning Commission 2013). The scheme provides hospitalisation coverage upto Rs 30,000 for a household of five members for a specified set of diseases, including treatment for pre-existing conditions, and without any age limit (Narayana 2010, Rathi et al. 2012). So far the scheme is being implemented in 479 districts across all states and union territories (UTs). With a network of 10,311 empanelled hospitals, about 3.7 crore families are covered under the scheme (RSBY 2014).

The biggest limitation of RSBY is that it covers only in-patient treatment. Since, about two-thirds of the OOP expenditure on health is on out-patient treatment, with medicines constituting a large share of OOP health payments (Selvaraj and Mehta, Chapter 12), RSBY fails to adequately protect the poor and alleviate their financial burden (Shahrawat and Rao 2011, IRDR 2013). RSBY beneficiaries who suffer from complex and chronic ailments continue to face high OOP costs for medicines after being discharged since the coverage is limited to five days of medicines at the time of discharge (Rathi et al. 2012). Further, concerns associated with the implementation of RSBY are (Jain, Chapter 10): (a) Getting the buy-in of not only the officials within the central and state governments but also of the insurance companies and smart card industry; (b) Supply of smart card and biometric-related equipment in large numbers; (c) Availability of a large contingent of trained manpower for implementation of the scheme; (d) Printing and issuing smart cards in difficult terrain; (e) Developing a fool-proof key management system (KMS) to prevent any kind of fraud and misuse; (f) Ensuring availability of quality healthcare providers; (g) Improving the awareness of the beneficiaries about the usage of smart card; (h) Building capacities at every level to implement a complex scheme like RSBY; and (i) Tackling fraud and abuse.

To overcome some of the challenges, Jain (Chapter 10) suggests that the implementation challenges should be overcome and RSBY smart card should be given for a longer period of three to five years to save cost and efforts. He suggests increasing the benefit package of RSBY from the current level of Rs 30,000 to Rs 50,000, and expanding the scheme to all the unorganised workers. It would also be beneficial to add a top-up critical care package upto Rs 100,000–150,000 to cover mainly NCDs for which a single premium can be paid for both the packages together by the government for the vulnerable population. Jain (Chapter 10) further suggests that RSBY smart card can be used to deliver

other social security schemes such as Aam Aadmi Bima Yojana (AABY) and Indira Gandhi National Old Age Pension Scheme (IGNOAPS) for the same set of beneficiaries. States already experimenting with RSBY cards are Punjab where AABY is being implemented using the RSBY smart card, and Chhattisgarh, where it is being used to deliver food subsidy through the public distribution system (PDS).

Role of Third Party Administrators (TPAs)

Third Party Administrators (TPAs) can play a key role in strengthening the health insurance industry, and bring more professionalism to claims management and facilitate cashless services to policy-holders. However, the TPA industry is people intensive, and presently operates on thin margins. Cost and competition in the market is adversely affecting the industry. There is thus an urgent need for TPAs to streamline their operations and work smarter in order to remain competitive and profitable in the market. This depends on their ability to enhance use of technology and better manage fraud and abuse. Chhatwal (Chapter 11) suggests that an enabling policy framework that allows TPAs to directly engage with undertakers of risk, e.g. insurance companies, self-funded organisations or government, would bring down the overall cost of health insurance. This would enable TPAs to make healthcare more accessible and affordable in India by facilitating penetration of the insurance industry.

From a purely commercial perspective, health insurance is an important contributor to the expansion of the healthcare industry. Currently pegged at only 2 per cent, the share of population covered by health insurance is expected to rise to 20 per cent by 2015 (Chhatwal, Chapter 11). However, the insurance coverage extends to less frequently occurring and high-cost diseases in tertiary care that involve hospitalisation and leaves out low-cost diseases that require more frequent out-patient treatment and medicine purchase, thereby making it less inclusive in nature. Presently, the government is offering free primary care, cashless insurance cover of some secondary and tertiary care to the poor and some government employees, but most of the remaining people are left to manage their own healthcare spending. Government health insurance or government subsidised commercial health insurance although helps reduce the health expenditure burden of the people, there exists incentive incompatibility between healthcare providers, consumers and insurance companies. Improvements in

the health of the population is not in the commercial interest of insurance companies. Also, high administrative costs in insurance industry allow lesser amounts out of premium to be devoted to healthcare. Thus, insurance can ease the financial burden, albeit at a cost, but would not be sufficient and cannot be the main thrust for achieving UHC.

SOME EMERGING ISSUES

Increasing Burden of NCDs

The five most important causes of DALY in India for 2010 are pre-term birth complications, diarrhoea, lower respiratory infection, ischemic heart disease (IHD), and chronic obstructive pulmonary disease (COPD) (IHME 2013).

NCDs, e.g. IHD, low back pain, COPD and stroke, are a bigger contributor to DALY in developed countries, but communicable diseases and maternal, perinatal and nutrition conditions are high with rising NCDs in less developed and developing countries (see Table 13). India is witnessing rise in chronic NCDs such as CVD, diabetes, hypertension and cancer (refer to Dual Burden of Diseases in this Chapter). While the annual deaths due to CVD is estimated to increase from about 2.7 million to 4 million by 2030, the number of hypertensive cases in India is projected to increase from 118 million

in 2000 to 213 million by 2025. Also, there are about 65 million people with diabetes in India, and this number is projected to increase to 109 million by 2035. It is a matter of concern that every year about 800,000 new cases of cancer and 730,000 cancer-related deaths occur in India (Mohan and Prabhakaran, Chapter 17). In the face of epidemiological transition, the health system in India is yet to orient itself to the rising burden of NCDs, as the focus is still largely on providing acute care and not chronic care. As a result, there are considerable inadequacies in service delivery both at the primary and secondary care level to tackle NCDs. Heterogeneity prevalent in the healthcare system has led to wide disparities, with the rich having access to the high quality evidence-based care and the poor lacking access to even the basic primary care. Without financial security, most people with NCDs incur heavy OOP expenses to meet health costs. Rural areas are particularly stressed under the rapidly rising burden of NCDs.

To cope with the rapid rise in NCDs, Mohan and Prabhakaran (Chapter 17) suggests the need for a cohesive plan involving effective public health interventions to minimise risk exposure of the population to NCD-related events. This would require combining a preventive approach with a clinical one that would help tackle the early, medium and long term impacts of NCDs in a cost-effective and sustainable manner. For this, evidence-based NCD-related care, involving

TABLE 13 Cross-country Top Five Causes of DALY in 2010

Countries	Diseases
Pakistan	LRI, Diarrhoea, Neonatal Encephalopathy, Pre-term Birth Complications, IHD
Nigeria	Malaria, HIV/AIDS, LRI, Neonatal Sepsis, Diarrhoea
Ghana	Malaria, HIV/AIDS, LRI, Neonatal Sepsis, Pre-term Birth Complications
India	Pre-term Birth Complications, Diarrhoea, LRI, IHD, COPD
Bangladesh	Pre-term Birth Complications, Neonatal Encephalopathy, Low Back Pain, LRI, COPD
China	Stroke, IHD, COPD, Low Back Pain, Road Injury
Columbia	Interpersonal Violence, IHD, Major Depressive Disorder, HIV/AIDS, Low Back Pain
Mexico	Diabetes, IHD, Chronic Kidney Disease, Road Injury, Interpersonal Violence
Brazil	IHD, Interpersonal Violence, Low Back Pain, Stroke, Road Injury
Sri Lanka	IHD, Self-harm, Diabetes, Stroke, COPD
Thailand	HIV/AIDS, IHD, Road Injury, Stroke, Major Depressive Disorder
Chile	IHD, Low Back Pain, Stroke, Major Depressive Disorder, Road Injury
Canada	IHD, Low Back Pain, Lung Cancer, Major Depressive Disorder, Other Musculoskeletal Disorders
United Kingdom	IHD, Low Back Pain, COPD, Stroke, Lung Cancer
United States	IHD, COPD, Low Back Pain, Lung Cancer, Major Depressive Disorder

Notes: LRI: Lower Respiratory Infections, IHD: Ischemic Heart Disease, COPD: Chronic Obstructive Pulmonary Disease, DALY: Disability-Adjusted Life Years.

Source: IHME (2013).

prevention, surveillance, screening and management, has to be provided. This would require regular skill enhancement of NCD-related care providers. Given the large number of people suffering from NCDs, and the acute shortage of physicians, Mohan and Prabhakaran (Chapter 17) also suggest training of non-physician health workers to enable them to undertake 'task sharing' and 'task-shifting' of NCD-related care. An important aspect is to focus on building awareness programmes, particularly amongst the rural and poor people so that risks could be avoided and also mitigated at an early stage. Considering the strong association of NCDs with economic development and non-health sectors, there is a strong need to negotiate with non-health sectors and argue for health in all government policies.

Mental Health

Mental health problem, accounting for 7.4 per cent of the global disease burden, is emerging as a major form of NCD. Mental health problems are rapidly gaining prominence with their contribution to global DALY rising by about 38 per cent between 1990 and 2010 (Whiteford et al. 2013). Strong bi-directional linkages between mental health and physical health make it such an important factor to improve overall DALY. It is the leading cause of DALY among both men and women between the ages of 15–39 years. Mental health problems can be broadly categorised into common mental disorders, severe mental disorders, substance use disorders and childhood mental disorders. In India, the contribution of mental health problems to the overall burden of disease in 2010 was about 5.6 per cent. Mental health problems aggravate the chances of premature deaths, and are strongly linked with poverty, social disadvantage and heightened stress. Self-harm contributed to 3.4 per cent of YLL and depression was one of the top five causes of YLD. The Million Death Study (2012) reported that 3 per cent of the surveyed deaths in individuals aged 15 years and above were due to suicide, corresponding to about 187,000 suicide deaths in India in 2010 (Shidhaye and Patel, Chapter 18).

There is a huge disparity between the burden of mental health problems and availability of mental health services with only 10 per cent of the sufferers receiving evidence-based interventions. Both demand and supply factors contribute to this large treatment gap. Low demand for services is due to both lack of availability of services and poor awareness about these conditions and their treatments. Supply barriers are mostly due to the great shortage of qualified mental health specialists in India.

To address the huge mental health treatment gap, Shidhaye and Patel (Chapter 18) propose the need for innovative evidence-based interventions, over and above the requirement for mental health infrastructure and professionals. Evidence-based interventions to improve access to cost-effective treatments would require strong thrust on research and a comprehensive mental health legislation and policy. To improve access to treatment for the vulnerable section, the need is to educate, train and build capacities of the community to facilitate 'task-sharing' approach to treat mental health problems. It is of utmost importance to improve awareness about mental health problems and reduce stigma against mentally ill people. Several innovative initiatives, discussed by Shidhaye and Patel (Chapter 18), could form the basis of scaling up evidence-based practices in the country. NGOs Sangath and Dementia Society of Goa adopted a 'task-sharing' approach for providing mental healthcare. Tele-psychiatry network using technology is adopted by NGO SCARF to provide mental healthcare. NGO Sangath has combined technology-based mobile health platform with community-based task-sharing approach to address neuro-developmental disorders.

It is expected that with the enactment of the Mental Healthcare Bill (MHB), 2013, introduced to replace the older Mental Health Act, 1987, many of the issues with mental healthcare would be addressed. MHB, 2013, together with a radically redesigned District Mental Healthcare Plan offers a robust policy framework to expand the coverage and improve the quality of mental health services. MHB, 2013 states that every person shall have the right to access mental healthcare and treatment from services run or funded by the government. A mentally-ill person shall have the right to make an advance directive stating how she wants to be treated for the illness during a mental health situation and who her nominated representative shall be. The Bill decriminalises suicide by stating that a person who attempts suicide shall be presumed to be suffering from mental illness at that time and will not be punished under the Indian Penal Code (Madhavan and Kala, Chapter 3).

Health Coverage of Informal Sector Workers

With no legal protection and direct policies on occupational safety and health for informal sector workers, their lack of health coverage is a major cause of concern. The situation is made worse as policies to protect the health of the workers falls across several ministries—Health, Labour, Mines, Agriculture and

Industry. High workplace pollution and long hours of work add to the burden of occupational diseases for the informal workers. This is critical considering that the health system is not equipped to prevent and manage occupational diseases of informal sector workers, and providers lack the knowledge required to manage such diseases. With only some getting covered under RSBY and other state-specific schemes, large number of informal workers do not have any health insurance. Many of them are just above the poverty line and are likely to face impoverishment due to catastrophic healthcare spending when they fall ill (Garg, Chapter 19).

Garg (Chapter 19) suggests that for informal sector workers, a public health approach is required for diagnosis, prevention and promotion, and management of occupational diseases. This would require a multi-pronged strategy of improving infrastructure capacity and trained human resource availability at primary care level for screening, diagnosis, and effective referrals for informal workers. Healthcare providers need training to diagnose if the health problems arise from work or otherwise; in taking occupational history for sick workers; identifying the cause of illness early through appropriate tests; and managing the disease. There is a need to have well-equipped public facilities particularly in areas where higher proportion of informal workers are at risk. MoLE has to work with different government departments such as agriculture, industry and most importantly with MoHFW to support programmes for preventive measures such as early screening at workplaces; education to reduce workplace risks, etc. This will help to reduce the burden of the disease for informal workers and associated economic costs.

Human Resources

The health sector in India faces a serious human resource crisis, which is one of the biggest challenges on the road to UHC. While there is a huge shortage of all categories of health professionals and staff at public health facilities, there is a large number of private healthcare providers most of whom are quacks or unqualified practitioners with little medical knowledge or training. Where every fresh medical graduate, whether from a subsidised college or a private college, aspires to become a specialist, the country has a huge shortage of general physicians and medical professionals skilled in primary care. Medical professionals base their diagnosis on clinical investigation and lack the skills of clinical judgement. Increasingly medical professionals are indulging in activities that further their commercial

interests, which may be conflicting with medical ethics. Further, with the advancement of medical science and rapid growth in the use of technology, there is a huge deficit in the availability of appropriately skilled medical workers and technicians.

There is not only a huge shortage of medical colleges and training institutions, but their geographical distribution is extremely inequitable. The states with fewer medical institutions are also the states with fewer health workers and poor health indicators. The southern states (Andhra Pradesh, Karnataka, Kerala and Tamil Nadu) which have comparatively better health indicators and account for 21 per cent of the population (as per *Census of India 2011*), have 42 per cent of the medical colleges. On the other hand, the BIMAROU states—Bihar, Madhya Pradesh, Rajasthan, Odisha and Uttar Pradesh—where 40 per cent of the population live with poor health conditions, have only 19 per cent of the medical colleges (MCI 2014). Regional disparity in the location of recognised nurse training colleges is similar to that of medical colleges. The southern states accounted for 53 per cent of the colleges recognised for BSc in nursing course for the academic year 2013–14, while the BIMAROU states accounted for 21 per cent of such nursing colleges (Indian Nursing Council 2014).

There is a large disparity in workforce availability between the urban and rural areas. In the rural areas, there is a considerable shortfall across all the major categories of healthcare providers. Between 2005 and 2012, there has been a decline in shortfall of female health workers and auxiliary nurse midwives (ANMs) by 8 percentage points, and nursing staff in PHCs and CHCs by 5 percentage points. On the other hand, shortfall in human resources in rest of the categories (doctors at PHCs, pharmacists and laboratory technicians at PHCs and CHCs, and specialists at CHCs), increased considerably varying between 6 and 24 percentage points (see Table 14).

The rural population faces great difficulty in accessing quality healthcare and is at the mercy of quacks or practitioners with little or no medical knowledge or formal training. This indicates the importance of placing well-trained paramedics providing basic curative services at the village and cluster levels (Sathyamala et al. 2012). However, currently there is no central law governing paramedical education and practice. Only Maharashtra, Himachal Pradesh, Madhya Pradesh and Kerala have enacted laws to set up councils that regulate occupational therapists and paramedics (Madhavan and Kala, Chapter 3). Shortages of healthcare workforce in

TABLE 14 Human Resources at Sub-centres, PHCs and CHCs Functioning in Rural Areas

Human Resources	2005			2012		
	Required	Shortfall	% Shortfall	Required	Shortfall	% Shortfall
Female Health Workers/ANMs at Sub-centres and PHCs	169,262	19,311	11.4	172,415	6,719	3.9
Doctors at PHCs	23,236	1,004	4.3	24,049	2,489	10.3
Pharmacists at PHCs and CHCs	26,582	2,858	10.8	28,882	5,295	18.3
Laboratory technicians at PHCs and CHCs	26,582	7,226	27.2	28,882	12,494	43.3
Nursing Staff at PHCs and CHCs	46,658	13,352	28.6	57,880	13,521	23.4
Specialists* at CHCs	13,384	6,110	45.7	19,332	13,477	69.7

Notes: PHC: Primary Health Centre, CHC: Community Health Centre, ANM: Auxiliary Nurse Midwife; * Specialists include physicians, obstetricians and gynaecologists, surgeons and paediatricians.

Source: MoHFW (2013d).

the rural areas have prompted creation of the cadre of ASHAs. Shortages of allopathic doctors at the primary care level in rural areas prompted the Government of India to create a diluted three-year course named Bachelor of Rural Health Medicine (BRHM). However, there is a lot of confusion vis-à-vis the course curriculum to be followed by the state universities—whether approved by the hesitant Medical Council of India (MCI) or by the enthusiastic National Board of Examinations (NBE) (Sen, Chapter 21).

However, Rao and Ramani (Chapter 20) argue that merely increasing the number of health workers will not address the issue of human resource shortage in rural areas. For this, specific rural recruitment and retention strategies including monetary incentives, reserving seats for specialist training in lieu of rural services, better management practices, and better living conditions for rural postings are required. Professionals often find inadequate facilities for their families in rural areas and are therefore not inclined to serve in rural areas. Additionally, in order to meet the vast needs with regard to health services, non-clinician and nurse practitioners trained in basic health services can be thought of as viable alternatives for offering a more lasting solution to the crisis, provided safe work environment is ensured for female health workers.

In order to tide over the shortfall in human resources in health, Sen (Chapter 21) suggests that AYUSH (Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homeopathy) doctors can be re-trained to become competent primary care physicians in modern medicine. The retraining programme could entail a judicious mixture of skill development and training in protocol-based care, having a genesis in evidence-based medicine, to deliver modern, high quality primary care service. Additionally, a National Healthcare Workforce Planning Commission

(NHWPC) could be created under the MoHFW, which in turn could have two independent collaborative bodies—National Healthcare Workforce Information Commission (NHWIC) and National Healthcare Workforce Education and Training Commission (NHWETC)—having a state-level presence, since the ultimate responsibilities of providing the adequate workforce, and educating and training the workforce, lie with the states. Besides retraining, special focus should also be directed towards revitalising alternative medicines like AYUSH as they have a tremendous role to play in delivering primary and secondary care.

A lot of chaos with the quality and accountability of medical colleges and professionals may be attributed to the regulatory framework of the health sector. There is multiplicity of autonomous statutory medical councils in India, e.g. Medical Council of India (MCI), Dentist Council of India (DCI), Pharmacy Council of India (PCI), and Indian Nursing Council that regulate education in specified fields of health (medicine, dentistry, pharmacy, nursing, etc.) and are also vested with the powers to grant practice licenses to health professionals. The primary functions of these councils are to ensure minimum educational standards, prescribe courses of studies and conduct qualifying examinations, enforce professional code of ethics, and conduct an inquiry with regard to medical malpractice. Too many councils have little coordination and synergy between them. The proliferation of private medical colleges has been a source of corruption for these autonomous medical councils. The medical councils are captured by the medical practitioners, and overtime the thrust has shifted towards curative approach and away from promotive and preventive public health. The clear trend is towards specialisation and lack of interest in practising as a general physician. Freshly graduated doctors focus

on preparing for specialisation and neglect on-the-job medical training as interns in hospitals. These have accentuated the crisis in healthcare at the primary and secondary level, and created a void in public health in the country.

Over the years several bodies have recommended that the MCI should be reformed and restructured by delineating their powers to regulate medical education from medical practice. Currently, the National Commission for Human Resources for Health (NCHRH) Bill, 2011 is pending in Parliament. The Bill seeks to separate the regulation of education from that of professional practice. It repeals the Indian Nursing Council Act, 1947, the Pharmacy Act, 1948, the Dentists Act, 1948 and the Indian Medical Council Act, 1956 that set up the various autonomous councils. The NCHRH is proposed as an overarching body to regulate medical education. The Bill states that the NCHRH will constitute a National Board for Health Education (NBHE) and a National Evaluation and Assessment Committee (NEAC). The NBHE will prescribe minimum standards for health education, specify curriculum and conduct examinations for academic programmes. The NEAC will develop and maintain a system of evaluation and accreditation of health educational institutions. The Bill provides for the setting up of National and State Councils such as the Medical Council, Dental Council, Nursing Council, Pharmacy Council and Paramedical Council to regulate the professional practice in the respective discipline of health (Madhavan and Kala, Chapter 3).

CONCLUSION AND RECOMMENDATIONS

A healthy productive population is a key ingredient for the sustained socio-economic development of a nation. While India is positioned to achieve great economic heights, the health of its population will be a key factor towards achieving this goal. As discussed throughout this report, the present health profile of the population and the health sector in India is severely lacking and ranked among the lowest in the world. The public health system in India, mainly due to low public spending, has (a) inadequate and antiquated infrastructure; (b) poorly equipped existing health facilities; (c) severe shortage of health professionals and staff at all levels; (d) low priority towards preventive healthcare; (e) absence of comprehensive health coverage, and focus on disease-specific vertical programmes; (f) poor quality of healthcare delivery, and onerous OOP

expenses; (g) huge shortage of medical education and training facilities; and (h) inadequacies in government programmes and initiatives. Failure of the public health system has induced rapid growth of private sector, which is practically unregulated and full of unqualified and poorly skilled healthcare providers offering poor quality service. The private sector in most instances also fails to provide high quality service, and is often accused of indulging in unnecessary treatment and over-use of diagnostic devices for clinical investigation thereby forcibly pushing up healthcare spending. Healthcare costs are rising with a larger proportion of the population becoming vulnerable to chronic NCDs.

On the road to UHC from here, India should take a number of steps to ensure availability of a high quality public healthcare system at affordable prices for all. For this, the government has to revitalise its approach to comprehensive healthcare of preventive, promotive, curative and rehabilitative healthcare offered through an integrated healthcare system of primary, secondary and tertiary care. In this journey, the focus should also be on improving drinking water supply of acceptable quality, sanitation, nutrition, hygiene and education. The government is already mindful of the situation and has been taking several initiatives to improve the health status. However, several measures, as discussed here, could be taken to overcome the shortcomings in the ongoing initiatives and to move towards providing quality healthcare to all with no major financial risk.

- (a) The central and state governments should accept the concept of UHC and clearly articulate the meaning of 'Universal' and 'Health Coverage'. It is imperative for the government to upfront define what should be the comprehensive healthcare package that the people are entitled to under UHC.
- (b) India, going through epidemiological transition, is experiencing rising prominence of NCDs in its health burden. Evidence-based research should be used to decide how this could be covered under UHC and prepare for cost-effective treatment.
- (c) Realistic estimate of UHC funding should be based on the healthcare package, blueprint of the services delivery, and how much to be provided at no cost or subsidised cost. States should experiment with pilot projects to better understand what works and what does not.
- (d) Central and state governments should put greater emphasis on preventive and primary healthcare. These services would greatly reduce

- morbidity, bring down cost of curative care, and avoid the need for tertiary level care. Focus on immunisation would require preparing the list of essential vaccines based on their need and efficiency, and demands greater transparency in arriving at this list. Preventive care also mandates provisioning of quality drinking water and sanitation facilities to all, pest control, and engaging with the people to increase awareness on issues of hygiene and nutrition.
- (e) Both central and state governments should substantially increase funding in health sector, and prioritise spending on preventive and primary care. The spending should be mainly funded through tax revenues. The central and state governments should have in place an implementable plan on how to utilise the money. States will have to play a bigger role in prioritising spending on health sector and customise to their local needs. The backward states in particular would require more financial support from the central government to improve health coverage.
- (f) The government should find innovative ways to engage with the private sector. The corporate sector could be motivated to use the CSR fund innovatively in the health sector and for the improvement of health outcomes. Also, the government should formulate a PPP policy for the health sector to leverage the potential of the private sector in the delivery of healthcare services and to collaborate with SEs to replicate and scale up successful initiatives for delivery of cost effective and efficient healthcare services in rural areas.
- (g) The government should tap into the rural healthcare facilities of the not-for-profit organisations and network of faith-based organisations to avoid duplication and wastage of scarce resources, thereby bridging gaps in health infrastructure and human resources. Innovative practices adopted by these entities could be brought into the mainstream to deliver better public health services. The government should review the minimum standards norms for infrastructure and human resources that these entities would have to meet under the CEA, 2010.
- (h) Facilities available at the existing rural health centres are grossly inadequate, which makes these centres dysfunctional and under-utilised. Speedy measures should be taken to make these health

centres operational to prevent wastage of valuable resources. Thus government should adopt health outcome-oriented norms while defining minimum standards rather than input-oriented norms presently applicable.

- (i) The government should prioritise the creation of adequate infrastructure for driving immunisation programmes, and for this the focus should be to cater to habitations and not specified number of people. Better coverage of immunisation would require an integrated mechanism of surveillance of VPDs and management of the immunisation programme.
- (j) Since massive infrastructure build-up may take some years, in the initial years the focus could be on centralised and well-equipped care facilities, located in slightly larger towns that will be attractive to doctors and health technicians. Also, the central and state governments should prioritise overcoming regional disparities in availability of healthcare facilities, medical colleges and training facilities. The government should put in place adequate number of training institutes for paramedics and nurses at the district level. A NHWPC could be put in place at the Centre with state-level sub-commissions for better skill-mapping and training healthcare workforce.
- (k) Non-clinician practitioners and nurses should be trained to provide primary-level care. Training for primary care should include diagnosis, prevention and promotion, and management of occupational diseases of informal workers. Also, AYUSH doctors may be re-trained to become competent primary care physicians in modern medicine to provide protocol-based care.
- (l) The government should put in place specific rural recruitment and retention strategies, including monetary incentives, reserving seats for specialist training in lieu of rural services, better management practices, and providing better living conditions.
- (m) The present incentive mechanism for ASHA is not enough to motivate their other activities and rather contradictory in the context of counselling on family planning. ASHA workers need better and regular training, streamlined responsibilities, and more appropriate incentives to play their role more effectively. A proper monitoring and coaching system for ASHA workers also needs to be put in place at the block and district levels.

- (n) The government should ensure that its existing programmes achieve their larger objective and goals. NRHM has been reduced to a programme for women and child health and construction of health facilities, when the larger objective of providing comprehensive care, including primary care, upgrading CHCs into fully operational hospitals, and making community more participative, remains unfulfilled. JSY has improved institutional deliveries, but has done little to improve maternal and child health.
- (o) The government should build capacity of the community through training to improve their participation in the planning process of rural health system. VHSNCs and RKSSs should be re-energised by building their capability and awareness to monitor effectiveness of the government programmes, as well as participate in utilisation of untied funds.
- (p) The government should focus on building awareness and educating people about the benefits of maintaining a hygienic and healthy lifestyle that contributes enormously in preventing diseases and reduce costs of curative care. In a country where large numbers of people are uneducated, it is critical to raise awareness of their entitlements to healthcare and other public services and also the benefits of various preventive healthcare measures.
- (q) Drugs and devices should be made accessible and affordable at public health facilities. The EDL should be reviewed at regular intervals. All state governments should adopt a centralised procurement and distribution model, drawing lessons from the states that have already adopted and benefited, and adapt it to suit their local conditions. The government should prevent some of the essential drugs from being patented and monopolised in the interest of public health. The fragmented regulatory regime of the pharmaceutical industry should be consolidated under MoHFW to better align drug production and pricing policies with public health priorities. A unified regulatory regime would also facilitate better monitoring of quality, efficacy and use of drugs and devices.
- (r) The government should extend RSBY to all unorganised workers and raise the benefit package to Rs 50,000 and add a top-up critical care package upto Rs 100,000–150,000 to cover mainly NCDs. The government can pay for the vulnerable population a single premium for both the packages. RSBY smart cards could be used to deliver other social security programmes.
- (s) The MCI should be reformed and restructured by delinking their powers to regulate medical education from medical practice.
- (t) The government should expedite enactment of bills, such as the Drugs and Cosmetics Amendment Bill, 2013, MHB, 2013, and NCHRH Bill, 2013, that are pending in Parliament.

REFERENCES

- Anderson, Siwan, and Debraj Ray. 2012. 'The Age Distribution of Missing Women in India.' *Economic and Political Weekly* 47 (47 & 48): 87–95.
- Berman, Peter, Rajeev Ahuja, and Laveesh Bhandari. 2010. 'The Impoverishing Effect of Healthcare Payments in India: New Methodology and Findings'. *Economic and Political Weekly* 45 (16): 65–71.
- Bhalotra, Sonia, and Tom Cochrane. 2010. 'Where Have All the Young Girls Gone? Identification of Sex Selection in India.' Discussion Paper No. 5381, Institute for the Study of Labor (IZA), December, <http://ftp.iza.org/dp5381.pdf>, accessed on 20 January 2014.
- Census of India. 2011. Ministry of Home Affairs, Government of India. <http://censusindia.gov.in/>, accessed on 10 March 2014.
- . 2001. Ministry of Home Affairs, Government of India, http://www.censusindia.gov.in/2011-common-census_data_2001.html, accessed on 10 March 2014.
- CES (Coverage Evaluation Survey). 2010. *Coverage Evaluation Survey 2009*, All-India Report, United Nations Children's Fund (UNICEF), http://www.unicef.org/india/1_-_CES_2009_All_India_Report.pdf, accessed on 24 January 2014.
- Checkley, William, Gillian Buckley, Robert H. Gilman, Ana MO Assis, Richard L. Guerrant, Saul S. Morris, Kåre Mølbak, Palle Valentiner-Branth, Claudio F. Lanata, Robert E. Black, and The Childhood Malnutrition and Infection Network. 2008. 'Multi-country Analysis of the Effects of Diarrhoea on Childhood Stunting'. *International Journal of Epidemiology* 37 (4): 816–30, <http://ije.oxfordjournals.org/content/37/4/816.full.pdf+html>, accessed on 28 May 2014.
- Chowdhury, Samik. 2011. 'Financial Burden of Transient Morbidity: A Case Study of Slums in Delhi'. *Economic and Political Weekly* 46 (33): 59–66.
- Das, Jishnu, Jeffrey Hammer, and Kenneth Leonard. 2008.

- 'The Quality of Medical Advice in Low-Income Countries.' *Journal of Economic Perspectives* 22 (2): 93–114.
- Das, Jishnu, and Jeffrey Hammer. 2004. 'Strained Mercy: Quality of Medical Care in Delhi'. *Economic and Political Weekly* 39 (9): 951–61.
- Das Gupta, Monica, Rajendra Shukla, T. V. Somanathan, and K. K. Datta. 2009. 'How Might India's Public Health Systems be Strengthened?' The World Bank, Policy Research Working Paper 5140, November, <http://elibrary.worldbank.org/doi/pdf/10.1596/1813-9450-5140>, accessed on 18 May 2014.
- Das Gupta, Monica, B. R. Desikachari, Rajendra Shukla, T. V. Somanathan, P. Padmanaban, and K. K. Datta. 2010. 'How Might India's Public Health Systems be Strengthened? Lessons from Tamil Nadu'. *Economic and Political Weekly* 45 (10): 46–60.
- DLHS-3. 2010. *Key Indicators: States and Districts, District Level Household and Facility Survey (DLHS)-3, 2007–08*. Mumbai: International Institute of Population Sciences.
- Fan, Victoria. 2013. 'How a Toilet Makes Everyone Taller'. Centre for Global Development, <http://www.cgdev.org/blog/how-toilet-makes-everyone-taller>, accessed on 28 May 2014.
- Hamid, Zubeda. 2013. 'The Medical Capital's Place in History'. *The Hindu*, 4 June 2013, <http://www.thehindu.com/news/cities/chennai/article3796305.ece>, accessed on 28 May 2014.
- Hammer, Jeffrey, Yamini Aiyar, and Salimah Samji. 2007. 'Understanding Government Failure in Public Health Services'. *Economic and Political Weekly* 42 (40): 4049–57.
- HDR (Human Development Report). 2013. 'The Rise of the South: Human Progress in a Diverse World'. *Human Development Report (HDR)*. New York: United Nations Development Programme (UNDP).
- IHME (Institute of Health Metrics and Evaluation). 2013. *Global Burden of Disease Country Profiles*, IHME, <http://www.healthmetricsandevaluation.org/gbd/country-profiles>, accessed on 30 April 2014.
- Indian Nursing Council. 2014. Indian Nursing Council, http://www.indiannursingcouncil.org/pdf/bsc_11_march_2014.pdf, accessed on 17 June 2014.
- IRDR (India Rural Development Report). 2013. *India Rural Development Report 2012|13*. New Delhi: Orient BlackSwan.
- Khera, Ajay, Anuradha Gupta, Hema Gogia, and Sujatha Rao. 2012. 'India's National Immunization Programme'. Seminar, Issue No. 631, March, http://www.india-seminar.com/2012/631/631_ajay_khera_et_at.htm, accessed on 30 April 2014.
- MCI (Medical Council of India). 2014. Medical Council of India, <http://www.mciindia.org/home.aspx>, accessed on 2 June 2014.
- MoHFW (Ministry of Health and Family Welfare). 2014a. 'Life Expectancy Increases by 5 Years in the Past Decade'. Press Information Bureau Release, 27 January. New Delhi: MoHFW, Government of India, <http://pib.nic.in/newsite/PrintRelease.aspx?relid=102772>, accessed on 28 May 2014.
- . 2014b. 'Shri. Ghulam Nabi Azad: Not a Single Case of Wild Polio Reported in Last Three Years', Press Information Bureau Release, 13 January. New Delhi: MoHFW, Government of India, <http://pib.nic.in/newsite/PrintRelease.aspx?relid=102426>, accessed on 28 May 2014.
- . 2014c. 'WHO Certifies India as Polio Free', Press Information Bureau Release, 27 March. New Delhi: MoHFW, Government of India, <http://pib.nic.in/newsite/PrintRelease.aspx?relid=104700>, accessed on 28 May 2014.
- . 2013a. *Health and Family Welfare Statistics in India*. New Delhi: MoHFW, Government of India.
- . 2013b. 'National Urban Health Mission (NUHM) as a Sub-mission under the National Health Mission (NHM)', Press Information Bureau Release, 1 May. New Delhi: MoHFW, Government of India, <http://pib.nic.in/newsite/ererelease.aspx?relid=95385>, accessed on 28 February 2014.
- . 2013c. *Gazette Notification on NUHM*, http://nrhm.gov.in/images/pdf/NUHM/Gazette_Notification_NUHM.pdf, accessed on 28 February 2014.
- . 2013d. *Rural Health Statistics in India*. New Delhi: MoHFW, Government of India.
- . 2011. *Family Welfare Statistics in India*. New Delhi: MoHFW, Government of India.
- . 2009. *National Health Accounts India—2004–05*. New Delhi: MoHFW, Government of India.
- MoSPI (Ministry of Statistics and Programme Implementation). 2014. *Millennium Development Goals—India Country Report 2014*. New Delhi: MoSPI, Government of India.
- . 2013. *Towards Achieving Millennium Development Goals—India 2013*. New Delhi: MoSPI, Government of India.
- Nair, Sudha. 2012. *National Assessment of the Participation of Women and Girls in the National STI System Based on the Gender Equality-Knowledge Society Framework*, India Report, http://wisat.org/data/documents/India_GE-KS.pdf, accessed on 27 January 2014.
- Narayana, D. 2010. 'Review of the Rashtriya Swasthya Bima Yojana'. *Economic and Political Weekly* 45 (29): 3–18.
- NFHS-3. 2007. *National Family Health Survey (NFHS-3)—2005–06*. Mumbai: International Institute for Population Sciences.
- NFHS-2. 2000. *National Family Health Survey (NFHS-2)—1998–99*. Mumbai: International Institute for Population Sciences.
- NFHS-1. 1995. *National Family Health Survey (NFHS-1)—1992–93*. Mumbai: International Institute for Population Sciences.

- NHM (National Health Mission). 2014. *National Health Mission*, <http://nrhm.gov.in/nhm/nrhm.html>, accessed on 13 March 2014.
- NHP (National Health Policy). 2012. *National Health Profile (NHP) of India*. New Delhi: Central Bureau of Health Intelligence, MoHFW, Government of India.
- . 2011. *National Health Profile (NHP) of India*. New Delhi: Central Bureau of Health Intelligence, MoHFW, Government of India.
- . 2010. *National Health Profile (NHP) of India*. New Delhi: Central Bureau of Health Intelligence, MoHFW, Government of India.
- . 2009. *National Health Profile (NHP) of India*. New Delhi: Central Bureau of Health Intelligence, MoHFW, Government of India.
- . 2008. *National Health Profile (NHP) of India*. New Delhi: Central Bureau of Health Intelligence, MoHFW, Government of India.
- . 2006. *National Health Profile (NHP) of India*. New Delhi: Central Bureau of Health Intelligence, MoHFW, Government of India.
- . 2005. *National Health Profile (NHP) of India*. New Delhi: Central Bureau of Health Intelligence, MoHFW, Government of India.
- NRHM (National Rural Health Mission). 2013. *All-India Progress under NRHM*, NRHM, 30 June, http://nrhm.gov.in/images/pdf/monitoring/progress-nrhm/all_india_executive_summary_status_as_on_30-06-2013.pdf, accessed on 20 January 2014.
- NSSO (National Sample Survey Organisation). 2006. *Morbidity, Healthcare and the Condition of the Aged*. NSSO, Report No. 507, 60th Round, January–June 2004.
- NVBDPC. 2013. *National Vector Borne Disease Control Programme*, <http://www.nvbdcp.gov.in/>, accessed on 17 January 2014.
- ORGI. 2013a. *Sample Registration System Statistical Report 2012*, Office of Registrar General, India, http://www.censusindia.gov.in/vital_statistics/SRS_Report_2012/11_Chap_4_2012.pdf, accessed on 25 June 2014.
- . 2013b. *A Presentation on Maternal Mortality Levels (2010–12)*, Office of Registrar General, India, 20 December, http://censusindia.gov.in/vital_statistics/SRS_Bulletins/MMR_2010-12-Report_Pres_19.12.2013.ppt, accessed on 24 January 2014.
- . 2009. *Report on Causes of Death in India 2001–2003*. Office of Registrar General, India, http://www.cghr.org/wordpress/wp-content/uploads/Causes_of_death_2001-03.pdf, accessed on 3 February 2014.
- . 2011. *Maternal & Child Mortality and Total Fertility Rates*, Sample Registration System (SRS), Office of Registrar General, India, 7 July, http://censusindia.gov.in/vital_statistics/SRS_Bulletins/MMR_release_070711.pdf, accessed on 24 January 2014.
- Pandey, Aparna, Priya Gopal Sengupta, Sujit Kumar Mondal, Dhirendra Nath Gupta, Byomkesh Manna, Subrata Ghosh, Dipika Sur, and S. K. Bhattacharya. 2002. 'Gender Differences in Healthcare-seeking during Common Illnesses in a Rural Community of West Bengal, India.' *Journal of Health, Population and Nutrition* 20 (4): 306–11, http://www.researchgate.net/publication/10836984_Gender_differences_in_healthcare-seeking_during_common_illnesses_in_a_rural_community_of_West_Bengal_India, accessed on 3 February 2014.
- Paul, Hemanth. 2014. 'Mother and Child: The Foundation of a Healthy Nation.' *The Financial Express*, 12 March 2014, <http://healthcare.financialexpress.com/cover-story/2527-mother-and-child-the-foundation-of-a-healthy-nation>, accessed on 30 April 2014.
- Phillips, Ceri. 2009. 'What is a QALY?' *What is ...? Series*, Second Edition, Health Economics, <http://www.medicine.ox.ac.uk/bandolier/painres/download/whatis/QALY.pdf>, accessed on 28 May 2014.
- Planning Commission. 2013. *Twelfth Five Year Plan 2012–17*. New Delhi: Planning Commission, Government of India.
- . 2012. *Report of the Steering Committee on Health for the Twelfth Five-Year Plan*. New Delhi: Planning Commission, Government of India.
- . 2011a. *Mid-Term Appraisal for Eleventh Five Year Plan 2007–12*. New Delhi: Planning Commission, Government of India.
- . 2011b. *High Level Expert Group Report on Universal Health Coverage for India*. New Delhi: Government of India.
- . 2008. *Eleventh Five Year Plan 2007–12*. New Delhi: Planning Commission, Government of India.
- Puliyal, Jacob. 2014. 'Challenges of Ensuring Public Health: Assessing the Past, Charting the Future.' *Yojana*, February, 21–24.
- Rammohan, Anu, Kazi Iqbal, and NiyiAwofeso. 2013. 'Reducing Neonatal Mortality in India: Critical Role of Access to Emergency Obstetric Care.' *PLoS ONE* 8 (3): e57244, <http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0057244>, accessed on 3 February 2014.
- Rao, P. H. 2012. 'The Private Health Sector in India: A Framework for Improving the Quality of Care.' *ASCI Journal of Management*, Administrative Staff College of India 41 (2): 14–39.
- Rathi, Prateek, Arnab Mukherji, and Gita Sen. 2012. 'Rashtriya Swasthya Bima Yojana: Evaluating Utilisation, Roll-out and Perceptions in Amaravati District, Maharashtra.' *Economic and Political Weekly* 47 (39): 57–64.
- Reddy, Sunita, and Imrana Qadeer. 2010. 'Medical Tourism in India: Progress or Predicament?' *Economic and Political Weekly* 45 (20): 69–75.
- RSBY (Rashtriya Swasthya Bima Yojana). 2014. RSBY, <http://www.rsbypov.gov.in/Overview.aspx>, accessed on 11 March 2014.

- Sathyamala, C., N. J. Kurian, Anuradha De, K. B. Saxena, Ritu Priya, Rama Baru, Ravi Srivastava, Onkar Mittal, Jacob Puliely, Claire Noronha, and Meera Samson. 2012. 'Public Report on Health: Some Key Findings and Policy Recommendations'. *Economic and Political Weekly* 47 (21): 43–54.
- Save the Children. 2013. *Surviving the First Day—State of the World's Mothers*, http://www.savethechildren.org.uk/sites/default/files/images/State_of_World_Mothers_2013.pdf, accessed on 24 January 2014.
- Shahrawat, Renu, and Krishna D. Rao. 2012. 'Insured Yet Vulnerable: Out-of-pocket Payments and India's poor'. *Health Policy and Planning* 27 (3): 213–21, <http://heapol.oxfordjournals.org/content/27/3/213.full.pdf>, accessed on 11 March 2014.
- Sharma, Suresh. 2008. 'Childhood Mortality and Health in India', Working Paper Series No. E/292/2008. Institute of Economic Growth (IEG), <http://www.iegindia.org/workpap/wp292.pdf>, accessed on 8 May 2014.
- Singh, Prabal Vikram, Anand Tatambhotla, Rohini Rao Kalvakuntla, and Maulik Chokshi. 2012. 'Replicating Tamil Nadu's Drug Procurement Model', *Economic and Political Weekly* 47 (39): 26–29.
- Whiteford, H. A., L. Degenhardt, J. Rehm, A. J. Baxter, A. J. Ferrari, H. E. Erskine, F. J. Charlson, R. E. Norman, A. D. Flaxman, N. Johns, R. Burstein, C. J. Murray, and T. Vos. 2013. 'Global Burden of Disease Attributable to Mental and Substance Use Disorders: Findings from the Global Burden of Disease Study 2010'. *Lancet* 382 (9904): 1575–86, <http://www.ncbi.nlm.nih.gov/pubmed/23993280>, accessed on 19 May 2014.
- WHO (World Health Organisation). 2013a. *World Health Statistics* 2013. Italy: WHO.
- . 2013b. *Global Tuberculosis Report 2013*. France: WHO.
- . 2009. *Disease and Injury Country Estimates. Health Statistics and Information Systems*, WHO, http://www.who.int/healthinfo/global_burden_disease/estimates_country/en/, accessed on 8 May 2014.
- World Bank. 2014a. *World Development Indicators*, <http://data.worldbank.org/indicator/SI.XPD.OOPC.ZS>, accessed on 17 June 2014.
- . 2014b. *World Development Indicators*, <http://data.worldbank.org/indicator/SI.XPD.OOPC.TO.ZS>, accessed on 17 June 2014.
- Xu, Ke, David B. Evans, Guido Carrin, Ana Mylena Aguilar-Rivera, Philip Musgrave, and Timothy Evans 2007. 'Protecting Households from Catastrophic Health Spending' *Health Affairs* 26 (4): 972–83, <http://content.healthaffairs.org/content/26/4/972.full.pdf>, accessed on 3 February 2014.

Section I
LANDSCAPE

1

UNIVERSAL HEALTHCARE AND SOCIAL RESPONSIBILITY OF THE PRIVATE SECTOR

Imrana Qadeer

Specific histories, structures, cultures and political ideologies of countries have shaped their strategies towards universalisation of healthcare. In 1942, when the British set up the Health Survey and Planning Committee (Government of India 1946) to propose a long-term plan for India's health service system, the Committee apart from a thorough analysis of data collected over time, also reviewed the national experiences of a large number of countries to evolve its own strategy that became India's blueprint for health planning at least on paper. Today, India after opting for Health Sector Reforms (HSR), on the assumption that there is no alternative, has two decades of experience with reforms in welfare sector. It is now time to review that experience along with a range of other experiences from other market economies that accepted reforms.

A brief review of the history of universal healthcare shows that in the countries of origin of modern medicine over the eighteenth and nineteenth centuries, health services were available either as charity from voluntary institutions or on payment to providers. Disease, destitution and widespread epidemics, however, forced local bodies to intervene in ways that were considered preventive—isolation, institutionalisation, fumigation and other sanitary measures—or through labour and health legislation (Rosen 1993, Starr 1982). The late

nineteenth and early twentieth century saw the evolution of other ways of payment, such as small mutual benefit societies, like the workers' contributory funds, later joined by some employers, and limited national as well as private insurances for special groups. In Britain, the Second World War brought together those engaged in other ways of payment mentioned above, to accept the concept of a National Health Services (NHS) based on taxes as proposed by the Beveridge Committee. Germany and France, on the other hand, continued to follow Bismarck's insurance-based system,¹ while other European countries mixed private provisioning with one or the other of state-led NHS models. The two extremes were the United States (US) and Canada. In contrast, the movement for universal healthcare in the US was repeatedly defeated in its legislature because of fears of a socialist take-over, the loss of freedom of individual doctors and patients, and the high cost due to extensive coverage. It only conceded medical insurance for the elderly, and later the poor, in the 1960s keeping out a large population from receiving state insurance coverage. Following the crisis of the 1970s, most Western countries protected their public expenditures in health keeping it at 6–8 per cent of their gross domestic products (GDPs) (UNDP 2005). Canada's Health Act, 1984 re-asserted its political commitment

¹ Light (2003) traces how centralised democracies of Europe could experiment with varying models of universal healthcare, while in the US the fear of centralised control kept health services in the hands of the private model.

to free and universal basic health services through a single payee insurance system administered by the public authority. It specifically discouraged financial contributions by patients, either through user charges or extra-billing (billing patients over and above the insured amount for basic services). Barak Obama in the US made universal healthcare his election agenda (Bybee 2009). His electoral success reflects the assertion of the marginalised, and the popularity of the idea of universal healthcare among the democratic Americans.

What is interesting for us in this historical experience of the West is the fact that within the welfare capitalist framework: (a) there was no one model of provisioning medical care; (b) that the state played a very crucial role in provisioning, financing and regulating even if it was not the only provider; (c) that even through the economic crisis, state spending on healthcare was protected; (d) that socio-economic, political and cultural factors play an important role in shaping a country's strategy for universal healthcare. The questions this chapter explores are: what was India's initial approach to universal healthcare and partnerships; how have these been impacted by shifts in approach over time; and what are the challenges for the future?

INDIA'S TRYST WITH UNIVERSAL HEALTHCARE AND PUBLIC-PRIVATE PARTNERSHIP (PPP)

The First Four Decades

The planning process for health in India in the early years of Independence was exciting as it took into account the complexity of the issue of health. The National Planning Committee of the Indian National Congress in 1948, and the Bhore Committee in 1946, recognised the fact that diseases are rooted in the poverty of the people; that India had to plan for a large population under conditions of scarcity of personnel, infrastructure and technology; and that public health was an interdisciplinary effort requiring multiple inputs (NPCC 1948, Government of India 1946). India's Second Plan, under the guidance of Nehru and Mahalanobis, used a systems perspective for planning, operationalising, monitoring and feedback processes for complex systems. It focused on improving the standards of living, reducing inequalities and providing basic amenities of life. Improving food and drinking water supplies was linked to communicable disease control as well as health of mothers and children and was a part of health planning (Qadeer 2008). In

time, however, this vision got entangled with the social and political structural complexities of India where the power balance was such that instead of striving to keep its promises, the political leadership chose to accept the trickle-down theory. The priorities in healthcare shifted to urban institutional growth, specialisation for professionals and a physician-based system with a division between clinical practice and disease control. The concentration of doctors in the cities added to this divide, relegating disease control or public health primarily to rural areas managed by inadequate numbers of doctors and paramedics. The effort to build a basic three-tiered integrated infrastructure meant to provide primary, secondary, and tertiary level services through planned inputs into the sub-centres, primary health centres (PHCs), and the community health centres (CHCs) under the district hospital began to slow down and get distorted as independent vertical programmes for family planning, malaria and leprosy control became national priorities (Banerji 2001).

The post-Emergency phase (1977–79) saw a revival of efforts to build infrastructure and the Sixth Plan introduced major changes in infrastructural requirements introducing CHCs, reducing coverage of PHCs to a population of 30,000, and promising a reintegration of vertical programmes. Despite the earlier distortions, by the mid-1980s, India had developed a not so unimpressive infrastructure, manpower and also a certain degree of self-sufficiency. Yet, pulled apart by the political priorities given to population control and vertical disease control programmes, its functioning had become inefficient and fragmented (*ibid.*). This was also the time when India accepted the Structural Adjustment Programme to cope with the debt crisis. Instead of implementing the organisational, technological, and managerial reforms being debated within health policy circles to resurrect primary healthcare (ICSSR-ICMR 1981), the country accepted HSR and acknowledged that there is no alternative to a set of pro-market moves presented as 'reforms' by the global aid providers.

HSR—1991 and Beyond

The HSR included cuts in welfare investments, privatisation of medical care, opening up of public sector hospitals to private investments, introduction of market principles in personnel planning and choosing technologies for public health. This meant fragmenting an integrated system of primary, secondary and tertiary levels of care, to facilitate market capture of the tertiary medical care. The focus on monetary efficiency further

undermined the extension functions of public health workers as permanent personnel were considered wasteful (as salaries consumed 70 per cent of the health budget) and, hence, casualised. This weakened public health activities such as monitoring, follow-up, community contact, and prediction of epidemics such as plague, malaria, cholera and blood dysentery that hit Gujarat, Rajasthan, Jharkhand and Madhya Pradesh in the 1990s. Similarly, not only was primary healthcare as conceived by the Alma Ata Declaration of 1978 ignored, even selective PHCs were relegated to primary level care that broke the link between secondary and tertiary care.² Finally, 'Essential Package' replaced all other notions of services, where priorities were not determined epidemiologically but on the basis of available technologies and internationally set priorities. Public expenditure on health came down to its all time low of 0.9 per cent of GDP over the 1990s and stayed around that level for a long time. In 2008–09, it started rising again and reached a miserly 1.09 per cent only to drop to 1.04 per cent in 2011–12, with barely an additional 0.89 per cent on health-related expenditures like drinking water, sanitation and nutrition (Planning Commission 2011, 2013). Thus, the huge spaces left were filled by the private sector, both in the open market as well as in the public sector institutions where private sector spending and institutional arrangements with private sector are being promoted (Roy et al. 2011). An important influence was the WHO-World Bank Report of the Macroeconomic Commission on Health (WHO 2001) that advised investment in health as a vehicle for growth. This calls for absorbing the healthy labour force into the economy to increase productivity. Failure to generate employment and absorb labour left only one other option: achieving growth through commoditisation of services for a small but elite market for high technology; opening all medical care to market forces; transforming the state into a client as it purchases technology for its 'essential' programmes of Contravertial Pentavalent and Human Papilloma Virus (HPV) vaccines—known to kill and harm but profitable (Madhavi 2013)—irrespective of epidemiological reality; and finally through PPPs at all levels. It appears then that revenue maximisation through the health

sector, and not health, is the prime reason for pushing privatisation and PPP.

At the same time, the public sector cannot justify all actions on the grounds of resource constraint. Even though it may be true to some extent, but so is the inadequacy of plans and programmes lacking in principles of public health, training in managerial skills, epidemiological thinking and operations research in planning, as well as medical education. The basic doctor with these inputs, conceptualised by the Bhore Committee, never became a reality, nor were paramedical staff trained in responsible partnership. Over-dependence on vertical and purely technology-based interventions at the cost of comprehensive primary healthcare led to the neglect of safe drinking water, food security, and sanitation. Also, integration, co-ordination and regionalisation of services and referral systems never took off. The tertiary care services are now losing their distinct service orientation (Baru 2005) as the private sector penetrates them and brings in its market values where patients are not attended to till the money is deposited. The culture of empathy for the poor patients has been overshadowed by a focus on facilities for paying patients, at the cost of those who cannot be accommodated within the limits of subsidised services (Roy et al. 2011). These ailments have to be addressed before any investment can improve the working of public institutions.

Public-Private Partnership (PPP)

It is through this trajectory of events over the past six decades since Independence that the evolution of PPPs in the health sector has to be understood. The Bhore Committee, in 1946, declared a policy of non-interference with the work of private practitioners and institutions. Initially, it in fact offered them spaces in public institutions for their practice with the hope that as the public sector grew, the private will be automatically absorbed. Over time, however, the public sector doctors themselves started indulging in private practice, and the private practitioners, in the absence of any regulation, in turn developed inroads into public institutions through family networks across the sectors, private referrals to and fro, use of state subsidy for setting up practice and institutions, while acquiring highly subsidised

² Primary healthcare was conceived as total care of a population for its epidemiologically identified problems out of which an 'essential set' is chosen on the basis of a given systems capacity to provide. The corresponding essential package of services is provided by a three-tiered system where primary level can refer to secondary and the tertiary fully supports the secondary creating a well-knit referral system between levels of care. In primary level care, the secondary and tertiary levels are not accountable to the primary level and for serious conditions patients have to find their own solutions.

education in public sector. These informal and formal links between the two sectors ensured advantages for the private sector that grew from individual practitioners to polyclinics, nursing homes, privately owned or trust hospitals and diagnostic facilities. The transition of public sector from providing patronage to private sector to getting penetrated by it, contributed to the expansion of private sector over the 1970s–1980s and its corporate component emerged in the 1980s. As an outcome of the diversification of agricultural capital into the health sector and setting up of corporate hospitals, this corporate sector attracted professional non-resident Indians (NRIs) seeking opportunities in India (Baru 1998). This combination of money and super-specialty brought political power, technological glory, and respectability to the private sector. Despite being a fraction of the whole this corporate sector started playing an advisory role for policy and planning (CII & McKinsey 2002).

This expansion and the changing dynamics partly represent the demands of the upper and middle classes and the interests of the medical professionals, and partly the impact of HSR. The latter encouraged the withdrawal of the state from the service sector to become a 'steward' to smoothen the process of private sector expansion. The demand for international standards and hi-tech tertiary care services, with the existence of a few good private institutions, made the government's task to push privatisation at the tertiary level easy. The notion of 'catastrophic costs' (rooted in the failure to provide relatively cheaper but effective tertiary care) added urgency to the push for PPP. The unsubstantiated assumptions made were that PPPs can help in cost reduction, improving efficiency, filling in the gaps, participatory planning, sharing of resources, quality assurance, ambulatory care, and in bringing about equity.³ The inclination of the state to push PPP is borne out by the Twelfth Plan which, despite its recognition of the need to strengthen public sector health service infrastructure and functions, offers no concrete time-frame, content, or management plan for this important activity (Planning Commission 2013).

To reach out to the poorest, state insurance systems based on partnerships with private institutions and insurance agencies are being popularised. The proposed empanelment of institutions, both public and private, for state medical insurance (*ibid.*) does not ensure a level playing field. Instead of fixed budgets for public

sector medical care institutions as in the past, the new proposal of tagging funding to the number of families covered is likely to further deprive the resource starved poorly functioning public institutions (that could hardly compete in empanelment), and thus ensure their take-over or closure. Reports of these experiments in PPPs in the insurance sector, and of its contribution to medical care rarely show evidence of inclusive, cheap, or rational care (PHFI 2011, Selvaraj and Karan 2012). Similarly, PPP in medical care and diagnostics at secondary and tertiary levels, and first referrals care, institutional arrangements for ancillary services and diagnostics are also being promoted. The state clearly is reluctant to take into account the complexity of the private sector—a vast body of unregulated practitioners and institutions of different systems of medicine. Of this whole, the private tertiary care hospitals with corporate institutions in the forefront, partner the state in the search for revenues rather than inclusive care. They contribute to economic growth through expanding the hi-tech medical market by demanding heavy state subsidies as reflected by the proposals of the CII (CII and McKinsey 2002). With the failure to achieve their own targets, both in Millennium Development Goals (MDGs) and in National Rural Health Mission (NRHM), and having shifted from 'Universal Healthcare' to 'Universal Health Coverage', the state planners need to examine if the nature of PPPs in health sector is conducive to solving the crisis of universal healthcare and how rational is its neglect of investing and regulating public sector even for partnerships?

The challenges before those working and planning in the private sector, especially the corporate sector, given the position they hold, are no less if they have to take seriously the notion of corporate social responsibility (CSR) and partnerships in meeting the government's constitutional commitment to take India out of the morass of disease, death and inequity. If partnerships have not been effective then where is the flaw? To answer this question, we have to understand the complexity of public health and some theoretical issues arising out of it.

PUBLIC HEALTH AND CLINICAL MEDICINE

The current pre-occupation with medical markets and clinical facilities obfuscates the very nature of

³ See <http://www.ncbi.nlm.nih.gov/pubmed/11653038>, accessed on 20 November 2013.

public health and the healthcare system. Health is a part of well-being determined by a country's socio-economic structure, culture, and politics that shape the epidemiological patterns of disease, the non-medical inputs into health by the state (livelihoods, wages, food security, housing, sanitation, electricity and roads) and the health service system. This requires a welfare state where democracy penetrates to the grassroots, delivering justice and equity by using the principle of solidarity that makes systems work for the majority. *Standard of life and access to organised health services are the two anchors of public health.* Based on classical understanding of public health, the Alma Ata Declaration represented a comprehensive vision of primary healthcare based on self-sufficiency and integrated within a democratic context (WHO 1978). Given the pressures of time, it was soon changed to selective primary healthcare (limited to selected technology-based services integrated at different levels of care but not within the social context) and then to primary level care—fragmented both in terms of linkages and interventions (Qadeer 2002). Its content was no more based on epidemiological evidence but on the availability of technology, and rechristened as 'essential package.' It thus lost both the comprehensive (services inclusive of non-medical interventions) and the integrative vision. The latter meant a balance between preventive, promotive, curative and rehabilitative interventions as well as of primary, secondary and tertiary levels of care.

Exclusively fixated on curative medical interventions, we lost the distinction between health system, healthcare systems, and medical care—the latter now occupies centre space and, that too, in a fragmented form (lacking integration of either infrastructure or technology-based programmes), that cannot ever impact the history of disease through control and prevention. It will, however, generate revenue in the medical market. It is, therefore, worthwhile reminding ourselves that public health means, '*The science and art of preventing disease, prolonging life, and promoting health of the community through organized community efforts. This calls for organization of health care services (manpower, technology, and material), for the early diagnosis and preventive treatment of disease, and the development of the social machinery which will ensure access to services, environmental sanitation, health education to the community and a standard of living adequate for the maintenance of health.*'⁴

Historically, those clinical practitioners who practised among the rich had an edge over others who worked among the less privileged as they controlled the elite institutions and could influence policy. This was evident in Britain's NHS which covered mainly provisions of clinical care, lacked in public health content, and left the Public Health Act of 1875 untouched (Rosen 1993: 207). This dichotomy was brought to the colonies, and India was no exception, where the Public Health Commissioner was subservient to the Indian Medical Service, both being initiated in the nineteenth century. The clinical practitioners dominated decision-making, while public health remained synonymous with sanitation, cleanliness, and epidemic control. It, therefore, remained neglected till post-independent India made efforts to set up its welfare infrastructure. This is indicative of a long-standing existential dilemma between clinical and public health practice, as the first is about best cures for individuals, and the second is about optimal control of diseases in a population through organised clinical and non-medical interventions that impact on linkages between population, health, and environment. 'Population' here is not just an agglomeration of individuals but a dynamic social system requiring understanding. One is for the present need and the other is inclusive of the future. This dilemma can be resolved only when we appreciate that the two are not independent of each other: that clinical medicine based on affordable and effective technologies, when delivered in an organised way, becomes an instrument of public health. When combined with the second arm of public health—the basic amenities—it has a much greater impact on the population's health than as fragmented clinical services.

Achieving this balance in epidemiological and societal priorities that determine technological choices is a challenge, as the interests of the majority and those of 30 per cent in the upper echelons do not match. One needs basic welfare services, technology primarily for diseases of poverty (WHO 2006), and tertiary care for support of a relatively younger population; the 30 per cent in the upper echelons have already acquired the basic amenities and now want hi-tech tertiary care, especially for the elderly. The epidemiological lines between them are not that clear with cardio-vascular ailments, cancers, and mental illnesses rising among the poor. This pattern thus sets national priorities, but access to the poor is never ensured due to poor infrastructure. The

⁴ See <http://health.usf.edu/NR/rdonlyres/2C2130C1-3E71-400E-87E6-CF374C7E62E7/0/index.html>, accessed on 19 October 2013.

costly institutions that were set up⁵ did not necessarily produce health for all specially when, despite the high growth rates of up to 9 per cent after 2000, poverty has stagnated at unacceptable levels with estimates ranging up to 50 per cent⁶ for overall level of poverty to 76 per cent and 65 per cent in rural and urban areas (Patnaik 2013). It is not surprising then that farmers commit suicide, women die in labour, the under-nourished young succumb to diarrhoea, dysentery, pneumonia, etc. and even technology-based MDGs remain unachievable, while the medical market booms.

THEORETICAL CONCERNs

Today, professional planners from both the sectors need to evolve a vision for the future. Before we take up some of the issues, however, it needs to be said that we shall focus on the corporate sector in health that contributes to growth through its hi-tech services, based on a pure business model. Its political reach and the links with multinational corporations (MNCs) connect it to the global medical industrial complex where all actors focus on reproduction of capital and changing the perspective of medical practitioners globally. This, we believe, is a matter of grave concern as the influence on the developing world is not only through attractions that are offered, like the glamour of hi-tech, high returns in the medical market, and international professional contacts, but also through the imposition of conceptual constructs based on assumptions that are not necessarily valid. These concepts distort the cumulative knowledge base of public health rooted in historical experience. Also, the market model of services offered is based on medical ethics derived from dilemmas of clinical practice, such as beneficence, non-maleficence, autonomy and confidentiality, informed consent, etc. but not of the dilemmas of public health practice that bring in issues of equity, equality, and collective rights.

Let us begin with the issue of *acknowledging the difference between the essence of public and private services*. Both may generate monetary surpluses, which go to the state treasury as the contribution to GDP growth in the case of the public sector, and to the owner in private sector. The surplus is redistributed in the former according to the state's political priorities between services and other sectors. These reinvestment patterns

may not be ideal but can be questioned and debated openly in the public domain. On the other hand, what proportion of the private surplus is reinvested where, and what proportion constitutes private profit, is not a matter for public debate, given the constitutional right to private property and profits. This has to change if this sector accepts to partner a welfare service with the state as part of its social responsibility. It must be ready to redefine the nature of profit itself, not in terms of money, but as health services for the population and its well-being. This can be called social profit which takes forms other than monetary. The share of private surplus reinvested in health services needs to be raised even if the returns are non-monetary! Also, finances of all services must be open to public scrutiny as also private investment in health that gets extensive subsidies. Furthermore, the competitive nature of the private sector and its monopolistic tendency leads to smaller players disappearing or getting absorbed as franchise clinics that function as screening for hi-tech interventions and referral to the main institution rather than providing basic healthcare. Co-existence and functional harmony with different levels of institutional care (promotive, preventive, curative and rehabilitative) in a manner that is efficient in the public health sense remains unexplored as it is contrary to the present notion of profits.

The second issue is the myth that the private sector constitutes an important component of the healthcare system and hence, cannot be ignored. While it is true that, given its implications, the private sector cannot be ignored, the reasons are far from those that constitute the logic of a scientific definition of a system. A system is a complex whole with several interrelated parts, with a dynamic relationship which may change over time with the changing composition of the components, but they all share a common objective. This is not true of public and private sectors with regard to the definitions of surplus and profit, the type of services provided, and their objectives in terms of cure for individuals or control of disease in population, as well as their accountability to the public. Since there is a one-way traffic of personnel from the public to the private sector, they cannot both be considered components of a single healthcare system. In fact, the public sector is getting transformed into a business model gradually as public institutions open up to private investment and this penetration brings

⁵ Planning Commission, in its Eleventh Five Year Plan lists the PPPs that were set up and eulogises the strengthening of health system by the private sector, http://planningcommission.nic.in/plans/planrel/fiveyr/11th/11_v2/11v2_ch3.pdf, accessed on 15 October 2013.

⁶ See <http://www.thealternative.in/society/brief-history-of-poverty-counting-india>, accessed on 19 October 2013.

insidious changes in the public sector health institutions making them costlier, exclusive, and threatening the service orientation (Baru 2005).

The relationship between public and private sectors is not symbiotic, as assumed. It is actually one-sided if we use the public health vision presented earlier. The unregulated expansion of corporate tertiary care medicine and the appropriation of resources, personnel, areas of activities, and spaces within the public sector by the private sector—making the former subservient to the latter's needs—could be justified only if it did the job of public health well. The evidence of rising Caesarean sections⁷; deaths from vaccination of young girls due to use of unsafe vaccines like the HPV vaccine^{8 9}, corporate neglect of the promises they make to treat the poor (Government of NCT, Delhi 2001); the increasing costs of care in PPP (Selvaraj and Karan 2012); and pushing for hi-tech services when the need is for primary care to prevent complications, be it for diabetes, hypertension, or infertility: are indicative of the changing orientation of the sector. In India, infertility is primarily caused by poor basic obstetric care, yet a huge private market in infertility has been permitted to emerge in the name of the suffering Indian woman, while the best institutions are servicing the foreign clients and promoting reproductive tourism. The example of forced PPP in the state insurance schemes, run by private agencies, has already been discussed. This unguided parasitic growth of the private sector, taking advantage of the state's compulsions, in the spaces available in public hospitals (ancillary services, personnel, diagnostic services, etc.), along with the corruption that private investment brings into a weakly managed public hospital, is transforming public institutions into mirror images of private hospitals. The process of homogenisation in the name of monetary efficiency and rationalisation is forcing qualitative changes in the working of public hospitals that are not necessarily improving them but certainly making them less inclusive and insensitive to the needs of the ordinary citizens. This trend can neither add to the health of the population nor is a systemic approach. Can this kind of partnership still be called socially responsible? It is in fact indicative of a crying need for the sector to review its notions of social responsibility and public health ethics.

The third challenge is to be clear about the nature of services that the private sector chooses to partner and its consequences. If the overall definition of public health is shared, then would it prefer promotive, preventive, or curative services? Historical experience has made it very clear that the sector's choice is curative services, and for the corporate investors it is the tertiary level of curative services. This is primarily because the private sector does not like locking up its capital in long-term investments; it prefers not to invest in infrastructure with long gestation period while low private returns, seeks markets where competition is less, monopoly is feasible, and returns on investment are the highest. If its partnership has to be within the framework of justice and equity, then these limits too have to be openly acknowledged. This helps carve out those spaces where it can contribute within the overall framework of India's health service organisation as conceptualised by the High Level Expert Group (HLEG) (Planning Commission 2011). Or else, the private sector may expand the tertiary care net on its own steam without demanding public subsidies as the CII and McKinsey report does. Getting over the self-prescribed limits becomes even more critical when the sector makes its entry into medical education, paramedical training, and primary care. The priorities in each and their content demands a national vision of public health services and long-term investments, it cannot be for clinical needs alone. The private sector interventions may be feasible but not at the cost of the direction needed by the country on an epidemiological basis (Qadeer and Dasgupta 2007). In case the corporate sector does not agree with the blueprint offered by the HLEG, it should come out with its own vision of public health services, like the Bombay Plan did in 1946, and put it in the public domain for an open debate. The vision offered by the Planning Commission's Steering Committee Report on Health for the Twelfth Five Year Plan (Planning Commission 2012) and the Twelfth Five Year Plan (Planning Commission 2013) itself sees the Indian government as a steward of the private sector, rather than a leader in strategising inclusive development in public health. This is evident as the two agree to organise and expand health infrastructure for monetary profits and economic growth alone and do not strengthen ethical public health and public sector health system.

⁷ Bhasin et al. (2007) shows the unethical practice of 3–10 times higher rates of Caesarean sections in private hospitals in their study of east district of Delhi, www.ijcm.org.in/article.asp?issn=0770-18;year=2007;volume=32;issue=3;spage=222;epage=224;aulast=Bhasin, accessed on 12 November 2013.

⁸ See www.trueactivist.com/its-official-139-girls-have-died-from-hpv-vaccinations, accessed on 12 November 2013.

⁹ See <http://www.pudr.org/?q=content%2Fadverse-events-following-pentavalent-vaccination-kashmir>, accessed on 15 November 2013.

The fourth concern is the suggested transformation of the role of the state which, as we saw, has no historical validity. Given the organisational complexity of public health, the state occupied a critical role in the financing and provisioning of healthcare services. Today, while inclusive development and universal coverage are loudly reiterated, the state assumes it has no more a central role in provisioning of services. It has accepted the role of a steward for the private sector to smoothen the process of market expansion and take-over of profitable parts of the public sector. At best, the provisioning of primary level care, some vertical programmes and population control, is entrusted to it along with the existing tertiary care institutions and medical colleges but as transformed institutions run through partnerships. The state and the corporate sector share the misplaced common objective of economic growth alone as the core of their development agenda and together they push hi-tech corporate institutions, while the public sector services is expected to contribute to population control and achieve MDGs through isolated vertical technology-based programmes. These open up business opportunities for MNCs in drugs, vaccines and equipment, leading to a heavy dependence on private partnerships, with substantial shifts of subsidy from the public to the private sector, relocating the generation and appropriation of surpluses. This is seen as a panacea for universal coverage. It is curious that increased state responsibility became the single most important issue for the success of the US Democratic Party, but Indian democracy is ready to throw away what it built. Does this stance of the Indian state and its partners reflect a rational and ethical choice?

Yet another questionable assumption is the notion of 'efficiency'. In public health, efficiency is a combination of cost effectiveness and coverage with savings, and cost-cutting in achieving delivery or production. The level of efficiency is decided by the quality of outcomes as well as the desired level of disease control, which ranges from controlling deaths to cure or containment. It is not a simple economic efficiency of savings with desired quality as in the market framework, where coverage and human welfare are non-issues. Finding fault with public facilities and praising the efficiency of the private sector, without understanding the complexity and uniqueness of public health, is not uncommon among global health advisors. It has led to bringing in technology-based vertical programmes and experts who talk of 'international standards' over what is contextually appropriate and feasible. Monetary efficiency does not address 'equity' (distributive justice)

or 'equality' (opportunities constrained by inequality) embedded in the structure of society. This monetisation and internationalisation of services distorts the very basis of public health as it excludes from its content the understanding of social epidemiology, inclusive of social structure in terms of stratification based on caste, class, gender, religion and politics that determine the evolution, organisation, acceptance and transfer of technology (Chakravarthi 2009).

While focusing on monetary efficiency all other aspects of systemic efficiency are left to the state to worry about. A responsible and efficient corporate sector should maintain its own regulatory systems and, in partnerships, it must function according to the standards of the national regulatory bodies, self-regulate and be open to public scrutiny. If the answer is that, at best, private sector institutions can monitor only single institutions or a chain, and not other independent entities, then, it is accepting that discrete private units do not make a 'system'. The conceptual distortion is also evident in the redefinition of public good, which in classical economics is defined as goods that are characterised by their non-contestability (does not exclude anyone) and externalities (positive or negative), and are best provided by the state. The new definition offered, defines 'contestability of public good' in terms of its ability to penetrate the market and not in terms of non-excludability of users, which has a strong ethical underpinning. Hence, all clinical interventions with specific technologies that are regarded as highly penetrative are not public goods, and all services with poor ability to penetrate are assumed to have low contestability and thus are public goods! Even externalities of public goods are not taken note of (Peters et al. 2002). Thus, public health is divided into more contestable clinical services to be distributed by the market, and the rest as less contestable public goods that are the responsibility of the state! This lays out the theoretical grounds for generating unfettered profits leading to organisational distortions.

CONCLUSION

These conceptual shifts may lead to a successful take-over by the medical care market in India but they undermine the discipline of public health. From its broad overarching perspective inclusive of choice of technology, its organisation for delivery through suitable healthcare systems, community involvement and social sector inputs, public health has been fragmented, and reduced to mostly borrowed techno-centric approaches

to diseases. This undermines and distorts the disciplinary base of public health which in its new avatar can never be sufficient for public health work. This new public health—lacking in an independent vision and a theoretical perspective—can only be an instrument for complete integration of the Indian healthcare system into the medical industrial complex and not for its revival into an inclusive and universal health system.

In history, the 1930s economic crisis was dealt with by investing in welfare and expanding it. The technology used covered large populations, and made disease control possible.¹⁰ The economic crisis of the 1970s on the other hand is being dealt with by disinvesting in welfare and using hi-tech that generates large profit margins but benefits very few, at the cost of the majority of people and their democratic rights. Can professionals distance themselves from these dilemmas? Medical professionals who are aware of, and sensitive to, patient needs, and practise the art of healing (over and above their technological expertise), are also aware of the organisational needs which would give maximum benefit to society from where their varied patients come. These two traditions of organising and healing are inextricably linked and can be called the obligation of medical professionals. The separation of these through bringing in managerial sciences as a separate element into healthcare, instead of integrating it into medical education, is yet another step in monetisation of healthcare as it reduces professionals to glorified paid workers. It takes away their authority and control and paralyses them by loading them with money so that they let the system appropriate the rights of other workers through systems of contracting out, casualisation and

contract work. It is time to realise that behind this money lies medicine's real social relationship to society—its obligation to both heal and to organise healing. The aware professionals, therefore, face the challenge of re-appropriating their right to participate in the new forms of organisation that are being promoted and to force the medical managers to confront public health issues.

We suggest that CSR—so talked about¹¹—not be seen as the right to partnership with the state for using its resources and changing its directions. Corporate responsibility must be responsible business and partnership in health that accepts the principles of public health and is sensitive to its social and economic dimensions. This puts three limits to CSR. First, it must acknowledge the key components of public health; second, the principle of re-investing a relatively larger share must be accepted; and third, the distortions mentioned above must be addressed so that the public sector and the smaller private primary care providers are not swallowed up by the market competition as they do provide a necessary service at cheaper cost to a very large population. We believe that the best way is to begin at home: the state in addition to strengthening its overall regulatory systems must first regulate and strengthen public sector health services. This will, in turn, help regulate the private sector which has failed globally to provide for the poor (Oxfam 2009) and comply with the rules laid out by the state as reflected by Delhi's corporate hospitals (Government of NCT, Delhi 2001). We need to rethink because history teaches us that it is wrong to assume that 'there is no alternative'; professionals from both sectors have to work for it with a shared understanding of public health.

REFERENCES

- Banerji, Debabar. 2001. 'Landmarks in the Development of Health Services in India', in Imrana Qadeer, Kasturi Sen and K. R. Nayar (eds), *Public Health and the Poverty of Reforms: The South Asian Predicament*, pp. 39–50. New Delhi: Sage.
- Baru, Rama. V. 2005. 'Commercialization and the Public Sector in India: Implications for Values and Aspirations', in Maureen Mackintosh and Meri Koivusalo (eds), *Commercialization of Health Care: Global and Local Dynamics and Policy Responses*, pp. 101–17. Hampshire: Palgrave.
- . 1998. *Private Health Care in India Social Characteristics and Trends*. New Delhi: Sage, pp. 74, 150.
- Bhasin, S. K., O. P. Rajoura, A. K. Sharma, Mukta Metha, Naveen Gupta, Shishir Kumar, and I. D. Joshi. 2007. 'A High Prevalence of Caesarean Section Rate in East Delhi'.

¹⁰ See www.ncbi.nlm.nih.gov/pmc/articles/PMC1449802/, accessed on 7 November 2013. Simon Szreter in this paper discusses the evolution of a population health in historical perspective and shows how technology was organised to cover large populations within approach of the welfare state.

¹¹ See http://www.apollohospitals.com/initiatives_csr.php, accessed on 14 December 2012, Apollo Hospital claims, 'Our mission is to touch a billion lives. We strive to reach out to people from every walk of life and do our bit to help them stay healthy.'

- Indian Journal of Community Medicine* 32 (3): 222–24, July.
- Bybee, R. 2009. 'Obama's Health Plan.' *Z Magazine* 22 (7): 7 July, <http://zcomm.org/zmagazine/obamas-health-plan-by-roger-bybee/21873>, accessed on 4 December 2013.
- CII (Confederation of Indian Industries) and McKinsey & Company. 2002. 'Health Care in India: The Road Ahead', A report by CII and McKinsey & Company, supported by Indian Health Care Federation. New Delhi.
- Chakravarthi, Indira. 2009. 'Shifts in Processes of Diffusion of Medical Technology in India and Implications for Public Health'. Unpublished PhD thesis, JNU, Centre of Social Medicine and Community Health, New Delhi.
- Government of India. 1946. *Report of the Health Survey and Development Committee* (Bhore Committee), vol. I. Delhi: Manager of Publications.
- Government of NCT, Delhi. 2001. 'Enquiry of High Level Committee for Hospitals in Delhi'. Chairman A. S Qureshi, New Delhi: Government of NCT, Delhi.
- ICSSR-ICMR. 1981. *Health for All: An Alternative Strategy*. Pune: Indian Institute of Education.
- Light, D. W. 2003. 'Universal Health Care: Lessons from the British Experience', *American Journal of Public Health* 93 (1), January, www.ncbi.nlm.nih.gov/pmc/articles/PMC1447686/, accessed on 15 October 2013.
- Madhavi, Y. 2013. 'Vaccines and Vaccine Policy for Universal Health Care'. *Social Change Journal of the Council of Social Development* 42 (2): 263–91.
- National Planning Committee of Congress (NPCC). 1948. *Report of the Sub-committee on National Health* (Sokhey Committee). Bombay: Vora and Co. Publishers Ltd.
- Oxfam. 2009. 'Challenging the Myths about Private Health Care in Poor Countries.' Oxfam Briefing Paper No. 125, February.
- Patnaik, Utsa. 2013. 'Poverty Trends in India: 2004–05 to 2009–10: Updating Poverty Estimates and Comparing Official Figures.' *Economic and Political Weekly* 48 (40): 43–58.
- Peters, David H., Yazbek Avdos, Rashmi Sharma, G. N. V. Ramana, Lan H. Pritchett, and Adam Wagstaff. 2002. *Better Health Systems for India's Poor: Findings Analysis and Options*, pp. 133–49. Washington, DC: World Bank.
- Planning Commission. 2013. *Twelfth Five Year Plan 2012–2017*, New Delhi: Sage.
- . 2012. *Report of the Steering Committee on Health for the 12th Five Year Plan*. Health Division. New Delhi: Planning Commission.
- . 2011. *High Level Expert Group Report on Universal Health Coverage in India*. New Delhi: Planning Commission.
- Public Health Foundation of India (PHFI). 2011. 'A Critical Assessment of the Existing Health Insurance Models in India,' Sponsored by Planning Commission, India. New Delhi: Government of India.
- Qadeer, Imrana. 2008. 'Health Planning in India Some Lessons from the Past'. *Social Scientist*, May–June 36 (5–6): 51–75.
- . 2002. 'Primary Health Care from Adjustment to Reforms', in Seeta Prabhu and R. Sudarshan (eds). *Reforming India's Social Sector*, editors, pp. 121–31. New Delhi: Social Science Press.
- Qadeer, Imrana, and Rajib Dasgupta. 2007. 'Planning for Primary Health Care within the National Rural Health Mission in India'. *Journal of Health and Development* 3 (3 and 4): 7–28.
- Roy Bijoya, and Siddhartha Gupta. 2011. 'Public-Private Health Care and User Fee in Health Care: Evidence from West Bengal'. *Economic and Political Weekly* 46 (38): 74–78.
- Rosen, George. 1993. *A History of Public Health*. Baltimore and London: Johns Hopkins University Press.
- Selvaraj S., and Anup K. Karan. 2012. 'Why Publicly-Financed Health Insurance Schemes are Ineffective in Providing Financial Risk Protection'. *Economic and Political Weekly* 47 (11): 60–68.
- Starr, Paul. 1982. *The Social Transformation of American Medicine*. United States: Basic Books.
- UNDP (United Nations Development Program). 2005. *Human Development Report*, p. 284. New York: Oxford University Press.
- WHO (World Health Organization). 2006. 'Preventing Disease through Healthy Environments: Towards an Estimate of the Environmental Burden of Disease'. Geneva: WHO, http://www.who.int/quantifying_ehimpacts/publications/preventingdisease.pdf, accessed on 15 October 2013.
- . 2001. 'Macroeconomics and Health: Investing in Health for Economic Growth'. Report of the Commission on Macroeconomics and Health. Geneva: WHO.
- . 1978. 'Primary Health Care: Report of the International Conference on Primary Health Care'. Alma Ata, USSR. Geneva: WHO.

2

TRIPLE BURDEN OF MALNUTRITION IN INDIA: CHALLENGES AND OPPORTUNITIES

Prema Ramachandran

India is home to one-sixth of the global population. When the country became independent in 1947, it was not self-sufficient in food production and did not have an appropriate food distribution system. There were pockets which faced threats of famine and starvation whenever monsoon failed or staple production was low. Over three-fourth of the population were poor, food insecure and suffered from chronic macro- and micro-nutrient deficiencies. High prevalence of infections due to poor access to safe drinking water and sanitation led to loss of nutrients. Lack of access to healthcare facilities and poor utilisation of even the available healthcare facilities due to low literacy and lack of awareness, prolonged illness and increased the nutrition toll of infection.

The rapid population growth due to fall in death rates and unaltered birth rates resulting in high population growth rates, imposed great strain on the country's efforts to reduce hunger, under nutrition, micro-nutrient deficiencies and associated health problems. The focus of interventions in the 1950s and 1960s was on improving agricultural production to meet the needs of the growing population, reducing population growth to sustainable levels, and improving access to healthcare to reduce adverse effect of infections on health and nutrition status.

Thanks to Green Revolution, India became self-sufficient in foodgrain production by 1970. However, mere self-sufficiency in foodgrain production could not reduce household food insecurity or improve nutritional status of Indians. Over 70 per cent families continued

to be poor; even though their expenditure on food was 70 per cent of their total household expenditure, 70 per cent of children were still under-nourished. The Government of India, therefore, initiated several national multi-sectoral programmes to reduce poverty, food insecurity, under-nutrition and micro-nutrient deficiencies, especially among the vulnerable segments of the population. These included poverty alleviation programmes aimed at improving purchasing power, providing foodgrain subsidy to improve household food security, food supplementation programmes aimed at bridging the energy gap among the vulnerable segments of the population, and providing healthcare to reduce nutrition toll of infections.

Six decades later, a review of the situation shows that there has been a substantial increase in per capita income and reduction in poverty; relatively low cost of food especially subsidised grains supplied through the public distribution system (PDS) has resulted in improvement in the energy intake of the low income group. The Government of India's Integrated Child Development Services (ICDS) is the world's largest food supplementation programme and covers pre-school children, and pregnant and lactating women. The major objectives of the programme are prevention, early detection, and effective management of under-nutrition. The mid-day meal (MDM) scheme covering over a 100 million school children is the largest school meal programme in the world. Access to essential primary

healthcare is universal, though there are problems in content and quality of care. Despite all these, one-third of Indian infants have low birth weight (at birth weighing less than 2.5 kg) and 20 per cent are stunted at birth. Nearly half of the pre-school children are stunted and underweight though only a third are wasted (thin). A third of Indian adults are thin and under-nourished. A majority of Indians are anaemic and lack access to iodised salt.

The last two decades witnessed a progressive if relatively slow increase in prevalence of over-nutrition and associated health problems. Initially the rise in over-nutrition was seen in the urban affluent segments of the population. But recent data indicate that over-nutrition is emerging as a problem in all age groups, in all segments of population, in all states, both in urban and rural areas. Data indicate that under-nutrition in childhood can be a risk factor for over-nutrition and non-communicable diseases during adult life. Apprehensions that India may become the home for largest number of over-nourished persons and may face steep escalation in non-communicable diseases (NCDs) are widespread.

Triple burden of persistent under-nutrition, micro-nutrient deficiencies, and rising over-nutrition and their health consequences is but one manifestation of the ongoing economic, social, lifestyle, demographic, nutrition and health transitions. India is currently reaping the demographic dividend of having a young, literate, rational and healthy population. There are time-tested, simple, effective and inexpensive interventions for prevention

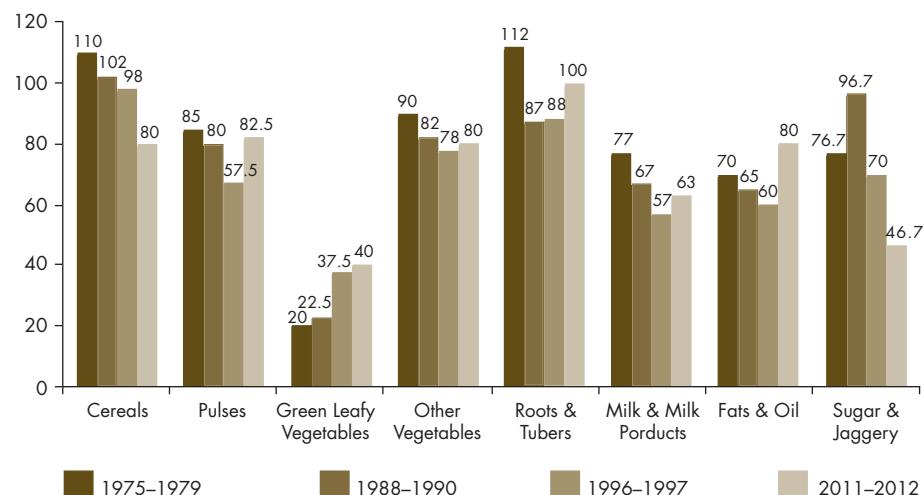
and management of under-nutrition, micro-nutrient deficiencies and over-nutrition. The country has the infrastructure and human resources to implement these and combat triple nutrition burden. This manuscript will briefly review the causes, consequences of triple burden of malnutrition and India's efforts to combat them.

FACTORS AFFECTING NUTRITIONAL STATUS OF INDIANS

Dietary Intake

Recognising the need for good quality data for monitoring nutritional status, the Indian Council of Medical Research (ICMR) in 1972 established the National Nutrition Monitoring Bureau (NNMB) in the National Institute of Nutrition (NIN), Hyderabad. Since 1973, NNMB has been conducting diet and nutrition surveys in 10 major states: Andhra Pradesh, Kerala, Karnataka, Gujarat, Maharashtra, Madhya Pradesh, Odisha, Tamil Nadu, Uttar Pradesh and West Bengal. NNMB had carried out surveys in the rural areas in 1975–79, 1980–85, 1988–90, 1996–97, 2000–01 and 2004–05 and in the urban areas in 1975–79 and 1993–94. Data from NNMB surveys on dietary intake in rural areas in terms of food items as percentage of the recommended dietary allowances (RDA) for Indians is shown in Figure 2.1. Over the last four decades there has been a substantial reduction in intake of cereals (137 gm) (NNMB 2012). A similar reduction in cereal intake was reported by the

FIGURE 2.1 Time Trends in Food Intake as Percentage of RDA (Rural)



Note: RDA: Recommended Dietary Allowances.

Source: NNMB (2012).

consumer expenditure surveys conducted by the National Sample Survey Organisation (NSSO). There has been some reduction in intake of roots and tubers (6 gm), milk and milk products (21 ml), sugar and jaggery (9 gm) and other vegetables (6 gm) over the last four decades. Pulse intake underwent a reduction in the period 1975–1996–1997 but again increased to almost 1975 levels in 2011–12. There was some increase in intake of green leafy vegetables (8 gm) and fats and oils (2 gm). The continued low vegetable intake is the major factor responsible for the high prevalence of micro-nutrient deficiencies in India (*ibid.*). Surveys in urban areas showed a similar trend.

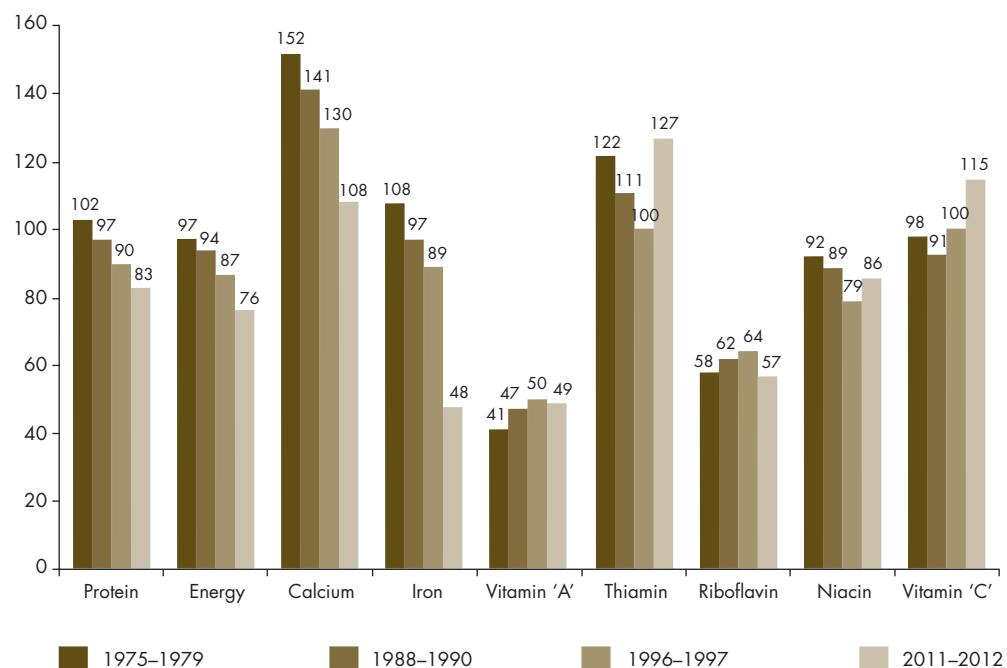
Computed nutrient intake as percentage of RDA from NNMB surveys over the last four decades for rural areas is shown in Figure 2.2. There has been a reduction in the intake of all the nutrients over this period. The average intake of energy declined by about 500 Kcal/CU/day over the period mainly due reduction in cereals which are a major source of energy in Indian diets. This reduction is not due to poverty and lack of purchasing power (there has been a reduction in poverty over years) or lack of access to foodgrains at affordable cost (foodgrains are available for the poor at subsidised cost through PDS). It might be due to the people's perception that they are physically less active and hence

need less energy intake. This reduction is one of the major factors responsible for the relatively slow increase in over-nutrition rate in India as compared to the other developing countries undergoing nutrition transition. The intake of micro-nutrients such as iron, Vitamin A and riboflavin continue to remain well below the RDA (*ibid.*). This has been the reason for the widespread prevalence of micro-nutrient deficiencies especially anaemia among Indian population.

Physical Activity

In the 1970s, Indians spent a lot of energy in occupational activities, domestic chores and getting from one place to another without mechanised transport. Between 1990 and 2010, there has been a steep increase in the mechanisation of the occupational, transport and domestic work domains. This has resulted in substantial reduction in physical activity in all segments of the population both in urban and rural areas. The NNMB survey of 1996–97 shows that even in the rural areas over one-third of men and two-thirds of the women were sedentary (*ibid.*) (see Table 2.1); the magnitude of mechanisation and reduction of physical activity was even higher in the urban areas. The steep reduction in physical activity and relatively lower

FIGURE 2.2 Time Trends in Nutrient Intake as Percentage of RDA (Rural)



Note: RDA: Recommended Dietary Allowances.
Source: NNMB (2012).

TABLE 2.1 Physical Activity Levels in Rural Population

Activity status	Men		Women		Total	
	No.	Per cent	No.	Per cent	No.	Per cent
Sedentary	1,349	33.3	2,765	62.7	4,114	48.6
Moderate	2,650	65.5	1,632	37.0	4,282	50.6
Heavy	48	1.2	14	0.3	62	0.8

Source: NNMB (1999).

reduction in energy intake is one of the major factors responsible for the increase in over-nutrition rates in the country.

Recommended Dietary Allowances (RDA) for Indians

FAO/WHO/UNU revised the human nutrient requirements in 2004 taking into account new data on nutrient requirements obtained using newer more precise technologies (FAO, WHO, UNU 2004). India revised the RDA for Indians in 2010. RDA computed the nutrient requirements for the reference Indian population whose body weight was mean +2SD of the NNMB survey population and also provided energy and nutrient requirements per kg so that nutrient requirements could be computed for various groups on the basis of actual weight of the population (ICMR

2010). Computed energy intake for the average Indians of varying age, sex and physiological status based on their current average weight is given in Table 2.2. It is obvious that for their current weight, the current average energy intake of adults by and large met their requirements. However, there are large energy deficits in two groups: adolescents, and pregnant and lactating mothers. Bridging the energy gap in pregnant and lactating women is a priority not only because of the implications of maternal under-nutrition but also because maternal dietary intake and nutritional status are critical determinants of intrauterine growth of the baby and growth during infancy. The ICDS scheme provides food supplements to bridge the energy gaps in pregnant and lactating women, and pre-school children. The MDM scheme is an attempt to bridge this gap in the 6–14 year age group. Adolescent growth represents the last window of opportunity for linear growth and bridging the large energy deficit in this age group has to be undertaken on priority. However, most often, these supplements are either shared with the family or act as substitutes for home food and do not have substantial impact on nutritional status. Currently, the component of these programmes aimed at identifying thin children and providing them double rations and healthcare for infections is not being implemented on scale; if this were done there can be substantial reduction in wasting (under-nutrition) in children.

TABLE 2.2 Energy Requirement for Actual Weight (Computed from RDA for Indians)

Group	Actual weight (Average of Group in Kg)	Requirement for actual weight (Kcal)	Actual intake (Kcal)	Gap (Kcal)
Adult men	51	1,989	2,000	11
Adult women	46	1,656	1,738	82
Pregnant women		1,906	1,726	-180
Lactating women		2,155	1,878	-277
Children				
1–3 yr	10.5	840	714	-126
4–6 yr	14.6	1,095	978	-117
7–9 yr	19.7	1,379	1,230	-149
Boys				
10–12 yr	26.6	1,729	1,473	-256
13–15 yr	36.8	2,208	1,645	-563
16–17 yr	45.7	2,514	1,913	-601
Girls				
10–12 yr	26.7	1,469	1,384	-85
13–15 yr	36.9	2,030	1,566	-464
16–17 yr	42.6	2,130	1,630	-500

Source: Author's calculations based on NNMB reports and ICMR (2010).

National Food Security Act (NFSA)

Over the last five years there has been a steep and sustained increase in food prices, globally, and in India. There were growing concerns that sustained increase in food price inflation may adversely affect the household food security and nutritional status of the citizens. In September 2013, India became the first country to enact food security legislation through which over two-third of the citizens are entitled to get subsidised foodgrains through the PDS. The National Food Security Act (NFSA) aims to improve household food security by providing subsidised foodgrains (rice at Rs 3, wheat at Rs 2 and millets at Re 1) as a legal entitlement to over 67 per cent of the Indian citizens. Priority households are entitled to 5 kgs of foodgrains/person/month. The poorest of the poor (Antyodaya) households are entitled to 35 kgs/household/month. The combined coverage of Priority and Antyodaya households (called 'eligible households') is upto 75 per cent of the rural population and upto 50 per cent of the urban population. In the ration card, the oldest woman in the household will be designated as the head of the household. In addition to this, on-going programmes of food supplementation to pregnant and lactating women and pre-school children (ICDS) and school children (MDM) will be supported through the NFSA.

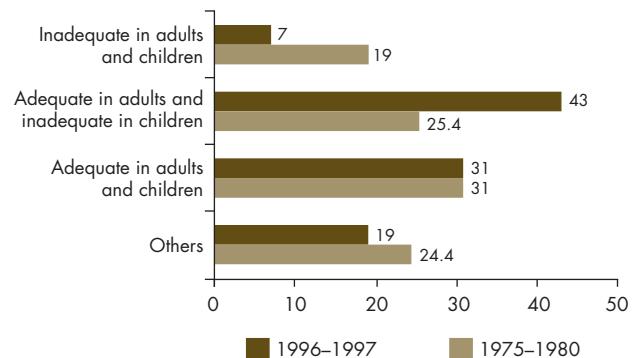
Foodgrains alone cannot provide a balanced meal needed for optimal nutrition. States like Chhattisgarh and Tamil Nadu provide pulses at subsidised cost through PDS. Chhattisgarh provided iron fortified iodised salt (double fortified salt) through PDS at a subsidised cost to combat both iodine and iron deficiency. However, it will never be possible to provide all the food items needed for balanced diet at a subsidised cost to all the needy. There is an urgent need for a nutrition awareness campaign with focus on women (who are head of the household for the ration card) on how the money saved because of subsidised foodgrains ($Rs\ 20 \times 25\ kg = \text{approximately}\ Rs\ 500$ per month) can be used for purchasing vegetables and pulses so that the family can have a balanced diet.

Improving access to foodgrains by itself might not be sufficient to improve the nutritional status of the population if there is nutrient loss due to infections. Therefore, the Act also calls for improvement in access to safe drinking water, improvement in environmental sanitation to prevent infections, and improved primary healthcare for early detection and effective management of infections to prevent nutrient loss.

Intra-family Differences in Dietary Intake and Nutritional Status

In India, efforts have been focused on improving household access to food with the assumption that food will be shared within the household on the basis of need. NNMB survey data showed that this may not be the case (see Figure 2.3). Energy intake was adequate in both adults and children in one-third of the families both during the 1975–80 and 1996–97 surveys. During this period there was a fall (from 19.1 to 7.2 per cent) in the households where all the members had inadequate energy intake. This might be due to reduction in poverty and better access to subsidised food in the 1990s. During the same period, the proportion of families where adults have adequate energy intake but children do not increased from 25.4 to 42.9 per cent. Subsequent NNMB surveys have shown that in the current decade there has been a further increase in the proportion of the families where adults are getting adequate energy but children do not. In these families, which consume about 11,000 Kcal energy/day ($2,200\ Kcal \times 5\ \text{persons}$), poverty and household food insecurity are unlikely to be the reason for a gap of 300–400 Kcal energy intake among children. Poor child feeding and caring practices might be a major factor responsible for the problem, while nutrition education holds the key for correcting this.

FIGURE 2.3 Intra-family Distribution of Food



Note: All other combinations and permutations are labelled as 'others'.

Source: NNMB (1999).

NUTRITIONAL STATUS OF INDIANS Low Birth Weight

Global data on low birth weight (LBW) indicate that the prevalence of LBW is highest in the South Asian

region. India, the population billionaire, accounts for nearly 40 per cent of global LBW infants. Estimates based on available data from institutional deliveries and smaller community-based studies suggest that nearly one-third of all Indian infants weigh less than 2.5 kg at birth. Low maternal and paternal height, low pre-pregnancy weight, low pregnancy weight gain, anaemia, poor antenatal care are major factors responsible for LBW in India. Factors associated with LBW such as low paternal and maternal height and low pre-pregnancy weight cannot be modified during pregnancy. However, universal access to antenatal care will result in early detection and effective management of low pregnancy weight gain, maternal anaemia, and pregnancy-induced hypertension, and bring about a 5 per cent reduction in LBW. Improving coverage, content and quality of antenatal care can be readily achieved through convergence of services under National Rural Health Mission (NRHM) and ICDS for pregnant women at anganwadis during the Village Health and Nutrition Days (VHND).

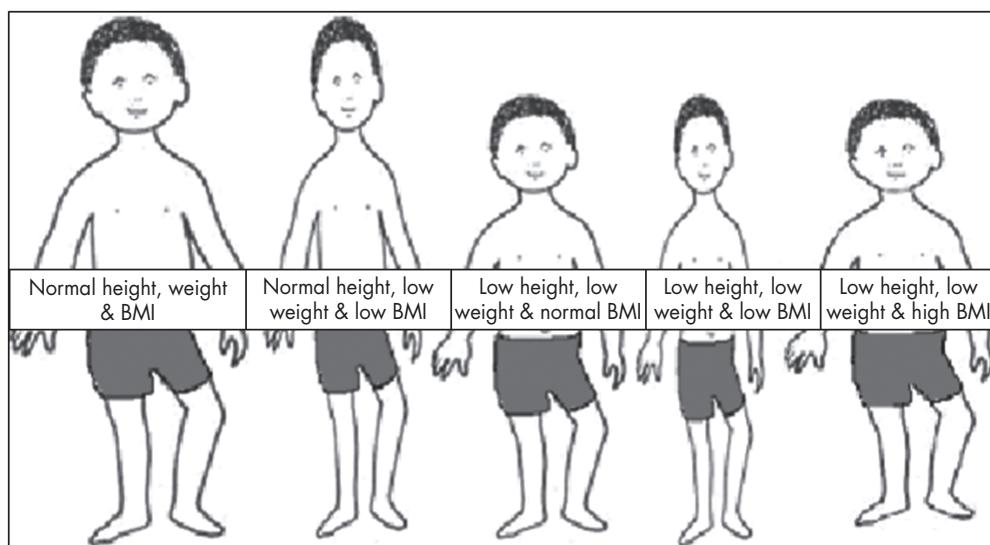
Research studies in India showed that a majority of Indian low birth weight babies are mature; they are small because of intrauterine growth retardation. If given essential newborn care consisting of warmth, breastfeeding and protection against infection, they survive. Only pre-term neonates (about 12 per cent) or neonates weighing less than 2 kg at birth, requires intensive care. These findings laid the foundation of neonatal care in the country. States like Kerala, Puducherry and Goa with functional primary healthcare services have

achieved infant mortality rates (IMRs) below 20/1,000 decades ago inspite of high LBW rates. However, birth weight is a major determinant of growth in childhood; mature LBW children had a lower growth trajectory as compared to children with normal birth weight, and underweight rates are higher in childhood and adolescence in LBW infants.

Assessment of Nutritional Status Using Anthropometric Indices

Three anthropometric indices (weight, height, and body mass index [BMI]) have been widely used to assess nutritional status in children and adults. Weight (weight-for-age in growing children) indicates the cumulative impact of past and current under-nutrition; because of ease of measurement it is the most widely used indicator for assessment of nutritional status. Underweight due to chronic energy deficiency can be partly reversed and the reversal can be monitored by improvement in weight. Stunting in children due to poor growth is an important indicator of cumulative impact of past under-nutrition. Improvement in dietary intake can prevent further stunting but, unlike underweight, stunting cannot be reversed. BMI (given by weight in kg/height in metre²) for age taking into account weight for the current height and age is an important indicator for assessment of current nutritional status of children in countries with high stunting rates and facing dual nutrition burden. BMI is an indicator for current energy deficiency/

FIGURE 2.4 Use of BMI-for-Age for Assessment of Nutritional Status in Children



Source: Author's illustration.

excess, which can be readily reversed. In 2007, the World Health Organisation (WHO) had provided the standards for BMI-for-age for the 0–5 year-olds in 2006 and the 6–18-year-olds in 2007, and recommended that BMI-for-age which provides information on current nutritional status should be used as the indicator for defining under- and over-nutrition in children (see Figure 2.4). Association between increased risk of infections with low BMI-for-age and increased risk of cardiovascular diseases with high BMI or rapid increase in BMI in childhood has been demonstrated in India, and India has accepted the WHO recommendation.

Under-nutrition in Early Childhood

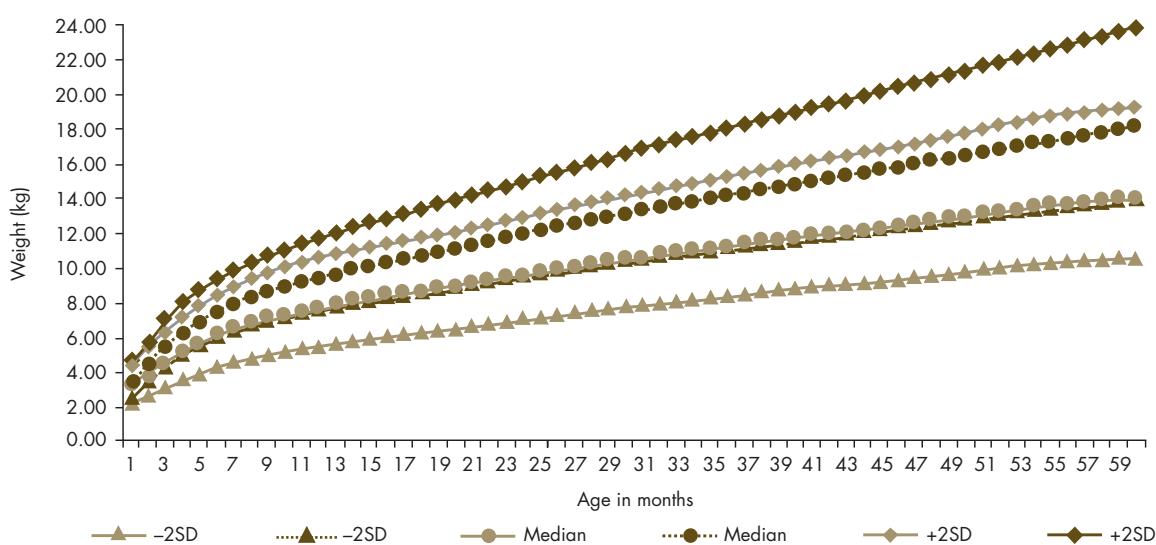
Comparison weight-for-age curves of Indian children (data from NFHS-3) with WHO (2006) standards show that in the first month weight of Indian infants are just below the corresponding centiles of the WHO (2006) standards. Between 1–6 months, growth of Indian children falters so that the median of Indian children compares with WHO 3rd centile. By 18 months, Indian children's median lies below the 3rd centile of WHO standards (see Figure 2.5). Height-for-age shows a similar trend. The major factors responsible for the faltering growth are poor infant and young child-feeding practices.

Data from National Family Health Survey-3 (NFHS-3) (2007) and District Level Household Survey-3 (DLHS-3) (2010) showed that in India, though breast-

feeding is nearly universal, less than 30 per cent of infants were exclusively breast-fed up to 6 months. A very few infants received semi-solid complementary feeds at 6 months. A majority of children received household food along with breast-feeding by 9–11 months.

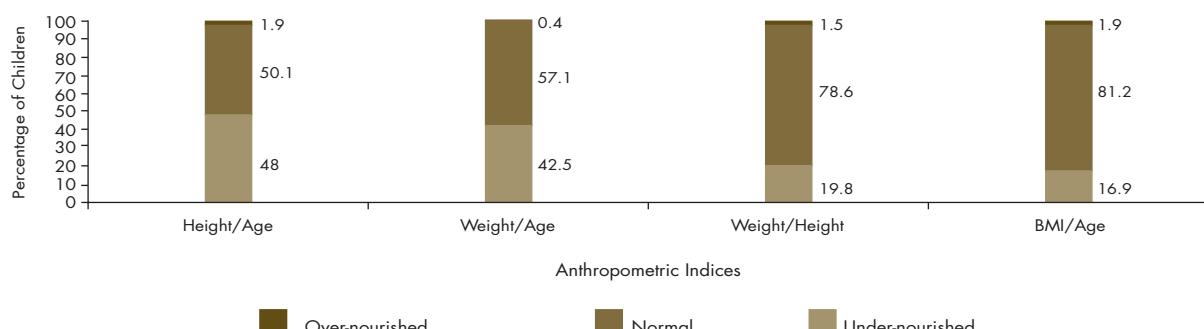
An analysis of data from NFHS-3 shows that underweight rates remain unaltered between birth and 3 months when most of the infants are exclusively breast-fed. Inspite of advice that they should exclusively breast feed their infants in the first 6 months, many women start introducing animal milk between 3–5 months; this practice results not only in reduction in breast milk secretion due to reduction in suckling stimulus, but also increase in morbidity due to infections. As a result, infants become under-nourished (NFHS-3 2007). These findings should be used to mount effective campaign for exclusive breast-feeding during the first 6 months for prevention of under-nutrition in early infancy. Further, rise in underweight rates occurs between 6–11 months due to late introduction, inadequate quantity, and low calorie density of complementary feeds, and increase in morbidity due to infections. Nutrition education on how appropriate complementary feeds prepared by modifying household food and fed 4–6 times a day can prevent deterioration in infant nutrition. Inadequate food intake because children are fed only 3–4 times a day with household diets (though many continue to be breast-fed 3–4 times a day) is the cause of increase in the underweight

FIGURE 2.5 Weight-for-Age (NFHS-3) of Indian Children vs WHO (2006) Standard



Note: The lines in darker shade indicate WHO data. The lines in lighter shade indicate NFHS data.
Source: Ramachandran and Gopalan (2011).

FIGURE 2.6 Nutritional Status of Pre-school Children



Source: Author's calculations based on raw data of NFHS-3 (2005–06).

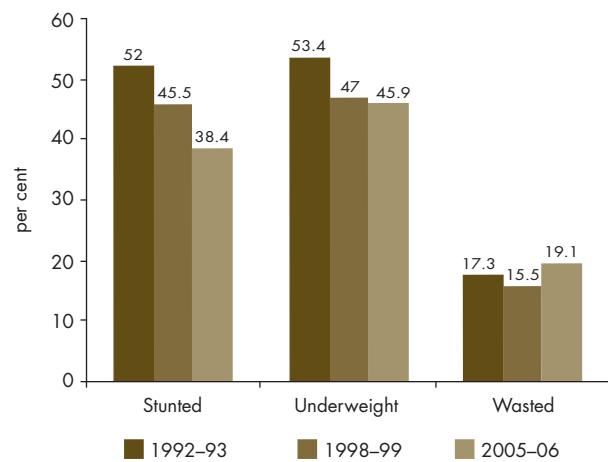
rates between 12–23 months. Children in the 2–5 year age group have small stomachs and have to be fed 5–6 times a day to meet their nutrient requirements. Trying to fit them into the three-meal pattern results in low dietary intake and thereby under-nutrition. Health education and increasing access to healthcare can lead to early diagnosis and management of infections. The health and nutrition education for preventing rise in under-nutrition rates in the critical first two years of life are incorporated in the Mother Child Protection Card jointly published by the Ministry of Women and Child Development (MoWCD) and Ministry of Health and Family Welfare (MoHFW). Providing these cards to all eligible children, tracking their growth, and intervening if there is growth faltering will go a long way in reducing under-nutrition in infancy and early childhood.

Data on prevalence of under-nutrition in pre-school children (from NFHS-3 2007) is shown in Figure 2.6. In India, stunting rates are high. Over 40 per cent of the Indian pre-school children are stunted and underweight. But a majority of the short children have weight appropriate for the height and age, and only about 17 per cent are thin. Height is an important determinant of weight. Infants and children who are short and have weight appropriate for their height and age get misclassified as being underweight if weight-for-age is used as the index for assessment of nutritional status. Short infants may be having high BMI-for-age and be still underweight because they are short. Use of BMI-for-age will reduce the risk of misclassifying short children. Only 17 per cent of Indian pre-school children are wasted. Identifying them during the VHND and providing them with double rations/treatment of infection will result in substantial improvement in wasting. Correction of

wasting will prevent stunting and allow the child to grow along the linear trajectory.

Data from the three NFHS rounds provide several insights into the nutrition transition in the last two decades. Over this period there has been sustained reduction in stunting (see Figure 2.7). The reduction in stunting between NFHS-2 and 3 was of a greater magnitude as compared to reduction in underweight and therefore there was a rise in wasting rates. The policies and programme documents have been emphasising the need for screening of pre-school children, identifying under-nourished children, and providing them take-home rations and healthcare. When these programmes get fully operationalised, there will be a substantial reduction in wasting and stunting.

FIGURE 2.7 Time Trends in Nutritional Status of Children under 3 Years in India

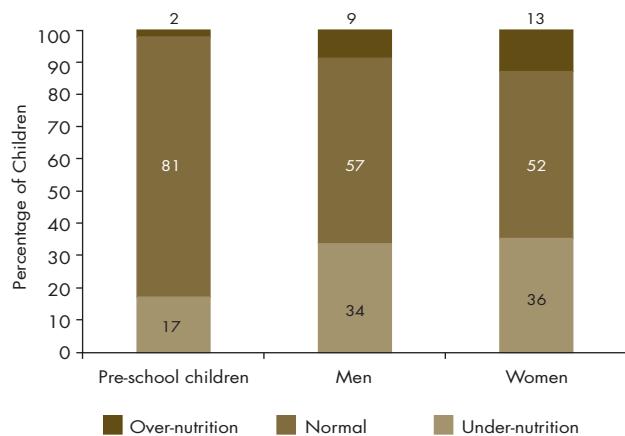


Source: Author's calculations based on raw data of NFHS-1 (1992–93), NFHS-2 (1998–99) and NFHS-3 (2005–06).

Nutritional Status of School Children

Available data on prevalence of under- and over-nutrition in pre-school children and adults from the NFHS-3 is given in Figure 2.8. Data from the survey indicates that if BMI is used as the indicator for assessment of nutritional status, both under- and over-nutrition are lowest in pre-school children and highest in adults.

FIGURE 2.8 Nutritional Status of Children under 5 Years and Adults



Source: Author's calculations based on raw data of NFHS-3 (2005–06).

Data from NNMB surveys indicate that school-age children have under-nutrition and over-nutrition midway between the pre-school children and adults. The gap between the requirements and the actual energy intake is high in school children, especially in adolescents (Table 2.2). The MDM programme covers school children between 6–14 years. Currently, the Ministry of Human Resources Development is providing cooked MDM with 450 calories and 12 gm of protein to every child at primary level and 700 calories and 20 gm of protein at upper primary level. The energy and protein requirement for a primary child comes from cooking 100 gm of rice/flour, 20 gm pulses, 50 gm vegetables and 5 gm oil, and for an upper primary child comes from 150 gm of rice/flour, 30 gm of pulses, 75 gm of vegetables and 7.5 gm of oil. Currently, more than 10.35 crore children (75 per cent of the enrolled children) in 11.55 lakh schools in the country get MDM. It has been reported that MDM has helped in preventing classroom hunger, promoting school enrolment, and improving attendance, fostering social integration and

improving gender equity. MDM coverage is universal and foodgrains for the programme are provided under the NFSR.

Currently, height and weight measurements are being done in most schools in most states under the school health programme held once a year. But these measurements are neither taken with accurate equipment, nor are they used for the identification of under-nourished children to provide them with double rations. Measuring height and weight with inexpensive accurate equipment, computing BMI-for-age and identifying thin/fat children is feasible in schools by improving the co-ordination and collaboration between MDM and school health system. It might be possible to reduce under-nutrition and prevent over-nutrition in school children by:

- ♦ undertaking height and weight measurements and computing BMI-for-age twice a year,
- ♦ identifying under-nourished children (lean children),
- ♦ getting under-nourished children checked by school health system for infections and if present treating the same,
- ♦ providing under-nourished children with double helping of MDM if low food intake is the problem,
- ♦ identifying over-nourished children and ensuring that they play and improve physical activity.

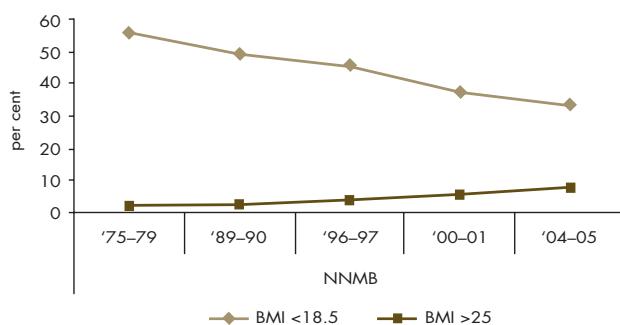
Nutritional Status of Adults

Under-nutrition in Adults

Data from NFHS-3 showed that under-nutrition remains a major problem in adults—about a third of both men and women are under-nourished. About half of the men and women are normally nourished. Over-nutrition is a problem both in men and women. Both under- and over-nutrition are more common in women (see Figures 2.9 and 2.10). There are huge inter-state differences in prevalence of both under- and over-nutrition. By and large, states with low under-nutrition rates had high over-nutrition and vice versa (Figure 2.11).

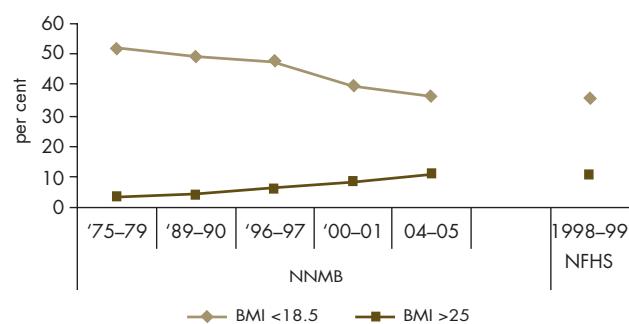
Under-nutrition in women is more common among the rural and tribal population, and among younger (Figure 2.12), poorer (Figure 2.13) and less educated segments of the population wherever they live. Prevalence of over-nutrition is higher among urban, older, educated and high income group population. The proportion of normally nourished women is the same in all segments of the population (Figure 2.12 and Figure 2.13) (*ibid.*). The decline in under-nutrition rates can be accelerated through the effective implementation

FIGURE 2.9 Time Trends in Nutritional Status of Adult Men



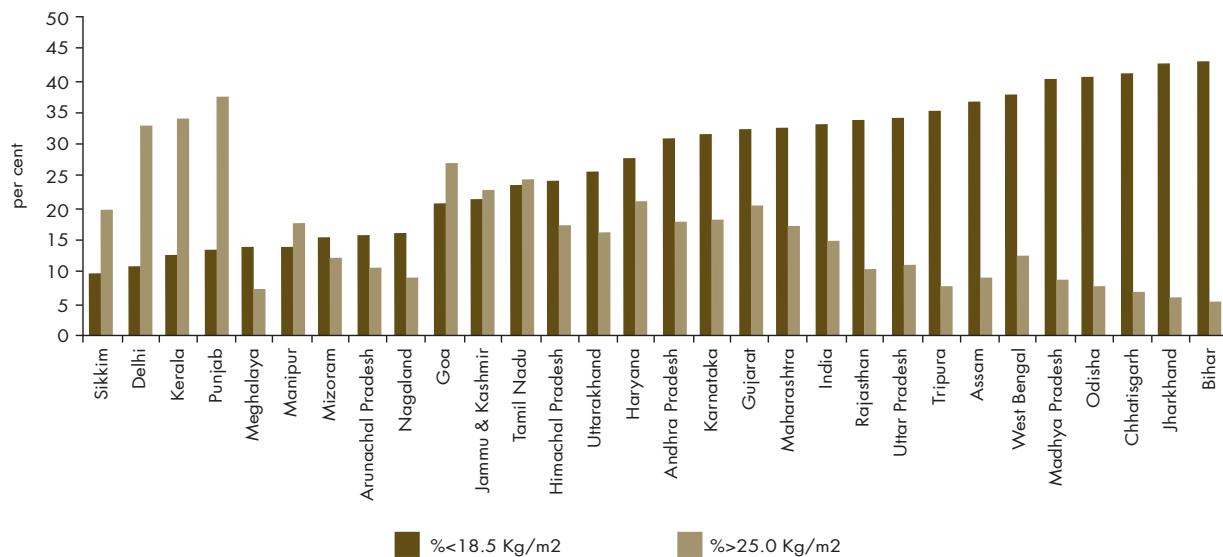
Sources: NNMB (1980, 1991, 1999, 2002, 2006).

FIGURE 2.10 Time Trends in Nutritional Status of Adult Women



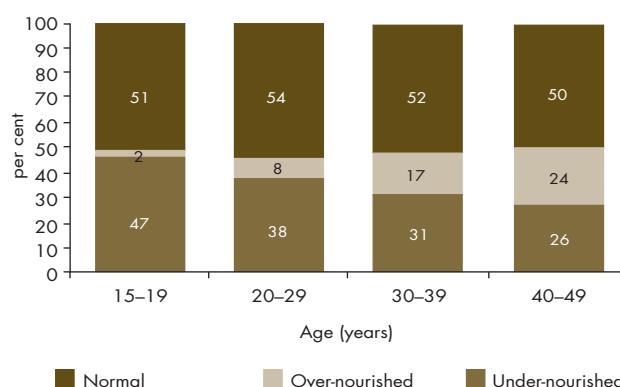
Sources: NNMB (1980, 1991, 1999, 2002, 2006), NFHS-2 (2000).

FIGURE 2.11 Nutritional Status of Women



Source: NFHS-3 (2007).

FIGURE 2.12 Effect of Age on Nutritional Status of Women



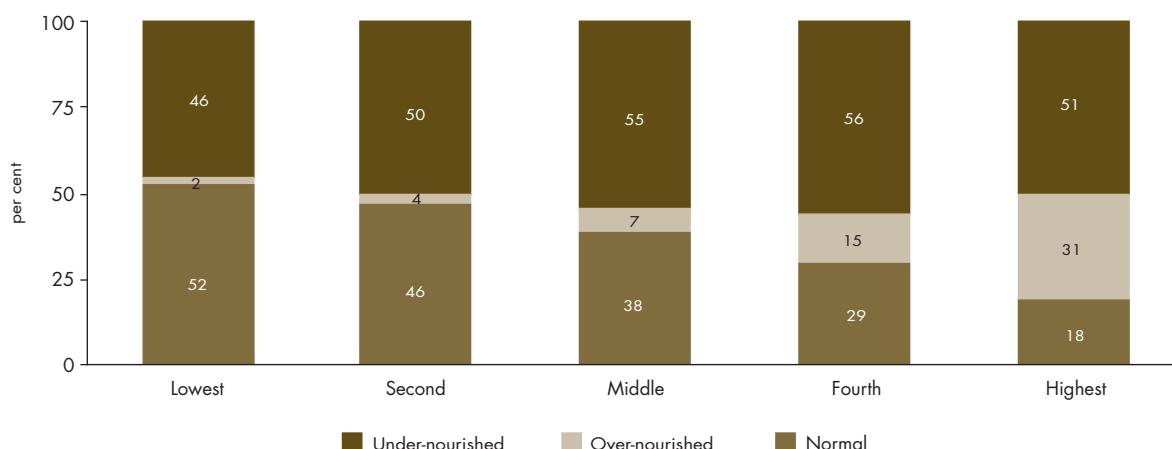
Source: NFHS-3 (2007).

of the NFSA, ongoing food supplementation of the vulnerable groups and improved access to healthcare for infections. The country has to strive to ensure that high under-nutrition rates are not replaced by high over-nutrition rates.

Over-nutrition in Adults

Over-nutrition (BMI>25) rates were less than 5 per cent in the 1970s and 1980s. Over the last 15 years, there has been a progressive, but slow rise in over-nutrition rates both in women and men (see Figures 2.9 and 2.10) (Ramachandran 2006, 2007). However, over-nutrition rate in India is still less than 15 per cent. India has two major advantages in combating rising over-nutrition rates. Unlike many developing

FIGURE 2.13 Nutritional Status of Women in Different Wealth Quintiles



Source: NFHS-3 (2007).

countries, economic growth in India was not associated with increased energy intake (*ibid.*). Steep reduction in physical activity is the major factor responsible for the rise in over-nutrition (*ibid.*). The population is becoming aware that moderate physical activity is essential for optimal nutrition and health. If energetic steps are taken to promote discretionary physical activity in all segments of the population, it will be possible to prevent the projected rise in over-nutrition. At present, over half of the Indians are normally nourished. With the efforts to reduce under-nutrition and steps to prevent escalation of over-nutrition, it is possible that a majority of Indians may remain normally nourished and not incur the health hazards associated with under- and over-nutrition.

Micro-nutrient Deficiencies

Micro-nutrient deficiencies referred to as hidden hunger are the most common forms of nutritional deficiencies globally as well as in India. While under-nutrition is due to inadequate energy intake, micro-nutrient deficiencies reflect the poor quality of food consumed. Goitre due to iodine deficiency, blindness due to Vitamin A deficiency, dry and wet beriberi and pellagra were the major public health problems in pre-independent India. Sustained dietary changes of the population resulted in the elimination of beriberi and pellagra. Keratomalacia due to severe Vitamin A deficiency is no longer a public health problem and prevalence of night blindness and Bitot spots are low except in some pockets; but subclinical Vitamin A deficiency is reported to be common. The country is nearing the goal of universal household

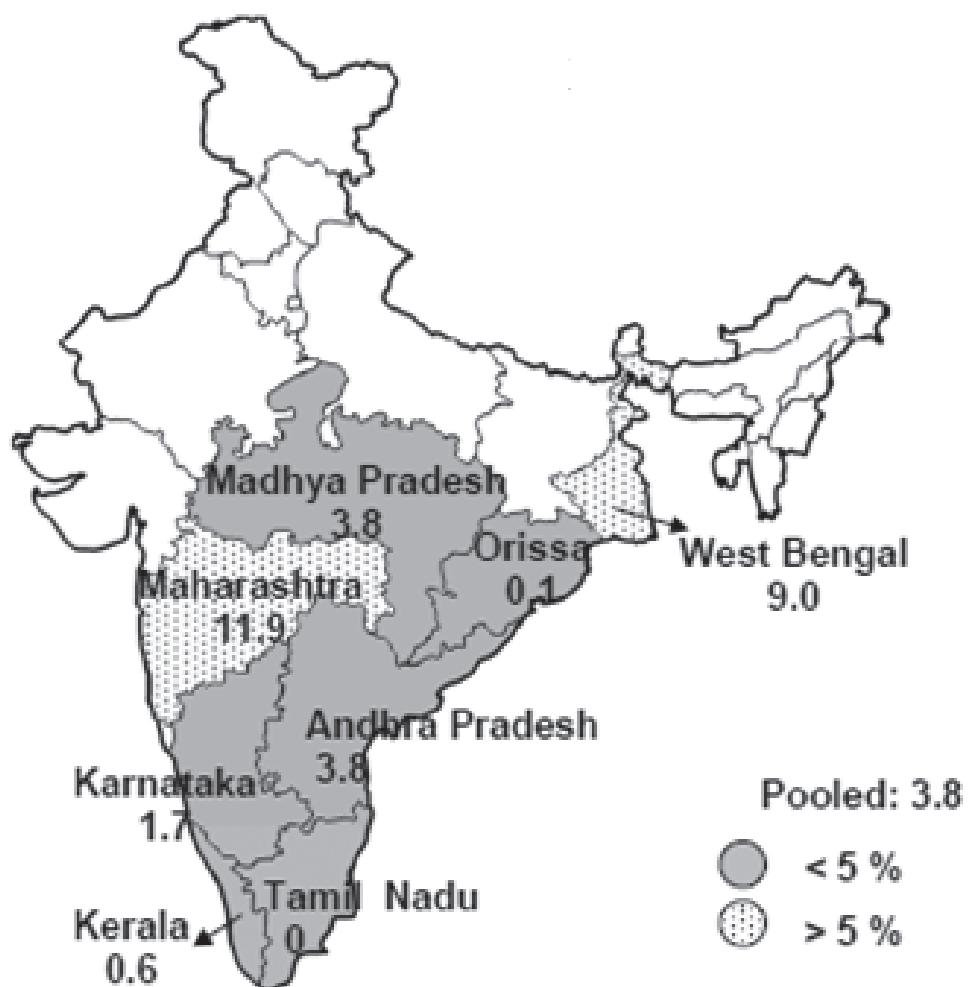
access to iodised salt. However, due to iron and folic acid deficiencies, there has not been any decline in the prevalence of anaemia.

Iodine Deficiency Disorders

Iodine Deficiency Disorders (IDD) has been recognised as a major public health problem in India. Unlike other micronutrient deficiencies, IDD is due to deficiency of iodine in water, soil and food items, and affects all socio-economic groups living in defined geographic areas. Although the prevalence of IDD in India is lower than in most South Asian countries, the problem is ubiquitous.

Salt fortification with iodine has been used worldwide for prevention of IDD for nearly a century. The National Goitre Control Programme (NGCP) was launched by the Government of India in 1962. Initially, the programme aimed at providing iodised salt to the population living in the well-recognised sub-Himalayan 'goitre' belt. However, availability of salt was erratic and a majority of households did not have access to iodised salt and used cheaper non-iodised salt. As a result, there was no substantial reduction in IDD. In the 1980s, the data from DGHS/ICMR (Directorate General of Health Services/Indian Council of Medical Research) surveys showed that IDD is not a problem confined to the sub-Himalayan regions alone; there are pockets of iodine deficiency in all the states. In 1992, NGCP was renamed as National Iodine Deficiency Disorders Control Programme (NIDDCP), and it was decided to iodise all edible salt for human consumption in the country. The goal of the NIDDCP is to ensure universal household

FIGURE 2.14 Prevalence (%) of Goitre among 6 ≤12-year-old Children



Source: NNMB (2003).

access to iodised salt and reduce the prevalence of IDD below 10 per cent in the endemic districts of the country. Data from NNMB surveys show that in 2003 in only two of the eight states surveyed goitre rates in 6≤12-year-old children exceeded 5 per cent (Figure 2.14). UNICEF's survey conducted in 2009 show that 71 per cent of households accessed adequately iodised salt; iodisation was inadequate in 20 per cent households and only 9 per cent had not accessed iodised salt (see Table 2.3). Efforts have been intensified to ensure that 100 per cent of households get access to adequately iodised salt and hopefully the ongoing national surveys (Annual Health Survey and DLHS-4) will confirm that the goal of universal access to iodised salt has been achieved if not by 2012 at least a couple of years later.

TABLE 2.3 Household Access to Iodised Salt

Iodine content of salt consumed	2006	2009
Adequate (≥ 15 ppm)	51%	71%
Inadequate (< 15 ppm)	25%	19%
No iodine	24%	9%

Note: ppm: parts per million.

Sources: NFHS-3 (2007), UNICEF (2010).

Vitamin A Deficiency

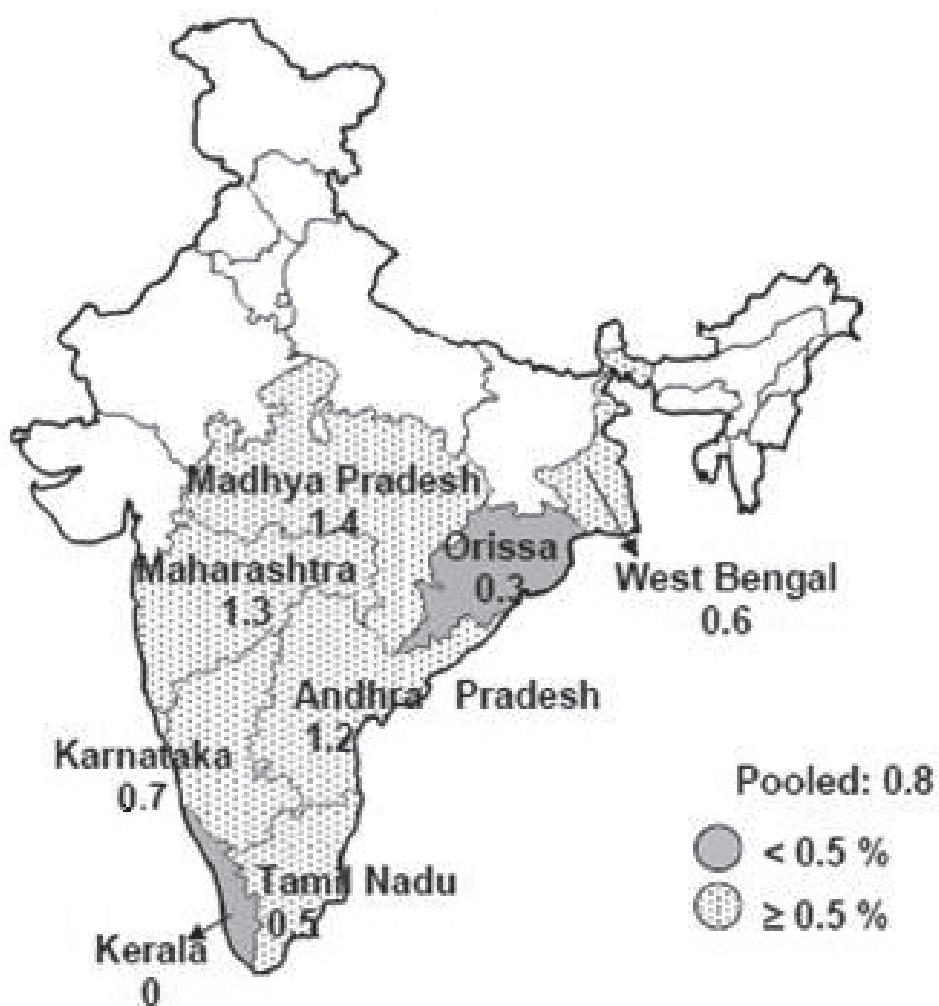
Vitamin A is an important micro-nutrient for maintaining normal growth, regulating cellular proliferation and differentiation, controlling development, and maintaining visual and reproductive functions. Diet surveys have shown that the intake of Vitamin A is significantly lower than the recommended dietary allowances. In spite of the

fact that there has not been any significant improvement in the dietary intake of Vitamin A and coverage under Massive Dose Vitamin A programme has been low, there is a decline in clinical Vitamin A deficiency in under-five children in the country. NNMB surveys showed that even though keratomalacia has not been seen in the last four decades, prevalence of Bitot Spots in 1–5-years-old children was less than 0.5 per cent in only two of the eight states surveyed in 2003 (Figure 2.15). Prevalence of night blindness in pregnant and lactating women was reported to be low between 1–5 per cent. However, low blood levels suggestive of deficiency of Vitamin A is reported in about 20–50 per cent of women and children. Currently, over 80 per cent of pregnant women do seek antenatal care; nutrition education to

increase intake of β carotene rich food items in their diets has to be given to all pregnant women to ward off subclinical Vitamin A deficiency. During antenatal care, it is possible to identify women having night blindness and Bitot Spots and provide them with 10,000 IU of Vitamin A daily for a fortnight.

Since 1970, the country has a massive dose Vitamin A supplementation programme covering all children between 9 and 72 months. However, the coverage under this programme has been very low. In the last decade, the country switched over to the biannual administration of Massive Dose Vitamin A supplementation. This has resulted in substantial improvement in the coverage of Massive Dose Vitamin A supplementation. The increasing emphasis on production of locally consumed

FIGURE 2.15 Prevalence (%) of Bitot Spots among 1–5-year-old Children



Source: NNMB (2003).

micro-nutrient-rich vegetable cultivation, improvement in processing, grading, storage and marketing, it is possible that vegetables will be available at affordable cost in urban and rural areas throughout the year. Ready availability of vegetables and inclusion of vegetables in the MDM and ICDS food supplementation programmes coupled with nutrition education will result in improvement in vegetable consumption, Vitamin A, folate and other micro-nutrient intake among vulnerable segments of the population.

Anaemia

India is among the countries with the highest prevalence of anaemia in the world (see Figure 2.16). With over a billion population, the country accounts for the largest number of anaemic persons in the world. Over the last six decades there has been a reduction in severity of anaemia and some of the adverse consequences associated with it, but there has not been any substantial reduction in the prevalence of anaemia. It is estimated that about 20–40 per cent of maternal deaths in India are due to anaemia; India contributes

to about 50 per cent of global maternal deaths due to anaemia (Table 2.4).

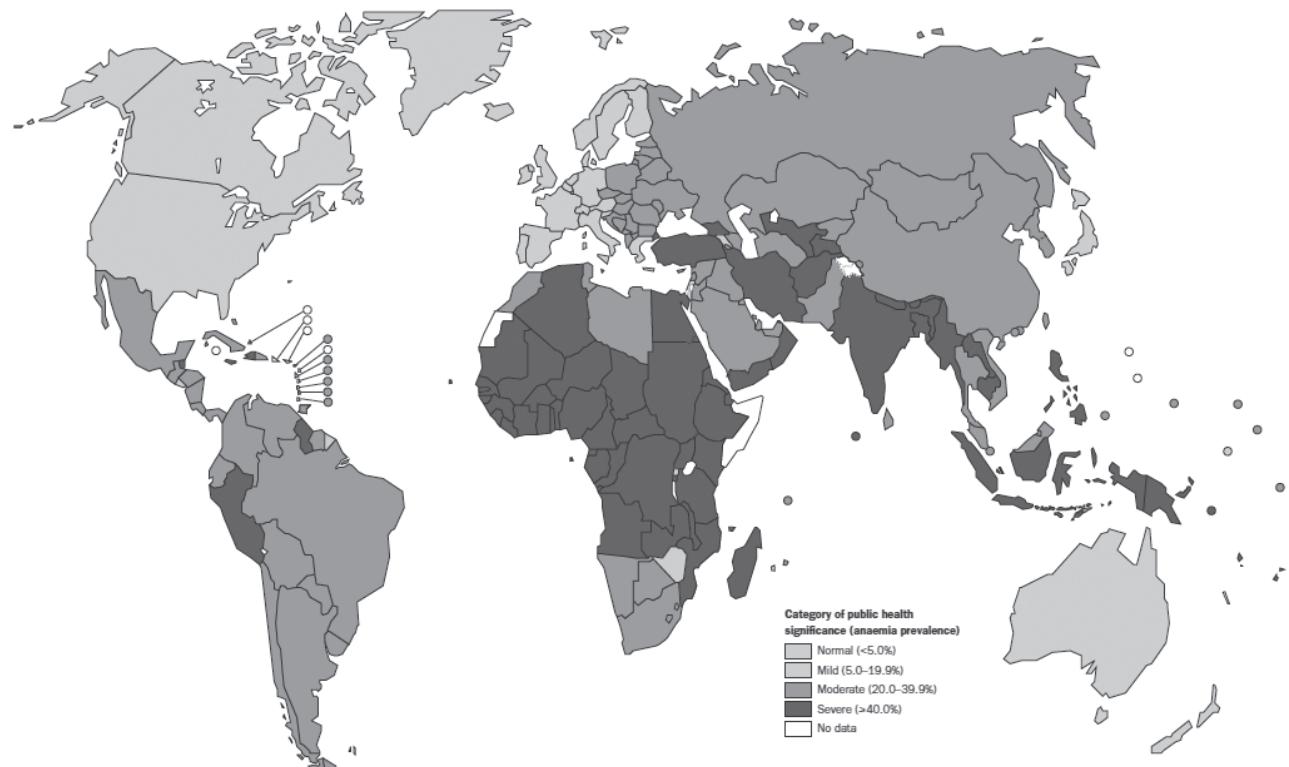
In India, anaemia begins right at infancy and childhood, increases in severity during adolescence in girls, antedates pregnancy and gets aggravated during pregnancy (see Figure 2.17). Prevalence of anaemia is high even in high income groups and among well-educated pregnant women. Prevalence of anaemia is high not only among under-nourished persons but also in normal and over-nourished individuals (see Figure 2.18). The high prevalence of anaemia is due to:

- low dietary intake, poor iron (less than 20 mg/day) and folic acid intake (less than 70 mg/day);
- poor bio-availability of iron (3–4 per cent only) in phytate fibre-rich Indian diet;
- chronic blood loss due to infection such as malaria and hookworm infestations.

The major intervention strategies envisaged for prevention and management of anaemia are:

- health and nutrition education to improve over-all dietary intakes and promote consumption of iron and folate-rich food items;

FIGURE 2.16 Prevalence of Anaemia in Pregnant Women



Source: WHO (2008).

TABLE 2.4 Prevalence of Iron Deficiency Anaemia and Maternal Deaths due to Anaemia in South Asia (%)

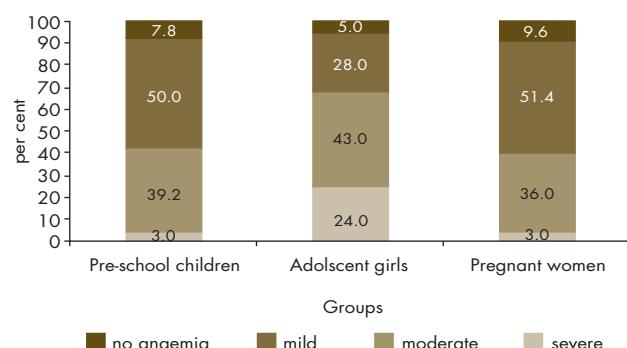
Country	Children (<5 yrs)	Women (15–49 yrs)	Pregnant women	Maternal deaths from anaemia/yr
Afghanistan	65	61	—	—
Bangladesh	55	36	74	2,800
Bhutan	81	55	68	< 100
INDIA	75	51	87	22,000
Nepal	65	62	63	760
Pakistan	56	59	—	—
S.A region total				25,560
World total				50,000

Source: De Mayer and Tegman (1998).

- food fortification, especially introduction of iron fortified iodised salt;
- screening for early detection of anaemia among vulnerable groups (such as pregnant women).

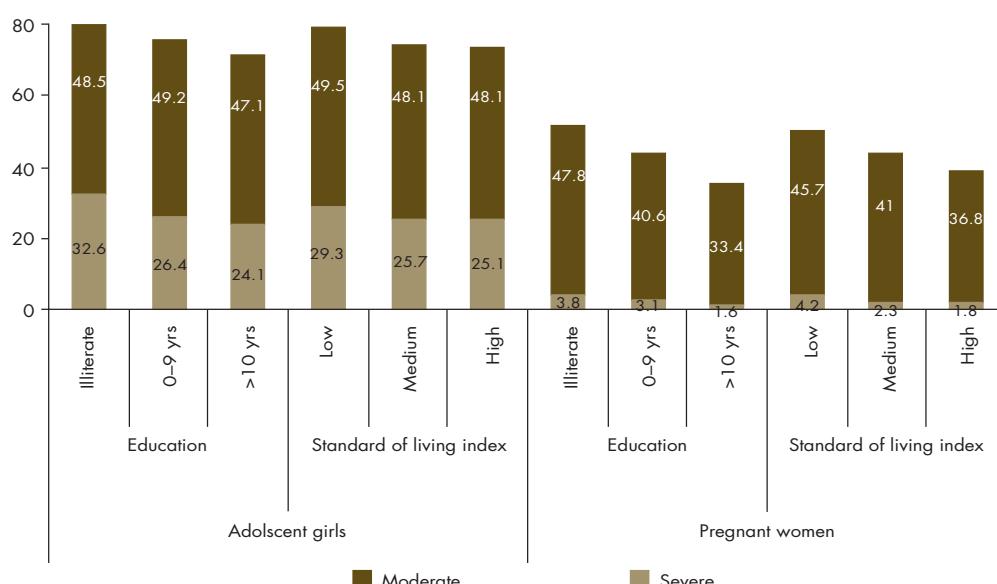
Appropriate management of anaemia varies depending upon its severity, chronicity, physiological status of the individual and the time available for correction of anaemia. In 2013, the Government of India brought out the revised guidelines for prevention and management of anaemia which emphasise the importance of consuming iron folate-rich vegetables as well as vegetables promoting iron absorption. The national guidelines also recommend that iron fortified iodised salt should be used in ongoing

FIGURE 2.17 Prevalence of Anaemia (%)



Source: Author's calculations based on raw data of DLHS-2 (2002–04).

FIGURE 2.18 Prevalence of Anaemia (%) in Adolescent Girls and Pregnant Women



Source: Author's calculations based on raw data of DLHS-2 (2002–04).

food supplementation programmes such as ICDS and MDM. The guidelines envisage medicinal iron and folic acid supplementation to school children and screening for anaemia and appropriate treatment of anaemia in pregnant women. It is expected that with vigorous implementation of these comprehensive guidelines, it will be possible to achieve substantial reduction in prevalence and severity of anaemia.

CONCLUSION

India had been undergoing socio-economic, demographic, nutrition and health transitions. The pace of these interrelated transitions has been relatively slow and uneven, across the decades, states and segments of the population. While the overall impact of these transitions has been beneficial, it is inevitable that there are some undesirable consequences. Changes are an inevitable part of growth and development; but if changes are anticipated, they can be shaped or modified to maximise the impact of beneficial changes and minimise the impact of adverse changes.

Over the last two decades, there has been a growing recognition among the programme implementers and the people themselves, that the country is facing dual burden of under- and over-nutrition. However, there is very little awareness that the micro-nutrient deficiencies are widely prevalent in the country or that a majority of Indians are anaemic, and anaemia accounts for substantial morbidity in children and even mortality in pregnant women. It is imperative that the third component of triple burden is recognised and addressed.

Six decades ago most of the households in India were poor, illiterate and under-employed and food insecure. There has been a steady but slow economic growth and poverty reduction for the past five decades; in the last decade India has become the second fastest growing economy with rapid increase in per capita income and acceleration in poverty reduction.

India has been self-sufficient in cereal production for the past four decades, and is expected to become self-sufficient in pulse production by 2017. Subsidised foodgrains had been available for the poor through PDS for the past four decades. But seasonal food insecurity is seen in pockets even today. The NFSA can improve household food security among the poor, provided it is effectively implemented and carefully monitored. The Panchayati Raj Institutions (PRIs) will have to play a major role both in preventing leakages at various

levels and in ensuring that the most needy do get the foodgrains they are entitled to.

India's horticultural mission has made the country No. 1 or 2 in production of several vegetable and fruits in the world. However, the vegetable intake of the population continues to remain low and micro-nutrient deficiencies continue to remain a major cause for public health problems. Current efforts to increase availability and access to micro-nutrient rich, inexpensive vegetables in urban and rural areas if coupled with nutrition education on need to increase vegetable intake to prevent micro-nutrient deficiencies there can be a substantial improvement in micro-nutrient intake. Increased access to and use of iron fortified iodised salt can enable the country not only eliminate IDD as a public health problem, but also achieve sustained improvement in iron intake of 1.3 billion Indians.

ICDS and MDM programmes provide food supplements to pre-school and school children, and pregnant and lactating women. But the most needy mothers and children often cannot come to an anganwadi or a school. Though coverage under these programmes is universal, there are problems in terms of content, quality and quantity of food provided. Many use these as substitutes and not addition to home food; take-home rations are often shared. As a result, the gap in energy intake of the vulnerable segments has not decreased. Nutrition education holds the key to motivate the family to strive and close the energy gap by appropriate intra-family distribution of food and ensuring that food supplements are not substitutes to home food.

The Tenth Five Year Plan called for a paradigm shift to accelerate the pace of reduction in under-nutrition by screening persons from vulnerable segments, identifying under-nourished persons, providing appropriate interventions and monitoring the improvement. A beginning has been made with the introduction of village health, sanitation and nutrition days when the anganwadi worker and auxiliary nurse midwife (ANM) work together, provide health and nutrition care based on the need. The Mother-Child protection card provides the chart for monitoring growth. If these focused interventions are scaled up, there can be substantial reduction in under-nutrition.

Over the last two decades, there has been a slow but steady rise in over-nutrition due to steep reduction in physical activity. The rise in over-nutrition rate is relatively slow because of the concurrent reduction in energy intake. Currently, over-nutrition is seen among

all segments of the population, though prevalence rates vary; prevalence of over-nutrition is lowest in areas with high under-nutrition and vice versa. Moderate physical activity is essential for healthy living; if current efforts to promote physical activity and early detection and effective management of over-nutrition are scaled up and sustained, it will be possible to prevent further rise in over-nutrition and associated health hazards.

Height and weight have been widely used as indicators for assessment of nutritional status. Indians are shorter by 10–15 cm compared to their developed country counterparts; it will take decades to bridge the gap. Recognising variation in height between countries, BMI has been used for assessment of under- and over-nutrition in adults. However, in children, until recently, weight-for-age has been used as the criterion for assessing nutritional status; short children with weight appropriate or high for their current height, were misclassified as underweight. WHO recommended that their BMI-for-age standards for 0–5 yrs (2006) and 6–19 yrs (2007) should be used for the assessment of over- and under-nutrition in children, and India has accepted this. If the WHO standards for BMI-for-age is used for assessment of nutritional status in pre-school children, only 17 per cent of Indian children are under-nourished. Identifying these children and providing

appropriate intervention can result in rapid reversal of thinness and prevent further stunting. Use of this index will also enable early identification of fat over-nourished short children who need more exercise to become normally nourished.

Nutritionists screen and identify under-nourished persons, provide appropriate care so that there is improvement in their nutritional status. The Tenth Five Year Plan emphasised that in order to accelerate the pace of reduction in under-nutrition, the ongoing nutrition programmes should adopt a similar approach. A beginning has been made with the introduction of VHND during which the anganwadi worker and ANM work together, provide health and nutrition care based on the need. There is an urgent need to ensure that the strategy to screen, identify and treat under-nourished persons is scaled up.

Combating triple burden of malnutrition is usually considered a major challenge. India has the necessary knowledge, technology, infrastructure, human and economic resources to implement interventions on scale. If the ongoing programmes across sectors are effectively implemented with participation of people's institutions and people themselves, India can cope with the triple nutrition burden and the health consequences effectively within a short period, and at an affordable cost.

REFERENCES

- De Mayer, E. M., and A. Tegman. 1998. 'Prevalence of Anaemia in the World'. *World Health Statistics Quarterly* 38: 302–16.
- DLHS-3. 2010. *Key Indicators: States and Districts, District Level Household and Facility Survey (DLHS-3), 2007–08*. Mumbai: International Institute of Population Sciences (IIPS), <http://www.rchiips.org/PRCH-3.html>, accessed on 28 March 2014.
- DLHS-2. 2006. *District Level Household and Facility Survey (DLHS-2), 2002–04*. Mumbai: IIPS, <http://www.rchiips.org/PRCH-2.html>, accessed on 28 March 2014.
- FAO (Food and Agriculture Organisation, WHO (World Health Organisation), UNU (United Nations University). 2004. 'Human Energy Requirements. Food and Nutrition Technical Report, Series No. 1. Rome: Food and Agriculture Organization, http://www.fao.org/ag/agn/nutrition/requirements_pubs_en.stm, accessed on 28 March 2014.
- ICMR (Indian Council of Medical Research). 2010. 'Nutrient Requirements and Recommended Dietary Allowances for Indians', <http://icmr.nic.in/final/RDA-2010.pdf>, accessed on 28 March 2014.
- NFHS-3. 2007. *National Family Health Survey (NFHS-3)-2005–06*. Mumbai: International Institute of Population Sciences.
- NFHS-2. 2000. *National Family Health Survey (NFHS-2)-1998–99*. Mumbai: International Institute of Population Sciences.
- NFHS-1. 1995. *National Family Health Survey (NFHS-1)-1992–93*. Mumbai: International Institute of Population Sciences.
- NNMB (National Nutrition Monitoring Bureau). 2012. Technical Report No. 26, http://nnmbindia.org/1_NNMB_Third_Repeat_Rural_Survey_Technical_Report_26.pdf, accessed on 28 March 2014.
- . 2006. Technical Report No. 24, <http://nnmbindia.org/NNMBReport06Nov20.pdf>, accessed on 28 March 2014.
- . 2003. Technical Report No. 22, <http://nnmbindia.org/NNMB%20MND%20REPORT%202004-Web.pdf>, accessed on 28 March 2014.

- _____. 2002. Technical Report No. 21, <http://nnmbindia.org/NNMBREPORT2001-web.pdf>, accessed on 28 March 2014.
- _____. 1999. Technical Report No. 18, http://nnmbindia.org/NNMB-PDF%20FILES/Report_OF_2nd%20Repeat_Survey-96-97.pdf, accessed on 28 March 2014.
- _____. 1991. Technical Report No. 13, http://nnmbindia.org/NNMB-PDF%20FILES/Report_OF_1st%20Repeat_Surveys88-90.pdf, accessed on 28 March 2014.
- _____. 1980. Technical Report No. 6, http://nnmbindia.org/NNMB-PDF%20FILES/Report_for_the_year_1979.pdf, accessed on 28 March 2014.
- Ramachandran, Prema, and Hema S. Gopalan. 2011. 'Assessment of Nutritional Status in Indian Pre-school Children using WHO 2006 Growth Standards.' *The Indian Journal of Medical Research*, 134, 47–53. PMID: 21808134.
- Ramachandran, Prema. 2007. 'Nutrition Transition in India 1947–2007', <http://wcd.nic/publications.htm>, accessed on 28 March 2014.
- _____. 2006. 'Double Burden of Malnutrition in India,' <http://www.fao.org/docrep/009/a0442e/a0442e0d.htm>, accessed on 28 March 2014.
- UNICEF. 2010. *Coverage Evaluation Survey 2009*. New Delhi: UNICEF.
- WHO (World Health Organisation). 2008. *Worldwide Prevalence of Anaemia 1993–2005—WHO Global Database on Anaemia*, http://whqlibdoc.who.int/publications/2008/9789241596657_eng.pdf?ua=1, accessed on 28 March 2014.

3

OVERVIEW OF THE REGULATORY STRUCTURE OF THE HEALTHCARE SECTOR

M. R. Madhavan and Mandira Kala

In India, regulations in the healthcare sector cover various aspects of the sector such as education and licensing of healthcare professionals, establishments through which healthcare services are delivered, and drugs and pharmaceutical products. Different laws and regulations govern these aspects of healthcare.

The Constitution of India lists various items that fall within the legislative jurisdiction of Parliament and the state legislatures. Matters under the Union List and State List are under the exclusive jurisdiction of Parliament and state assemblies respectively. The Concurrent List includes matters on which both Parliament and state assemblies can frame laws. However, if on a matter under the Concurrent List, both Parliament and state legislatures enact a law and there is a contradiction in their provisions, then the central law will override the state law.

Matters related to health are enumerated in both the State List and the Concurrent List. Therefore, both Parliament and state assemblies have enacted laws to regulate the health sector. Table 3.1 provides details of the distribution of legislative powers between the Centre and states with regard to health matters. In addition, according to Article 252 (1) of the Constitution, Parliament can frame a law to regulate a subject that is in the State List, if two or more states pass a resolution in their legislative assembly requesting Parliament to legislate on the issue. The law so enacted would be applicable only to these states and any other states which

choose to adopt the said law. Parliament has enacted a few laws under this Article.

Laws that regulate matters on healthcare can be classified into four broad areas such as: (i) medical education and professional practice of healthcare professionals, (ii) healthcare establishments such as hospitals, nursing homes and laboratories, (iii) drugs and pharmaceuticals and (iv) specific health matters (such as organ donation). This chapter describes the laws and regulations for each of these areas.

TABLE 3.1 Constitutional Division for Regulation of Healthcare

List	Entry	Provisions
State List	Item 6	Public health and sanitation, hospitals and dispensaries
Concurrent List	Item 19	Drugs and poisons
Concurrent List	Item 25	Education, including technical education, medical education and universities
Concurrent List	Item 26	Legal, medical and other professions
Concurrent List	Item 29	Prevention of the extension from one state to another of infectious or contagious diseases or pests affecting men, animals or plants

Source: Schedule VII to the Constitution of India.

REGULATION OF MEDICAL EDUCATION AND PROFESSIONAL PRACTICE OF HEALTHCARE PROFESSIONALS

The regulation of medical education and professional practice of healthcare professionals is governed by various central laws such as the Indian Medical Council Act, 1956; the Dentists Act, 1948; the Indian Nursing Council Act, 1947; the Pharmacy Act, 1948; the Indian Medicine Central Council Act, 1970; and the Homeopathy Central Council Act, 1973. These Acts establish statutory professional councils such as the Medical Council of India (MCI), the Dentist Council of India (DCI), Pharmacy Council of India (PCI), Indian Nursing Council, to name a few. These Councils regulate education in the specified fields of health (medicine, dentistry, pharmacy, nursing, etc.), and the practice of health professionals in the respective fields, including their license to practice.

The primary functions of the Councils are to ensure minimum educational standards, prescribe courses of studies and conduct qualifying examinations, enforce professional code of ethics and conduct an inquiry with regard to medical malpractice. Each Council is composed of elected and nominated members for a tenure of 5 years. The Councils may make recommendations to the central government on matters related to the specific discipline of health they regulate.

For example, the MCI is required to:

- Determine and monitor the standards of education, promote training and research activities. The MCI is empowered to prescribe the minimum standards of education required for granting recognised medical qualifications.
- Grant permissions for establishment of new medical colleges, increase in admission capacity or for starting new or higher course of study or training in the established colleges.
- Oversee the qualifications, registration and licensing of medical practitioners, and their professional conduct. This includes prescribing standards of professional conduct and a code of ethics for the practitioners as well as violations that constitute professional misconduct.

- Maintain a Medical Register that contains the names of all those who possess any of the recognised medical qualifications and are certified to practice medicine.

The other Councils have similar powers and responsibilities.

The Indian Medical Council Act, 1956 was amended in 2010 to provide that the MCI be superseded by a Board of Governors, constituted by the central government for a period of one year. This was done in the wake of issues in the functioning of the MCI with regard to enforcing standards of medical education and recognition of health educational institutions.¹

Since then, several amendment Bills have been passed by Parliament to extend the tenure of the Board of Governors governing the MCI. A more comprehensive Amendment Bill was introduced in 2013, which gave increased powers to the central government. The Parliamentary Standing Committee examining the Indian Medical Council (Amendment) Bill, observed that the Bill provided the central government with the power to direct the MCI on policy matters, including amending and revoking regulations made by the Council. The Committee was of the view that giving the central government such sweeping powers could influence the functioning of the MCI that could affect its independent decision-making and autonomy. The Committee stated that while there is a need for a regulatory mechanism to ensure that the MCI functions in the right manner, it disapproved of the central government controlling the autonomy of the MCI.² The Bill is currently pending in Parliament as it was introduced in the Rajya Sabha and will not lapse upon the dissolution of the 15th Lok Sabha.

In 2007, the Paramedical and Physiotherapy Central Councils Bill was introduced in Parliament but it was not passed and has since then lapsed. The Bill sought to set up three councils to regulate physiotherapists and occupational therapists, medical laboratory technicians and radiology technicians. Currently, there is no central law for regulating paramedical education and practice. Several states like Maharashtra, Himachal Pradesh, Madhya Pradesh and Kerala have enacted laws to set up councils that regulate occupational therapists and paramedics.³

¹ Statement of Objects and Reasons, The Indian Medical Council (Amendment) Bill, 2010, introduced in Lok Sabha on 5 August 2010.

² Seventy-third Report of the Standing Committee on Health and Family Welfare, 'The Indian Medical Council (Amendment) Bill, 2013', 20 November 2013.

³ Maharashtra State Council for Occupational Therapy and Physiotherapy Act, 2002, the Himachal Pradesh Paramedical Council Act, 2003, the Madhya Pradesh Paramedical Council Bill, 2003, and Kerala Paramedical Council Bill, 2007.

Over the years, several bodies have recommended reforms in medical education and practice by restructuring the role of professional councils such as the MCI, DCI, etc. to delineate their role in regulating medical education and practice. In 2008, the Committee to Advise on Renovation and Rejuvenation of Higher Education, chaired by Dr Yashpal recommended that all the professional councils, should be divested of their academic functions, which would be subsumed under an apex body for higher education called the National Commission for Higher Education and Research (NCHER). The Committee envisaged the role of the professional councils as being limited to regulating the professional practice of individuals who wished to practice in a particular field, including entry into the profession by conducting regular qualifying examinations. The National Knowledge Commission (NKC) also recommended that the primary role of the professional councils should be to conduct nation-wide examinations to provide licenses to those wishing to enter the profession. Table 3.2 gives details of the number of educational institutions across various health disciplines, in the government and private sector along with the total number of seats.

Currently, two Bills—the National Commission for Human Resources for Health (NCHRH) Bill and the Higher Education and Research (HER) Bill—are pending in Parliament which propose to give effect to these recommendations.

The NCHRH Bill, 2011, was introduced by the Ministry of Health and Family Welfare (MoHFW). This Bill separates the regulation of education from that of professional practice. It repeals the Indian Nursing Council Act, 1947, the Pharmacy Act, 1948, the Dentists Act, 1948 and the Indian Medical Council Act, 1956. The NCHRH is proposed as an overarching body to regulate medical education. The Bill states that the NCHRH will constitute a

National Board for Health Education (NBHE) and a National Evaluation and Assessment Committee (NEAC). The NBHE will prescribe minimum standards for health education, specify curriculum and conduct examinations for academic programmes. The NEAC will develop and maintain a system of evaluation and accreditation of health educational institutions. The Bill provides for the setting up of national and state councils such as the medical council, the dental council, nursing council, pharmacy council and paramedical council to regulate the professional practice in the respective discipline of health. The councils will ensure ethical standards among medical professionals and put in place measures to enrol persons with recognised qualifications to enable them to practice as health professionals.

The NCHRH Bill has an overlapping jurisdiction with the HER Bill, 2011, which was introduced by the Ministry of Human Resource and Development. The HER Bill proposes to establish a NCHER to regulate standards of higher education, including medical education. The Bill envisages that professional councils would be divested of their academic functions, and only regulate professional practice through conducting examinations, registering and licensing health professionals.

As both these Bills are still pending in Rajya Sabha, it will not lapse when the new Lok Sabha is formed after the 2014 General Elections.

The Parliamentary Standing Committee examining the NCHRH Bill noted that both the NCHRH and NCHER have similar jurisdiction and functions on various aspects of medical education and research. It suggested that medical education and research should be brought under the jurisdiction of NCHRH and not NCHER.

In Table 3.3 overleaf, we indicate the number of healthcare practitioners registered with the respective central and state councils as of 2012.

TABLE 3.2 Number of Health Educational Institutions and Seats

Type of colleges and seats	Government		Private		Total	
	Number of colleges	seats	Number of colleges	Seats	Number of colleges	Seats
Medical colleges and MBBS seats	181	2,4774	206	27,205	387	51,979
Pharmacy colleges and seats	18	918	1,032	68,657	1,050	69,575
Dental colleges and BDS seats	41	2,560	261	22,610	302	25,170

Source: Lok Sabha (2013).

TABLE 3.3 Number of Health Professionals Registered with the Respective Central/State Councils (as of 2012)

Registered doctors	Registered dental surgeons	Registered AYUSH doctors*	Registered nurses**	Registered pharmacists
883,812	120,897	628,634	2,124,667	630,766

Note: *Includes Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homeopathy.

**Includes auxiliary nurse midwives, registered nurses, midwives and lady health visitors.

Source: NHP (2012).

REGULATION OF HEALTHCARE ESTABLISHMENTS

Healthcare establishments such as hospitals, nursing homes and laboratories in several states are regulated by their respective state laws. These include the states of Maharashtra, West Bengal, Delhi, Madhya Pradesh, Punjab, Odisha, Manipur, Sikkim, Nagaland, Tamil Nadu and Andhra Pradesh.⁴

The National Health Policy, 2002, and the Planning Commission Working Group on Clinical Establishments, Professional Services Regulation and Accreditation of Healthcare Infrastructure for the Eleventh Five Year Plan observed that despite several state laws on regulation of clinical establishments, healthcare providers in India were largely unregulated and not accountable.⁵ The Working Group observed that existing state clinical establishment acts were outdated, did not have uniform standards and were being implemented ineffectively.

The main recommendations of the Working Group were:

- To enact a central law for the registration and regulation of both government and private clinical establishments.
- To make registration compulsory for all clinical establishments under any recognised system of medicines, including diagnostic centres.
- As is the precedence with the registration of medical,

dental and nursing professionals, to limit the central government's role in maintaining a National Register of Clinical Establishments and determine uniform minimum standards.

- To focus on standards for service delivery and not overemphasise standards for infrastructure. Emphasis on infrastructure could have a spiralling effect on service costs in the health sector.
- To determine the minimum standards through a consultative process and to set up a National Advisory Board for overseeing this process. The Boards could draw also upon various professional bodies and individuals for assistance in development of standards.
- As the process of prescribing minimum standards could be long drawn and would have to be preceded by classification and categorisation of various clinical establishments, to not link the registration of clinical establishment standards to the determination of minimum standards.
- In order to have a reliable database of functional clinical establishments in the country, to make it necessary that a clinical establishment already registered under any State Act, also be registered under the Central Act.

The Clinical Establishments (Registration and Regulation) Act, 2010 was enacted by Parliament under Article 252 (1) of the Constitution after the four states of Arunachal Pradesh, Himachal Pradesh, Mizoram and Sikkim passed a resolution requesting Parliament to enact a law to provide for the registration and regulation of clinical establishments in the country and prescribe minimum standards of facilities and services. The Act applies to these four states, all union territories and other states that choose to adopt the law. The ministry notified setting up of the National Council for Clinical Establishments in March 2012 and the Clinical Establishments (Central Government) Rules in May 2012. According to the ministry, the states of Uttar Pradesh, Rajasthan, Jharkhand and West Bengal have chosen to adopt the law.⁶ West Bengal has also notified rules under the Act.⁷

⁴ Bombay Nursing Homes Registration Act, 1949, West Bengal Clinical Establishments Act, 1950, Delhi Nursing Homes Registration Act, 1953, Madhya Pradesh Upcharya Griha Tatha Rujopchar Sambandhi Sthapnayee (Ragistrikanan Tatha Anugyapan) Adhiniyam, 1973, Punjab State Nursing Home Registration Act, 1991, Orissa Clinical Establishment (Control and Regulation) Act, 1991, Manipur Nursing Home and Clinics Registration Act, 1992, Sikkim Clinical Establishments Act, 1995, Nagaland Health Care Establishments Act, 1997, Tamil Nadu Private Clinical Establishment Act, 1997, and Andhra Pradesh Private Medical Care Establishments Act, 2002.

⁵ Report on the Working Group on Clinical Establishments, Professional Services Regulation and Accreditation of Health Care Infrastructure for the Eleventh Five Year Plan, 2011.

⁶ As per <http://clinicalestablishments.nic.in/cms/Home.aspx>, accessed on 25 November 2013.

⁷ See http://www.hphealth.nic.in/CE_State_rules.pdf and http://www.wbhealth.gov.in/download/WBCE%20Rules_Draft_260712.pdf, accessed on 25 November 2013 for both the weblinks.

The Act applies to hospitals, clinics and similar facilities that offer treatment for illness in any recognised system of medicine, i.e. allopathy and naturopathy as well as Ayurveda, Yoga, Unani, Siddha and Homeopathy (collectively AYUSH). The Act also applies to any laboratory which offers pathological, chemical and other diagnostic services. The National Council for Clinical Establishments (NCCE) will determine the minimum standards for ensuring proper healthcare by the clinical establishments, provide for their periodic review and maintain a national register of clinical establishments. The Act allows different minimum standards for each category of clinical establishment and requires the central government to notify standards for each type of clinical establishment. The norms required to be met prior to registration of clinical establishment include: (i) minimum standards of facilities, and (ii) minimum qualifications for healthcare personnel.

REGULATION OF DRUGS AND PHARMACEUTICALS

Drugs and pharmaceuticals are regulated by a number of laws in India.⁸ The Drugs and Cosmetics Act, 1940

and the Drugs and Cosmetic Rules, 1945 regulate the manufacture, distribution, sale and import of drugs and cosmetics. Under the Act, drug includes, among other items, devices intended for internal or external use in the diagnosis or treatment of disease in human beings or animals, as may be specified by the central government. The Drugs and Cosmetic Rules define a clinical trial as 'a systematic study of new drugs in human subjects ... with the objective of determining safety and/or efficacy of the new drug'.

While the regulatory control over the approval of drugs, clinical trials and standards of drugs is the responsibility of the Central Drugs Standard Control Organisation (CDSCO), under the central government, the manufacture, sale and distribution is the responsibility of the State Drugs Control Organisations appointed by the state governments. Details of the different roles between the Centre and state with regard to regulation of drugs are given in Table 3.4.

Over the years, various committees and other institutions have suggested ways to improve the drug regulatory system in the country.⁹ In 2003, the central

TABLE 3.4 Centre and State Responsibilities with Regard to Regulation of Drugs

Central Drugs Standard Control Organisation	State Drugs Control Organisations
<ul style="list-style-type: none"> • Prescribing standards of drugs, cosmetics, diagnostics and devices. • Regulate market authorisation of new drugs, standards of imported drugs and clinical research in India. • Approve licenses to manufacture certain categories of drugs, i.e. for blood banks, large volume parenterals and vaccines and sera. • Testing of drugs by central drugs laboratories. • Monitoring adverse drug reactions. • Distribution of quotas of narcotic drugs for use in medicinal formulations. • Screening of drug formulations available in Indian market. • Evaluation/screening of applications for granting no objection certificates for export of unapproved/banned drugs. • Coordinating the activities of the State Drugs Control Organisations and giving guidance on technical matters. 	<ul style="list-style-type: none"> • Licensing of drug manufacturing and sales establishments. • Approval of manufacture of drug formulations. • Monitoring of quality of drugs and cosmetics, manufactured by respective state units and those marketed in the state. • Pre- and post-licensing inspection. • Recall of sub-standard drugs. • Investigation and prosecution in respect of contravention of legal provisions.

Source: CDSCO website, accessed on 20 January 2014.

⁸ The Drugs and Cosmetics Act, 1940, the Pharmacy Act, 1948, the Drugs and Magic Remedies (Objectionable Advertisement) Act, 1954, the Narcotic Drugs and Psychotropic Substances Act, 1985, the Medicinal and Toilet Preparations (Excise Duties) Act, 1956, and the Drugs (Prices Control) Order 1995 (under the Essential Commodities Act).

⁹ Committees include the Hathi Committee (1975); Task Force on Strengthening Drugs Regulatory System in the Centre and the states (1982); the Estimates Committee of Lok Sabha (1983–84); and the Pharmaceutical Research and Development Committee (1999). In addition to this, the Supreme Court of India and the National Human Rights Commission and Standing Committee of Parliament have made recommendations.

government constituted an expert committee chaired by Dr R. A. Mashelkar to review the drugs regulatory infrastructure. The Mashelkar Committee, while examining the regulatory system for drugs, observed: (a) inadequate drug control infrastructure at the state and central level, (b) inadequate testing facilities, (c) shortage of drug inspectors, non-uniformity of enforcement, and (d) lack of specially trained cadres for specific regulatory areas, among others.¹⁰ It made the following recommendations:

- **Drug Regulation at the Central Level**
 - Transform the CDSCO into the Central Drugs Authority (CDA), which will be a well-equipped, independent and professionally managed body under the MoHFW,
 - Establish 10 main divisions within the CDA manned by adequately trained manpower,
 - Provide for funds for new structure and sourcing of external expertise and provide for technical manpower,
 - Allow CDA to grant manufacturing licenses to address issue of non-uniformity of enforcement.
- **Drug Regulation at the State Level**
 - Strengthen state drugs control organisations with additional manpower, infrastructure, technical capabilities and adequate budget,
 - Set up an intelligence-cum-legal cell under the supervision of trained senior nodal officers, and enforce condition of licence for sale of drugs.
- **Clinical Research**
 - Share responsibility for safety of Indian citizens who are participants in clinical research by all stakeholders (investigators, sponsors, ethics committee and regulators),
 - Institutionalise good clinical practices to achieve credibility for data generated in India,
 - Require regulatory agency to develop adequate capacity to undertake routine inspections of clinical trial sites,
 - Consider expedited approvals for Phase II and III clinical trials on the basis of approvals accorded by International Conference on Harmonisation signatory countries,
 - A single window clearance mechanism for approval of applications related to drugs research,
 - Rationalise policies related to animal experiments.
- **Spurious and Sub-standard Drugs**
 - Create effective interaction among stakeholders (regulators, consumers, industry, medical profession),
 - Enhance penalties making offences cognisable and non-bailable,
 - Identify designated courts for speedy trials of spurious drug cases,
 - Discourage proliferation of drugs distribution outlets,
 - Industry should create counterfeit drugs strategies and surveillance systems,
 - Review system to tackle issue of non-uniformity in action taken on sub-standard drugs in different states,
 - Strengthen states with technical know-how and manpower to monitor quality of drugs manufactured and sold,
 - Improve testing laboratories by making Good Laboratory Practices norms a statutory requirement, accreditation with National Accreditation Board for Testing and Calibration Laboratories mandatory, etc.
- **Medical Devices and Diagnostics**
 - Separately define medical devices and frame guidelines for their regulation,
 - Set up medical devices division in the CDA,
 - CDA should set up regulatory mechanism for quality assurance and post-marketing surveillance of imported and locally made medical devices.

Following these recommendations, several attempts were made to amend the Drugs and Cosmetics Act to strengthen the drug regulatory system. The government introduced Bills to amend the Act in 2003 which lapsed due to the dissolution of Lok Sabha in 2004. Subsequently, two Bills were introduced in 2005 and 2007. The 2005 Bill enhanced the penalties for certain offences (manufacturing or selling spurious/adulterated drugs, manufacturing or selling drugs without a licence), and provided for special courts to try offences related to spurious or adulterated drugs. This Bill was passed in 2008. The 2007 Bill sought to replace the Drugs Technical Advisory Board (DTAB) for allopathic and alternate systems of medicine with the CDA. The CDA shall be the licensing authority for the manufacture, distribution, sale, import and export of drugs and cosmetics. The 2007 Bill also defined

¹⁰ Report of Expert Committee on a Comprehensive Examination of Drug Regulatory Issues, Including the Problem of Spurious Drugs (Chairperson: Dr R. A. Mashelkar), MoHFW, November 2003.

BOX 3.1 Key Observations of the Standing Committee on the Functioning of the CDSCO

The Standing Committee on Health and Family Welfare examined the functioning of CDSCO. The main highlights are:

- A total of 31 new drugs were approved between January 2008 and October 2010 without conducting clinical trials on Indian patients. Drug manufacturers, CDSCO officials and medical experts colluded to approve drugs in violation of laws.
- Certain actions by experts were in violation of the Code of Ethics of the MCI. A review of expert opinions revealed that several medical expert recommendations were based on personal opinions rather than on the basis of scientific data. Additionally, many expert opinions were written by what the Report calls 'the invisible hands' of drug manufacturers. The Committee recommended that CDSCO formulate a clear set of written guidelines on the selection process of experts with emphasis on expertise in the area of drugs.
- The Drugs and Cosmetics Rules, 1945, ban the import and marketing of any drug whose use is prohibited in the country of origin. CDSCO violated this rule by approving certain fixed dose combination drugs for clinical trials without considering the drugs' regulatory status in their respective country of origin. The Committee recommended an inquiry into the unlawful approval of these drugs.
- The Rules require animal studies to be conducted for approval of a drug for use by women of reproductive age. CDSCO violated this rule in approving Letrozole for treating female infertility. Globally, the drug has only been used as an anti-cancer drug for use among post-menopausal women. The drug has not been permitted for use among women of reproductive age because of side-effects. The Committee recommended that responsibility be fixed for unlawfully approving Letrozole.
- Post-marketing Periodic Safety Update Reports (PSURs) on adverse effects of drugs on Indian patients are required to be submitted to the CDSCO. When asked by the Committee to furnish reports on 42 randomly selected new drugs, the Ministry was able to submit reports for only 8 drugs. The Report contended that this action reflected a poor follow-up of side-effects on Indian patients. The Committee recommended that manufacturers of new drugs be warned about suspension of marketing approval unless they comply with mandatory rules on PSURs.

Source: Rajya Sabha (2012).

clinical trials, and said that all clinical trials require the approval of the CDA. This Bill has been withdrawn by the government as it decided to bring in a fresh amendment Bill.

In 2012, the Standing Committee on Health and Family Welfare had examined the functioning of CDSCO. The main recommendations of the Committee are summarised in Box 3.1.

In August 2013, the Drugs and Cosmetics (Amendment) Bill, 2013 was introduced in Rajya Sabha to change the regulation of manufacture, distribution, sale, import and export of drugs, cosmetics and medical devices and to ensure safety, efficacy, quality and conduct of clinical trials. The key features of the Drugs and Cosmetics (Amendment) Bill, 2013 are:

- The central government shall establish a CDA to subsume the existing CDSCO. The CDA will be composed of representatives from the Ministries of Health and Family Welfare, Law, Commerce and Industry, Science and Technology, Chemicals

and Fertilisers, Drugs Controller General of India (DCGI), Indian Council of Medical Research (ICMR), Directorate General of Health Services (DGHS), and other experts nominated by the central government, including those from state licensing authorities.

- The CDA shall, among others, specify guidelines, structures and requirements for the effective functioning of the central and state licensing authorities; review, suspend or cancel any licence or permission issued by them; and decide on disputes between two or more state licensing authorities relating to the provisions of the Act and rules and regulations made under it.
- The DCGI is the central licensing authority that has the power to issue, renew, suspend or cancel licences for import, export or manufacture of drugs, cosmetics or medical devices or permission for conducting clinical trials. The DCGI also has the sole power to issue licenses for the manufacture, sale, and export of 17 categories of drugs.

- The definition of drugs is changed to include new drugs that are: (i) not in significant use in India and are not recognised as effective and safe by DCGI; (ii) approved by the DCGI for certain claims, but are being marketed with modified/new claims; (iii) a fixed dose combination of two or more drugs, which are individually approved but are being combined for the first time in a fixed/changed ratio; and (iv) all vaccines, Recombinant Deoxyribonucleic Acid derived products, living modified organisms, stem cells, gene therapeutic products, etc., which are intended to be used as drugs.
- Under the Act, medical devices were covered under the definition of drugs. The Bill changes this by adding a new definition of medical devices to include any instrument, implant, material or other article, including software, intended to be for human beings or animals for the specific purposes of diagnosis, prevention, treatment or alleviation of any disease or, injury, modification of the body's anatomy and sustaining life.
- Clinical trials are defined in relation to drugs, cosmetics and medical, and involve their systematic study with the objective of determining their safety, efficacy, performance or tolerance. The Bill creates provisions for the medical treatment and compensation in case of injury or death of a person during participation in a clinical trial or due to it.
- In order to ensure standard quality of drugs, cosmetics, and medical devices, the Bill specifies conditions under which they will be considered misbranded, adulterated, and spurious and specifies penalties and offences for the same.

In addition to these, the Drug (Price Control) Order, 1995 (under the Essential Commodities Act, 1955) empowers the government to fix and regulate the prices of essential bulk drugs and their formulations. Under the Order, prices of 74 bulk drugs and formulations containing any of these scheduled drugs are controlled. The pricing of these drugs is fixed and revised by the National Pharmaceuticals Pricing Authority (NPPA), under the Department of Pharmaceuticals in the Ministry of Chemicals and Fertilisers. For drugs not covered under the Order, manufacturers have the freedom to fix prices.

REGULATION OF SPECIFIC HEALTH MATTERS

While the above-mentioned laws govern various aspects of the healthcare system, such as education,

professional practice, healthcare establishments and drugs, other central laws have been enacted to regulate specific health matters and medical practices related to them.

The Medical Termination of Pregnancy Act, 1971, was enacted to legalise abortions and permit termination of a pregnancy by a registered medical practitioner under specific circumstances. These circumstances include conditions under which: (a) the continuance of the pregnancy would involve a risk to the life of the pregnant woman or cause grave injury to her physical or mental health, or (b) there is a substantial risk that if the child was born, it would suffer from physical or mental abnormalities that would be a serious handicap. The law also permits termination of pregnancies that are a result of rape or failure of a contraceptive device.

The Pre-natal Diagnostic Techniques (Regulation and Prevention of Misuse) Act, 1994, regulates pre-natal diagnostic techniques for detection of genetic abnormalities, by restricting their use to registered institutions, for a specified purpose and by a registered person. The Act prohibits the use of pre-natal diagnostic tests for the purpose of determining the sex of the foetus and indulging in the practice of sex selection. According to the Act, such tests may be conducted for limited purposes, including the detection of chromosomal abnormalities, genetic metabolic diseases, sex-linked genetic disorders, and congenital anomalies.

The Transplantation of Human Organs and Tissues Act, 1994, was enacted under Article 252 (1) of the Constitution and has been adopted by all states except Andhra Pradesh and Jammu and Kashmir, which have their own laws. This Act regulates the removal, storage and transplantation of human organs for therapeutic purposes, and prohibits commercial trade in human organs. The Act specifies that a living donor has to be a near-relative of the recipient; in other cases of special affection or attachment towards the recipient, the donation requires prior approval of a statutory committee. The Act was amended in 2011 (after resolutions were passed by the legislatures of Goa, Himachal Pradesh and West Bengal) to regulate transplantation of tissues of the human body (such as skin), in addition to human organs and to allow organ-swapping. Organ-swapping means that a pair of donor-recipient who are near relatives, but whose organs do not medically match for transplantation are permitted to swap with another pair of such persons, with prior approval of a statutory committee.

The Mental Health Care Bill, 2013, was recently introduced in Rajya Sabha to repeal the Mental Health Act, 1987. The Bill states that every person shall have the right to access mental healthcare and treatment from services run or funded by the government. A mentally-ill person shall have the right to make an advance directive that states how he wants to be treated for the illness during a mental health situation and who his nominated representative shall be. The Bill also decriminalises suicide by stating that a person who attempts suicide shall be presumed to be suffering from mental illness at that time and will not be punished under the Indian Penal Code (IPC). Mental Health Review Boards are required to be constituted at the state and district level to register, review/alter/cancel an advance directive, appoint a nominated representative, adjudicate complaints regarding deficiencies in care and services, etc. This Bill will not lapse with the dissolution of the 15th Lok Sabha as it is pending in the Rajya Sabha.

The HIV and AIDS (Prevention and Control) Bill, 2014 was introduced in Rajya Sabha in February 2014.

This Bill seeks to prohibit discrimination against HIV+ persons, require informed consent prior to testing a person's HIV status, prevent the spread of HIV and AIDS, and provide anti-retroviral therapy and infection management for affected persons. The anti-discrimination provisions include prohibition of discrimination related to employment, educational establishments, healthcare services, residing or renting property, standing for public or private office, and provision of insurance (unless based on actuarial studies). The requirement for HIV-testing as a prerequisite for obtaining employment or access to healthcare or education is also prohibited. This Bill will also not lapse with the dissolution of the 15th Lok Sabha.

LEGISLATIONS DURING THE PERIOD OF THE 15TH LOK SABHA (2009–14)

Table 3.5 provides a list of Bills that were passed by the 15th Lok Sabha, and those that are pending.

TABLE 3.5 List of Bills and their Status at the End of the 15th Lok Sabha

Name of Bill	House in which Bill was introduced	Status (Passed/Pending)
The Indian Medical Council (Amendment) Bill, 1987	Rajya Sabha	Pending
The Constitution (Seventy-ninth Amendment) Bill, 1992	Rajya Sabha	Pending
The Homoeopathy Central Council (Amendment) Bill, 2005	Rajya Sabha	Pending
The Indian Medicine Central Council (Amendment) Bill, 2005	Rajya Sabha	Pending
The Indian Medicine and Homoeopathy Pharmacy Bill, 2005	Rajya Sabha	Pending
The Transplantation of Human Organs (Amendment) Bill, 2009	Lok Sabha	Passed
The Clinical Establishments (Registration and Regulations) Bill, 2010	Lok Sabha	Passed
The Indian Medicine Central Council (Amendment) Bill, 2010	Rajya Sabha	Passed
The Indian Medical Council (Amendment) Bill, 2010	Lok Sabha	Passed
The Jawaharlal Institute of Post-graduate Medical Education and Research, Puducherry (Amendment) Bill, 2010	Rajya Sabha	Passed
The National Institute of Mental Health and Neuro-Sciences, Bangalore Bill, 2010	Rajya Sabha	Passed
The Indian Medical Council (Amendment) Bill, 2011	Lok Sabha	Passed
The National Commission for Human Resources for Health Bill, 2011	Rajya Sabha	Pending
The Indian Medical Council (Amendment) Bill, 2012	Lok Sabha	Passed
The All India Institute of Medical Sciences (Amendment) Bill, 2012	Lok Sabha	Passed
The Mental Health Care Bill, 2013	Rajya Sabha	Pending
The Indian Medical Council (Amendment) Bill, 2013	Rajya Sabha	Pending
The Drugs and Cosmetics (Amendment) Bill, 2013	Rajya Sabha	Pending
The Human Immunodeficiency Virus and Acquired Immune Deficiency Syndrome (Prevention and Control) Bill, 2014	Rajya Sabha	Pending
The Food Safety and Standards (Amendment) Bill, 2014	Rajya Sabha	Pending

CONCLUSION

The chapter describes the various laws and regulations that govern the health sector, and the Bills that are being considered by Parliament. It can be seen that many of the existing laws are likely to be amended or replaced in the near future. These include significant changes in the framework for governing education and practice across the health sector—medicine, dentistry, nursing, pharmaceuticals, physiotherapy, etc. The

regulatory framework for drugs and medical devices is also being amended, and new regulations for clinical trials are being proposed. In terms of specific health matters, there are Bills pending in Parliament that address mental health and HIV and AIDS matters. It would be important for various stakeholders in the health sector to track these amendments, and to engage with the legislative process in Parliament as these changes may have far-reaching consequences for the sector.

REFERENCES

- CDSCO (Central Drugs Standard Control Organization), Ministry of Health and Family Welfare, Government of India, www.cdsco.nic.in, accessed on 20 January 2014.
- Government of India. 2012. 'Human Resources in Health Sector', *National Health Profile 2012*. New Delhi: Central Bureau of Health Intelligence, Government of India.
- Lok Sabha. 2013. 'Unstarred question no. 2366', Ministry of Health and Family Welfare, 23 August, http://164.100.47.132/Annexure_New/lsq15/14/au2366.htm, accessed on 25 November 2013.
- Rajya Sabha. 2012. *Report on the Functioning of the Central Drugs Standard Control Organisation (CDSCO)*, Standing Committee on Health and Family Welfare, 8 May, <http://164.100.47.5/newcommittee/reports/EnglishCommittees/Committee%20on%20Health%20and%20Family%20Welfare/59.pdf>, accessed on 25 November 2013.

4

SCALING UP HEALTH EXPENDITURE FOR UNIVERSAL HEALTH COVERAGE: PROSPECTS AND CHALLENGES

Indrani Gupta and Samik Chowdhury

The High-Level Expert Group (HLEG) constituted by the Planning Commission of India in October 2010 recommended an increase in public funding of health to a minimum of 2.5 per cent of the gross domestic product (GDP) during the Twelfth Five Year Plan (2012–17) and a minimum of 3 per cent by 2022 (Planning Commission 2011). Other estimates indicate that a fully evolved programme of universal health coverage (UHC) might require a much higher level of public funding of around 4 per cent of GDP (Prinja et al. 2012).

Funding has also been identified as a key constraint by the Planning Commission's Steering Committee on Health for the Twelfth Five Year Plan which states, 'The health care system in the country suffers from inadequate funding' (Planning Commission 2012). The definition of UHC adopted by the Steering Committee is, 'Ensuring equitable access for all Indian residents in any part of the country, regardless of income level, social status, gender, caste or religion, to affordable, accountable and appropriate, assured quality health services (promotive, preventive, curative and rehabilitative) as well as services addressing wider determinants of health delivered to individuals and populations, with the Government being the guarantor and enabler, although not necessarily the only provider, of health and related services.' This is adapted from the definition of UHC given by the HLEG with some changes to indicate that all residents would be protected once the scheme is fully functional. The UHC is to be

financed by central and state governments on 15:85 sharing basis.

Clearly, both the Centre and the states have to increase the volume of spending on health to make UHC a reality. According to the Planning Commission, '... since expenditure on health by the State Governments is about twice the expenditure by the Centre, the overall targets for public sector health expenditure can only be achieved if, along with the Centre, State Governments expand their health budgets appropriately' (*ibid.*). The Twelfth Plan also states that general tax revenues would be the principle source of funding for UHC.

For financing the Twelfth Plan, the projections envisage increasing total public funding, plan and non-plan, on core health from 1.04 per cent of GDP in 2011–12 to 1.87 per cent of GDP by the end of the Twelfth Plan, a three-fold increase in absolute terms over the Eleventh Plan levels, and an increase of about 34 per cent annually over this period. With the incentive measures proposed, it is estimated that the states' total funding on health will also increase to three times the Eleventh Plan levels involving a similar annual increase. The share between the Centre and the state may remain the same at 33:67 ratio though the Steering Committee does mention a 15:85 ratio.

Given the ambitious vision of expansion of funding for UHC and in the Twelfth Plan, an important question is whether such expansion is feasible and possible in the near future, especially given that the states are to

shoulder a greater fiscal responsibility for implementing UHC.

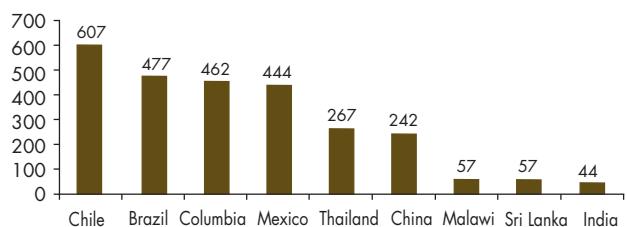
In this analysis we assess the states' fiscal situation, spending on health and possibilities of expansion to meet UHC needs in light of the projections. We divide states into three categories based on their progress vis-a-vis two of the health Millennium Development Goals (MDGs)—Infant Mortality Rate (IMR) and under-five mortality-rate (U5MR). We also undertake an expanded analysis comparing all states wherever necessary. Based on a variety of data, evidence and information, we club states based on their ability to roll out UHC. We also look at the Centre's potential to increase health spending to the extent mentioned in the Plan document. We conclude by presenting the implications of the results and possible options left to India to move forward on the UHC agenda.

CENTRALITY OF PUBLIC SPENDING IN UHC

The UHC initiation begins with raising resources for health. While efficacy of spending is an important part of financing, sufficiency of resources would remain a necessary—though not a sufficient—condition for countries planning to move towards UHC, irrespective of the path adopted. As the 2010 World Health Report of WHO (WHO 2010) indicates, every country could raise additional domestic resources for health. UHC is a public initiative and needs to be funded mostly by public funds. While mechanisms like pre-payment and pooling¹ would save resources, and effective public-private partnerships (PPPs) would also additionally be useful in the developing countries, UHC will remain almost totally a publicly funded and provided process. This is mainly due to the small size of the organised sector and large pools of socio-economically vulnerable populations who would require subsidised care. Whether the process is going to be entirely tax funded or otherwise, public funding has to be the cornerstone of a successful UHC.

The international experience indicates that public spending has been an important tool in the implementation

FIGURE 4.1 Per Capita Public Spending in Purchasing Power Parity (National Currency Unit/US\$), 2011



Note: Data represented in this figure corresponds to 2011.

Source: WHO Global Health Expenditure Database.²

of successful UHC. Figure 4.1 presents the per capita public spending on health of selected countries that have already moved or are in the process of moving towards UHC. India is also included in Figure 4.1 to present a comparative position vis-à-vis these countries.

Countries that have successfully launched UHC like Brazil, Columbia, Chile and Mexico demonstrate relatively higher public spending on health per capita, more than 10 times that of India's level. Closer home, Thailand and Sri Lanka have UHC, though the processes have been different, with Sri Lanka depending entirely on tax-based financing. Recently, however, Sri Lanka has also been dealing with high out-of-pocket (OOP) spending driven mostly by increasing incidence of non-communicable diseases (NCDs). China is also rapidly moving towards spreading universal coverage. Even a poor country like Malawi has recently been able to extend essential health package to its poor, though with support from external sources. Its per capita public expenditure on health is also higher than that of India.

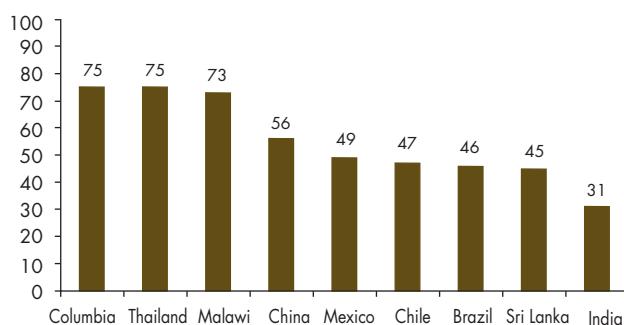
The role of government in financing is clearer from Figure 4.2, which shows the share of the government in total health spending.

By and large the more robust of the UHC systems have a much higher share of government spending in total spending. India's share (of 31 per cent) is much less than its immediate neighbour Sri Lanka which is at 45 per cent; Sri Lanka has been struggling with high OOP spending in any case, indicating the need for stepping up government investment in health. One core indicator of UHC is OOP spending by households; whatever

¹ Pre-payment refers to resources for health services that are collected prior to the health event requiring intervention, e.g. general taxes, compulsory insurance contributions (payroll taxes), voluntary insurance premiums, etc. Pooling refers to accumulation of financial resources for health with the objective of spreading risk so that no individual carries the full burden of paying for care; effectively the healthy subsidise the sick, young subsidise the old, and the rich the poor. Pools are fragmented when multiplicity of schemes targeting different groups create barriers to the redistribution and efficient use of pre-paid funds (WHO 2010).

² See <http://apps.who.int/nha/database/DataExplorerRegime.aspx>, accessed on 30 December 2013.

FIGURE 4.2 Share (%) of Public Spending in Total Health Spending, 2011



Note: Data represented in this figure corresponds to 2011.

Source: WHO Global Health Expenditure Database³

the route to achieve UHC, a country with increased health coverage would be bound to show a decline in OOP spending. The centrality of public spending can be further verified if one finds significant association between OOP spending and public spending. To verify that this is indeed so, we ran a simple regression for 149 countries with percentage of OOP spending in total health expenditure as the dependent variable. The independent variables used in the regression are per capita GDP and per capita public health expenditure of all levels of government, both in log forms. The only other variable included in the regression is percentage immunised under DPT3, to capture the quality of health system. The results are indicated in Table 4.1.

The results confirm that a higher per capita public spending is an important determinant of OOP spending across countries, and higher the per capita public spending on health, lower is OOP spending. The results also indicate that higher GDP would tend to increase OOP spending, which may be interpreted as the income effect. Controlling for these two variables—quality of health systems—

TABLE 4.1 Determinants of OOP Spending

Independent variable	Regression co-efficient	t statistic
Log per capita GDP	2.0	3.8
Log per capita public health spending	-7.1	-9.2
Percentage immunised for DPT3	.07	0.71
N=149		R ² = 0.46

Note: OOP Spending is dependent variable.

Source: Authors' calculation.

captured here by the extent of DPT3 immunisation, does not seem to have any significant impact on OOP spending.

The inference that can be drawn here is that health spending by government would remain a key policy tool for achieving low OOP spending on health. The seventh schedule of the Indian Constitution puts health on the State List, although the central government's contribution to the sector in the form of central sector and centrally-sponsored schemes (CSSs) is also an important part of total resources. The next section, therefore, analyses recent evidence on health spending in India, across states and Centre in the context of UHC.

PUBLIC EXPENDITURE ON HEALTH IN INDIA: SOME RECENT EVIDENCE

Public health expenditure in India has been historically rather static and inadequate. One of the earliest evidence on this is provided by the Bhore Committee (1946), which stated that the per capita private expenditure on health was Rs 2.50, compared to a state per capita health expenditure of just Rs 0.36 in the 1940s. More recent studies have also demonstrated the continuing predominance of private health expenditure in the Indian health system. Berman et al. (2008) examined trends in government health spending in light of the government's commitment to enhance public spending on health to 2–3 per cent of GDP. Their analysis shows that public health spending has been declining till 2004. This decline has been largely a result of a decline in the overall social sector expenditure by the states. The health sector received a boost after the launch of the National Rural Health Mission (NRHM) in 2005. Although this almost reversed the trend of declining public health expenditure, the authors opined that it would still be insufficient to achieve the target of 2–3 per cent of GDP. The authors also indicated two important concerns. First, while the CSSs are well-intentioned, one must look into the ability of the states to finance a predominant part of these schemes. The second issue is that of the ability of the states to spend—or their absorptive capacity—alongside increased allocations.

In another study (Bhat et al. 2004), the authors analysed the state-level public health expenditure data to examine the feasibility of the government's commitment to spend 3 per cent of GDP on health. The paper examines the relationship between income and healthcare

³ See <http://apps.who.int/nha/database/DataExplorerRegime.aspx>, accessed on 30 December 2013.

expenditures at state-level and estimated the elasticity of health expenditure at 0.68. Based on current levels of spending and the fiscal position of the state governments, the goal of spending 2 to 3 per cent of GDP on health, according to the authors, looked very ambitious.

The Economic Research Foundation (2006) did a preliminary study on the broad patterns of government spending on health and related areas in India in the recent past, and attempted to link them to observed health outcomes. The analysis was conducted both at the central government level and for 14 major states. The analysis of state budgets indicated wide variations across states, not necessarily synchronous with the state domestic products. The gaps between states in terms of per capita spending increased during the period of study.

Rao et. al. (2012), in their paper, analyse the nature of public spending on health and its impact on health infrastructure and health status of the population. In view of the recent reform attempts to augment spending on healthcare through specific-purpose transfers to states, the paper looked into the fiscal space for healthcare expenditure at the state-level and the stimulation and substitution effects of central transfers for health. The research concluded that not only is public spending on healthcare in India too low, but its distribution across the country is very uneven. Taking NRHM as a specific purpose transfer programme, the authors' find that the objective of increasing the expenditures to 2 per cent of GDP has not been fulfilled, partly because the low-income states could not avail the grants, as they could not afford to pay their own component of spending.

Berman et al. (2010), in continuation of their earlier (2008) study, found that realising the goal of 2–3 per cent of GDP would require that the states on aggregate increase spending on average by 22–38 per cent per year to attain this target. The authors conclude that this seemed unlikely, firstly because of the low fiscal capacity of states and secondly because of the lower ability of states to scale up the pace of programmes like NRHM leading to low absorptive capacity. The paper had some word of caution on the unintended consequences of the NRHM's dependence on central grants, one of them being the possible substitution of the state government's own health expenditure by these grants.

HEALTH SPENDING BY THE CENTRE AND THE STATES: SOME RECENT EVIDENCE

Since a significant amount of literature now exists to indicate how states have fared over the years, we look at more recent evidence of health spending for the states.

To anchor the discussion on health outcomes, we divide the states into three categories based on whether or not they have met their MDG goals of IMR and U5MR. The category I states are the best performers with respect to the two indicators and include Arunachal Pradesh, Delhi, Goa, Kerala, Maharashtra, Manipur, Nagaland, Sikkim, Tamil Nadu, West Bengal and Tripura. Category II states include Andhra Pradesh, Gujarat, Haryana, Himachal Pradesh, Karnataka, Mizoram, Punjab, Jammu and Kashmir and Uttarakhand. Category III states are the worst performers in the chosen indicators, and include Assam, Bihar, Jharkhand, Madhya Pradesh, Odisha, Rajasthan, Uttar Pradesh, Chhattisgarh and Meghalaya.

The ability of governments to increase health spending is closely linked with their GDP or in the case of states, to Gross State Domestic Product (GSDP); a comfortable level of per capita income and an increasing income of the state would in principle allow a larger share to be put away for health. In Table 4.2, we present per capita health spending inclusive of central transfers and per capita GSDP for 2009–10 and growth rate in spending between 2001–02 and 2009–10. We also show the percentage of GSDP that is allocated to health for these three groups of states.

Clearly, MDG outcomes have a positive association with GSDP as well as per capita health spending, with Category III states spending the least on health. In other words, higher the GSDP and per capita health spending better are the MDG outcomes. The last columns indicate that the proportion spent on health has come down for all the groups over these years. A comparison of health expenditure and GSDP growth indicates that incomes have outpaced health spending; in other words, states have not been able to put proportionately the same or a higher amount out of their increasing income into health, and this is true of states in all three categories.

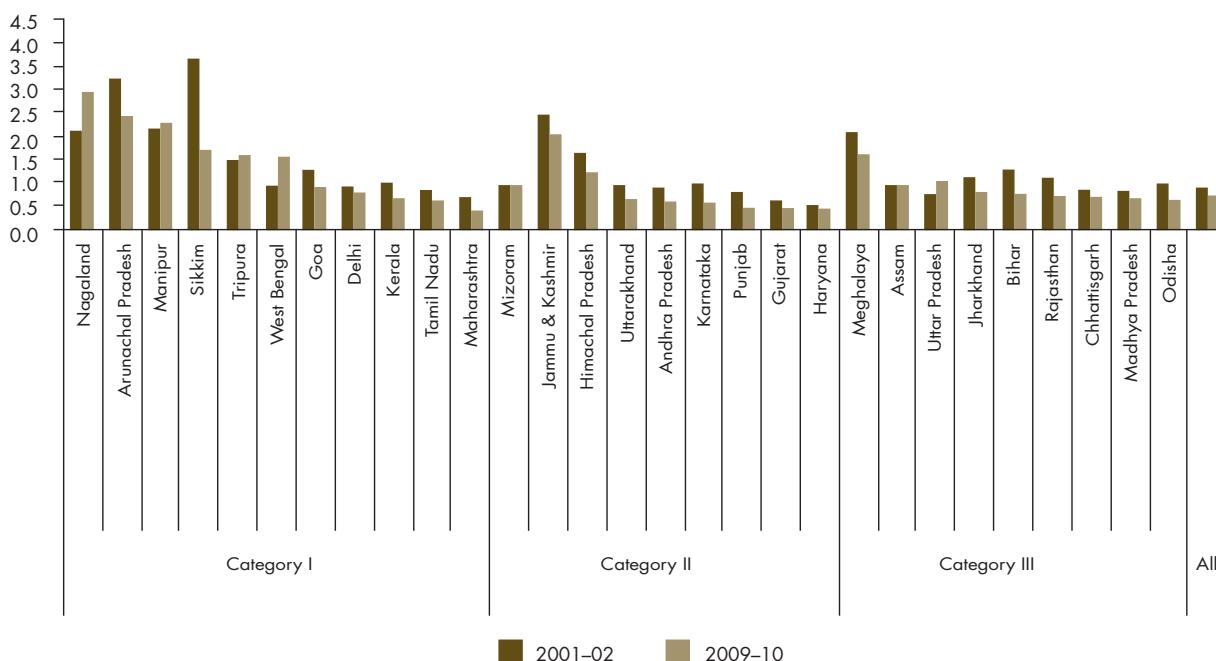
Figure 4.3 displays states in decreasing order of health share in GSDP for the year 2009–10. A few observations may be made. First, on an average the states spend just 0.6 per cent of their GSDP on health and family welfare. The share remains below 1 per cent for all the three categories, with Category II states spending much less than the other two groups (see Table 4.2). Second, some of the larger and economically developed states like Andhra Pradesh, Karnataka, Punjab, Gujarat, Haryana and Maharashtra, rank lowest in terms of the share of health in their GSDP. Third, all North-eastern states spend a relatively higher proportion of their GSDP on health. Finally and most importantly, there has been a decrease in the average share of health in GDP for all categories (Table 4.2),

TABLE 4.2 Per Capita Health Expenditure

Categories of states	Per capita health expenditure (Rs)		Per capita GSDP (Rs)		Health expenditure/GSDP ratio	
	2009–10	Growth 2001–02 and 2009–10	2009–10	Growth rate 2001–02 and 2009–10	2001–02	2009–10
I	584	11.7	80882	14.6	0.84	0.72
II	439	10.2	77213	15.0	0.86	0.57
III	285	12.7	34720	13.3	0.92	0.82
All states	406	11.6	57902	14.3	0.87	0.70

Sources: Health expenditure by the states from 'State Finances: A Study of Budgets', RBI 2003–04 and 2011–12. Population Projections—Census 2001 used for population figures for the corresponding year. GSDP from Press Releases and Statements, National Accounts Statistics, Central Statistical Organisation, Ministry of Statistics and Programme Implementation, Government of India.

FIGURE 4.3 Health Spending in GSDP in 2001–02 and 2009–10



Source: Same as Table 4.2.

when compared to 2001–02. Except for the North-east states (except Meghalaya and Sikkim), Tripura, West Bengal and Uttar Pradesh, all the other states show a decline in the share of expenditure on health in GDP. Paradoxically, despite the decline in share of health in GDP, the Category I states have been able to meet their MDG goals, indicating that there are definitely other factors at work, as contained in the rich literature on the social determinants of health (WHO 2008).

Among the major states and outside of the North-eastern states, West Bengal and Uttar Pradesh are the only two states that seem to have increased their health spending. The North-eastern states have generally been

doing well, except Assam and Meghalaya, and are now catching up after a long period of repressed growth in income and social indicators.

The variance across states in health spending has also been going up over the years except for the Category III states as indicated by the co-efficient of variation in per capita health spending across the three categories in Table 4.3. This indicates a lack of convergence among most states that are at similar levels in terms of health outcomes, in turn indicating a lot of noise in the determinants of health spending. In other words, health spending is being influenced by a variety of state-specific factors over time, which would have implications about

TABLE 4.3 Co-efficient of Variation (CV) in Health Expenditure

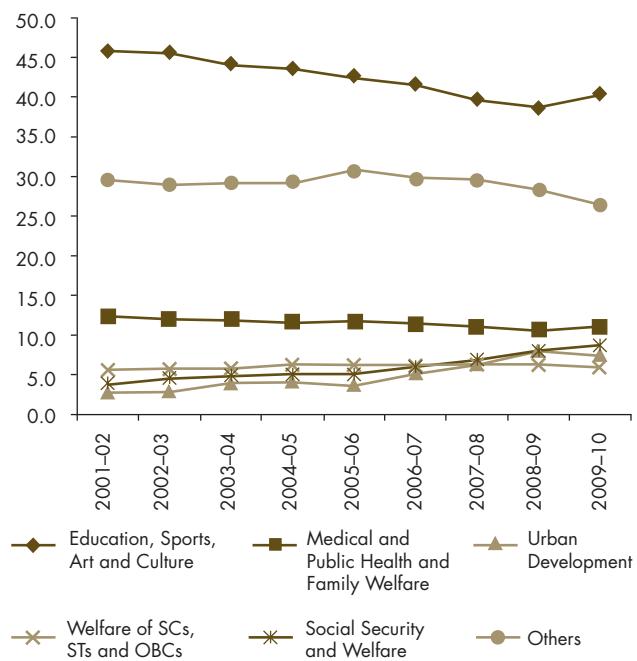
Categories of states	Per capita health expenditure		Health expenditure as a % of GSDP	
	2001–02	2009–10	2001–02	2009–10
I	0.53	0.58	0.62	0.60
II	0.71	0.86	0.77	1.07
III	0.63	0.52	0.37	0.38
All States	0.70	0.80	0.64	0.75

Source: Same as Table 2; Authors' calculations.

the ability of a centrally directed programme of UHC to ensure adequate spending at the state-level.

If we look at all states combined, how does health fare among other social sector expenditures of the government? Figure 4.4 indicates the percentage composition of social sector expenditure over all states combined. Health's share has come down over the years (from 12.3 to 11 per cent), as has been the case with education. This is in spite of the launch of NRHM during 2005–06, which shows up as a substantial jump in the central government expenditure, discussed later in the chapter. While education has had an increase in recent years this has not happened with health. The share of urban development has more than doubled when compared with the pre-Jawaharlal Nehru National Urban Renewal Mission (JNNURM) period. Marked increases in shares of social security and welfare and

FIGURE 4.4 Percentage Composition of Social Sector Spending over 2001–02 and 2009–10

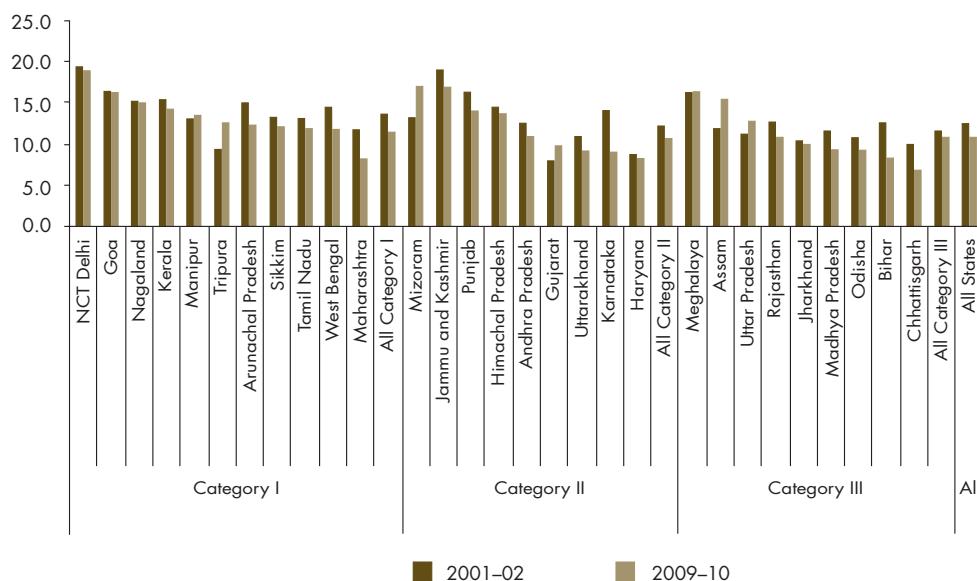


Source: 'Appendix Table 7, Composition of Social Sector Expenditure 'State Finances: A Study of Budgets 2013–14', RBI.

welfare of Scheduled Castes and Tribes (SCs/STs) and Other Backward Classes (OBCs) are also noticeable.

Figure 4.5 shows the share of Medical and Family Welfare in total social sector expenditure of states.

FIGURE 4.5 State Health (Department of Health and Family Welfare) Spending in Total Social Sector Spending (%)



Source: State Finances: A Study of Budgets 2013–14, RBI.

The states are arranged in order of decreasing share for the year 2009–10. A few important observations emerge from the figure. First, the percentage share varies between a low 7 per cent for Chhattisgarh to 19 per cent for Delhi. Second, all North-eastern states have a higher than average share of health in social sector expenditure. Third, three of the most economically developed states in India, i.e. Gujarat, Haryana and Maharashtra spend less than the average (all states) share of social sector expenditure on health and family welfare. Fourth,

most states have shown a decline in the share of public health spending in total social sector spending, with the exception of the North-eastern states, Gujarat and Uttar Pradesh.

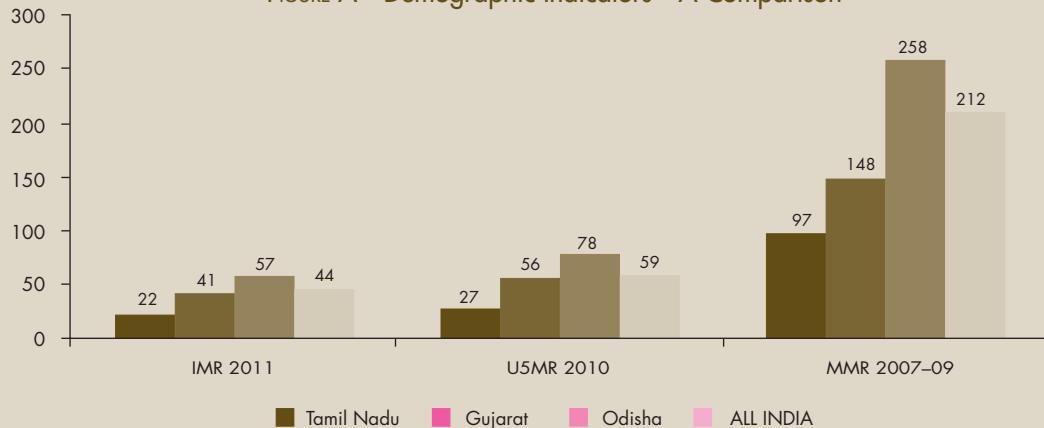
Clearly, health spending by the states has been getting relatively lower priority in social sector spending over the years.

If states have so far been unable to increase their spending, there are two other sources for sustaining total health spending: Centre's own spending on health

BOX 4.1 Tamil Nadu

Tamil Nadu has recently emerged as a public health model which has yielded results in terms of improved health outcomes; the state is much ahead of the national average in terms of the core health indicators, as also of the economically more developed states. Tamil Nadu's health outcomes are comparable to only Kerala, which has had a long history of organised healthcare even before the state came into being in 1956 (Kutty 2000). Tamil Nadu, on the contrary, has experienced phenomenal improvements in health outcomes in the last three decades or so. Between 1980 and 2005, Maternal Mortality Ratio (MMR) and IMR in Tamil Nadu declined by more than 60 per cent. In terms of coverage, 90 per cent of all deliveries are attended by skilled birth attendants, almost 25 per cent deliveries take place in primary health facilities and 81 per cent infants are fully immunised (Balabanova et al. 2013). What are the factors that have contributed to such massive improvements in health outcomes?

FIGURE A Demographic Indicators—A Comparison



Source: Demographic Indicators, www.data.gov.in, accessed on 21 October 2013.

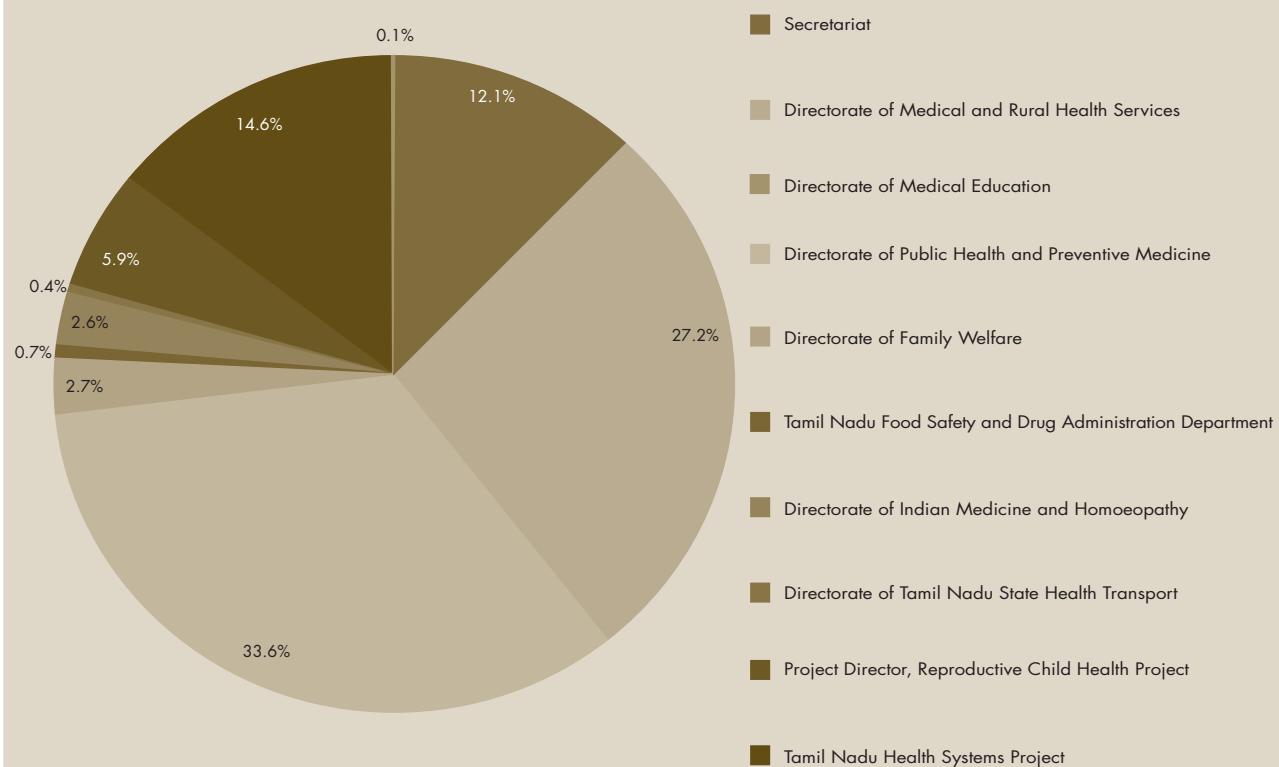
Tamil Nadu ranks fifth among the states in terms of per capita health spending. Health spending as a proportion of GSDP is quite low, and like most other states, it has declined between 2001 and 2002 and 2009 and 2010. Clearly, the level of spending has not been as important as the quality of spending, i.e. efficacy of public spending in Tamil Nadu has made the difference. Unlike most other states in India, Tamil Nadu has a separate Directorate of Public Health (instead of a merged Medical and Public Health) with a dedicated budget, workforce and a clear mandate for proactive planning and disaster management. It is run by trained public health managers along with technical staff like entomologists and statisticians.

Also, the share of public health and preventive medicine in the total budget for the health sector of the state is the highest (see Figure B). The other three larger shares correspond to that of medical education, health systems project and medical and rural health services respectively.

(contd...)

(Box 4.1 contd...)

FIGURE B Composition of Health Budget of Tamil Nadu



Source: Computed from Government of Tamil Nadu (2013–14).

Another key aspect is that the state has a Public Health Act that provides a legislative basis for the functioning of the Department of Public Health and Preventive Medicines (DPHPM). The Act contains implementable norms/rules with respect to hygiene, inspection, regulation, public health nuisance, etc. Such an Act is non-existent in most other states.

The public health cadres of the state are trained to imbibe a population-centric approach to health issues rather than assuming a clinical role that caters to specific health issues. After completion of basic medical degree, public health professionals need to acquire a post-graduate diploma/degree in public health within the next four years. Their first assignment is as a health officer in an urban local body after which they are put in charge of an entire district and finally promoted to the directorate. Thus, the directorate consists of professionals who are widely experienced in dealing with urban as well as rural public health issues, at multiple levels of governance. Their career paths are distinct, with more authority and responsibilities and an equal if not faster promotion opportunities than the medical cadres. This keeps them motivated with a resultant impact on public health and disaster management situation in the state (Dasgupta et al. 2010).

Some of the other initiatives taken by Tamil Nadu were an early (in 1980) introduction of the multipurpose health worker scheme, building a vast network of primary healthcare centres and ensuring a reliable supply of essential generic drugs through the Tamil Nadu Medical Services Corporation (Balabanova et al. 2013).

Tamil Nadu's well-organised public health machinery has resulted in reduced demand for curative services, and thereby reduced OOP spending. It also has had a direct impact on health outcomes related especially to maternal and child health and communicable diseases.

Good public health governance coupled with other favourable social determinants of health like high levels of education, especially female literacy rates, have made Tamil Nadu a model for other states to emulate.

and central plan assistance to states and equalisation transfers by the Finance Commission.

HEALTH SPENDING BY THE CENTRE—MINISTRY OF HEALTH AND FAMILY WELFARE

Figure 4.6 presents the trend in central government spending on health (health and family welfare only) over these years.

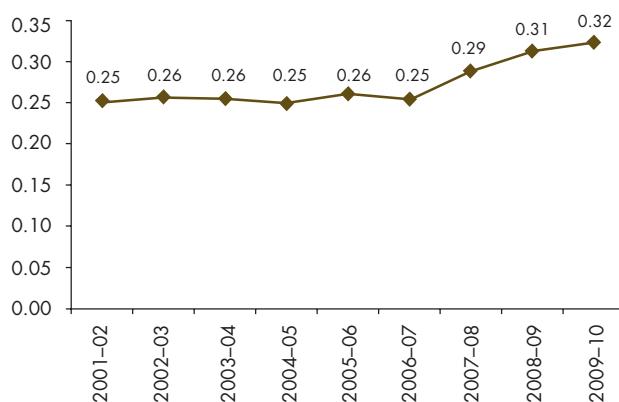
There is an upward trend from 2006–07 attributable to the significant increase in allocation for NRHM. From around 0.25 per cent for about 6 years, the share has increased to 0.32 per cent in 2009–10. The same is true of per capita health expenditure of the MoHFW as shown in Figure 4.7. In fact, per capita expenditure has been steadily increasing over the years and has tripled over 2001–02 and 2009–10.

Clearly, the Centre is playing and will probably need to play a much bigger financial role in the expansion of UHC relative to the states. In case UHC is implemented with a significant share of funding coming from the Centre, it has to be ready with a financial expansion plan with options clearly laid out, more so since the states' funding seem more difficult to garner, based on past trends.

Transfers from Centre to States

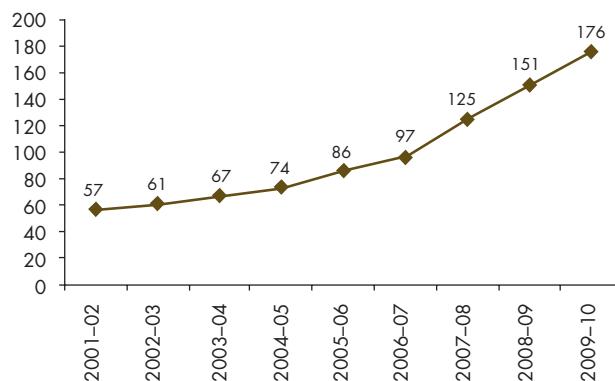
States own revenues are augmented by assignments and transfers—the two channels of resource flow from

FIGURE 4.6 Expenditure by the Central Government (MoHFW) on Health as a Percentage of GDP



Sources: MoHFW expenditure from Union Budget (respective years), GDP from CSO

FIGURE 4.7 Per Capita Expenditure (Rs) on Health by the Central Government (MoHFW)

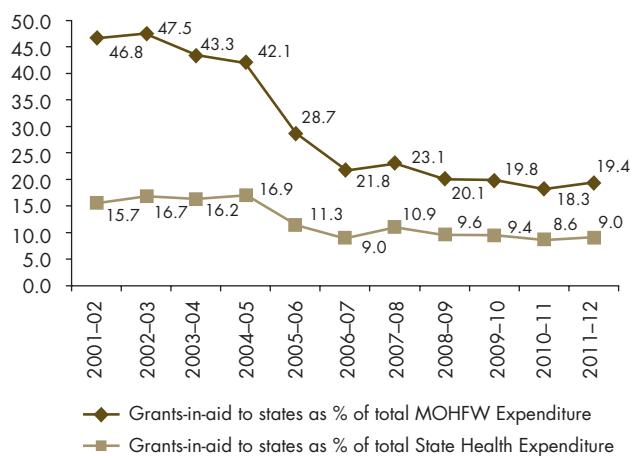


Source: Union Budget (respective years) and Population Projections, *Census 2001*.

the Centre to the states. States' share in central taxes, also known as tax devolution, is an assignment. As for transfers, these can be non-plan and plan transfers. The non-plan transfers comprise: (a) Finance Commission grants and (b) other non-plan grants. Plan transfers are of four types: (a) State Plan Schemes (normal central assistance and additional central assistance), (b) CSS with funds routed through the consolidated fund of states or state budgets, (c) CSS with funds transferred directly to state/district-level autonomous bodies or implementing agencies, and (d) a small portion of Finance Commission grants treated as plan grants. The normal central assistance for state plans is untied and formula based. However, funds transferred under additional central assistance or CSS are specific to schemes in particular sectors and are subject to central guidelines. Thus, while non-plan transfers follow the treasury route, plan transfers may take either the treasury or the society/direct transfer route.

There are two ways in which one can arrive at the transfers that the state (recipient) receives from the Centre. Central transfers to the health sector of a particular state can be obtained from the health budget of that state. The other source is the detailed demand for grants of the MoHFW, from where the relevant component 'grants-in-aid to state governments' can be obtained. A particular disadvantage of this approach is that only aggregate—not state-specific—central transfers to the health sector of states are given. So, while it would be interesting to see the distribution of these grants across states and over the years, we do not attempt that exercise here.

FIGURE 4.8 MoHFW Transfers as Percentage of Total Health Expenditure of Centre and States



Sources: Union Budget and 'State Finances: A Study of Budgets', RBI.

Almost the entire grants-in-aid to state governments by the MoHFW are in the form of plan expenditure. Figure 4.8 shows transfers from MoHFW as a proportion of total MoHFW expenditure and aggregate state-level health expenditure respectively. MoHFW grants-in-aid to states as percentage of total MoHFW expenditure have been declining steadily since 2002–03. As a proportion of states expenditure on health too, grants have been declining moderately. One major reason is that a large chunk of central transfers to states are occurring through the society route of CSS and, therefore, not being captured in the state budgets. Direct transfers of central plan assistance to autonomous bodies have grown by almost 17 per cent between 2006–07 and 2011–12. Currently, 13 per cent of state governments' health expenditure is financed by MoHFW grants that go through the treasury route.

CONCLUSION

The lack of firm estimates on how much UHC might cost is due to the absence of any tangible consensus on what exactly comprises UHC: specifically, India is still undecided on what to cover, how much to cover, whether to go for compulsory or voluntary system, if all services are to be free for all, etc. In the absence of any fixed point, it is difficult to carry out an exercise in costing of UHC or even a gap analysis. Most importantly—and a point much less discussed and debated—there has been an absence of discussion on pooling of current resources: should a new system

be installed with new funds on the current system or should there be some attempts to pool resources as well as services first in the existing system.

The question of consolidation of funds and services is critical in the context of UHC, because this would determine the additional funds that would need to be raised. This is all the more important since the current health coverage system is deemed inefficient as well as inequitous (Gupta and Chowdhury 2013). According to the Steering Committee on Health for the Twelfth Five Year Plan (Planning Commission 2012), ‘... the health care system in the country suffers from inadequate funding. There are several structural problems too, like, the lack of integration between disease control and other programmes in the social sector, sub-optimal use of traditional systems of Medicines, weak regulatory systems for drugs as well as for medical practice, and poor capacity in public health management.’ Such inefficiencies lower the productivity of resource used and lead to wasteful expenditures.

Based on international experience and best practices, it is clear that UHC would require a quantum jump in resources devoted to the health sector. Even a country like Sri Lanka—often lauded for its impressive record of health outcomes at fairly low cost—is now facing the realities of changing disease profile and increasing healthcare costs. Recently, the World Bank has agreed to give a \$200 million loan to recharge its health system (World Bank 2013). Countries like Mexico and Columbia started off with similar health coverage scenarios as India with fragmented and inequitous coverage. In Mexico, with a federal structure, total resources as well as its distribution across provinces improved substantially to enable the gradual roll-out of UHC over a period of nine years (Knaul et al. 2012). Similarly, the healthcare system in Columbia was characterised by ‘atomized risk pools, low efficiency, failure of public subsidies to reach the poor, large out-of-pocket expenditures, and significant inequality’ (Glassman et al. 2010), but over 10 years of evidence-based and phased roll-out coupled with substantial increases in public health spending, has turned the country into one with one of the lowest OOP spending.

Back home, the Centre has shown its ability to raise resources for health, as evidenced by allocations to NRHM, though the NRHM experience at best has been mixed (Government of Uttar Pradesh 2011). The problems in health system needed more than NRHM in many states. Whether or not the country launches

UHC, there is no denying that strengthening the health system would remain a core factor in improving access. Such improvements cannot take place by Centre's directives or funding alone. It would require much more planning focus from the states themselves, which at this point is not happening. A centrally-implemented UHC is unlikely to work, and states do not seem to be in any particular hurry to come up with operational schemes for UHC. States like Tamil Nadu and Andhra Pradesh have their own schemes which seem to be rather low-

cost and able to deliver to a certain extent. It would be the backward states that would need both health system strengthening and improved health coverage and, therefore a quantum jump in resources.

Raising more resources and/or consolidating and pooling are decisions that are political as well as technical—any decision needs to be backed up by meticulous technical and evidence-based planning, which, it is hoped, India can undertake if it wants to move towards UHC.

REFERENCES

- Berman, Peter, and Rajeev Ahuja. 2008. 'Government Health Spending in India'. *Economic and Political Weekly* 43 (26–27): 209–16, 28 June.
- Berman, Peter, Rajeev Ahuja, Ajay Tandon, Susan Sparkes, and Pablo Gottret. 2010. 'Government Health Financing in India: Challenges in Achieving Ambitious Goals'. HNP Discussion Paper, World Bank, December.
- Bhat, Ramesh, and Nishant Jain. 2004. 'Analysis of Public Expenditure on Health Using State Level Data'. Ahmedabad: Indian Institute of Management, www.iimahd.ernet.in/publications/data/2004-06-08rbhat.pdf, accessed on 16 May 2014.
- Bhore, J. 1946. 'Health Survey and Development Committee', http://nihfw.org/NDC/DocumentationServices/Committe_and_commission.html, accessed on 16 May 2014
- Economic Research Foundation. 2006. 'Government Health Expenditure in India: A Benchmark Study'. August, www.macroscan.org/anl/oct06/pdf/Health_Expenditure.pdf, accessed on 16 May 2014.
- Glassman, Amanda, María-Luisa Escobar, Antonio Giuffrida, and Ursula Giedion. 2010. 'From Few to Many: Ten Years of Health Insurance Expansion in Colombia'. Washington, USA: Brookings Institution Press and the Inter-American Development Bank, 4 January.
- Government of Tamil Nadu. 2013–14. *Demand for Grants*. Chennai: Department of Health and Family Welfare, Budget 2013–14.
- Government of Uttar Pradesh. 2011. *CAG Audit Report of NRHM in Uttar Pradesh*, http://upnrhm.gov.in/cag_audit.php, accessed on 16 May 2014.
- Gupta, Indrani, and Swadhin Mondal. 2013. 'Fiscal Space for Health Spending in South East Asia'. *Journal of Health Care Finance* 39 (4): 68–82.
- Gupta, Indrani, and Samik Chowdhury. 2013. 'Refining Estimates of Public Health Spending in India'. Unpublished mimeo. Institute of Economic Growth.
- Knaul, Felicia Marie Knaul, Eduardo González-Pier, Octavio Gómez-Dantés, David García-Junco, Héctor Arreola-Ornelas, Mariana Barraza-Lloréns, Rosa Sandoval, Francisco Caballero, Mauricio Hernández-Avila, Mercedes Juan, David Kershenobich, Gustavo Nigenda, Enrique Ruelas, Jaime Sepúlveda, Roberto Tapia, Guillermo Soberón, Salomón Chertorivski, and Julio Frenk. 2012. 'The Quest for Universal Health Coverage: Achieving Social Protection for All in Mexico'. *The Lancet*, [http://dx.doi.org/10.1016/S0140-6736\(12\)61068-X](http://dx.doi.org/10.1016/S0140-6736(12)61068-X), accessed on 16 May 2014.
- Planning Commission. 2012. *Report of the Steering Committee on Health for the 12th Five Year Plan*. New Delhi: Planning Commission.
- Prinja, Shankar, Pankaj Bahuguna, Andrew D. Pinto, Atul Sharma, Gursimer Bharaj, Vishal Kumar, Jaya Prasad Tripathy, Manmeet Kaur, and Rajesh Kumar. 2012. 'The Cost of Universal Health Care in India: A Model Based Estimate'. *PLoS One* 7 (1), January, DOI: 10.1371/journal.pone.0030362, accessed on 16 May 2014.
- Rao, M. Govinda, and Mita Choudhury. 2012. 'Health Care Financing Reforms in India'. Working Paper No. 100, National Institute of Public Finance Policy, March.
- WHO (World Health Organisation). 2010. *The World Health Report. Health Systems Financing: The Path to Universal Coverage*, <http://www.who.int/healthsystems/topics/financing/healthreport/FragmentationTBNo5.pdf>, accession on 16 May 2014.
- _____. 2008. 'Closing the Gap in a Generation. Health Equity through Action on Social Determinants of Health'. World Bank. 2013. '\$200 Million Catalyst to Recharge Sri Lanka's Health System', <http://www.worldbank.org/en/news/feature/2013/04/03/200-million-catalyst-recharge-sri-lanka-health-system>. accessed on 16 May 2014.

5

DETERMINANTS OF PRIVATE HEALTHCARE UTILISATION AND EXPENDITURE PATTERNS IN INDIA

Debasis Barik and Sonalde Desai

HEALTHCARE EXPENDITURE IN INDIA IN THE GLOBAL CONTEXT

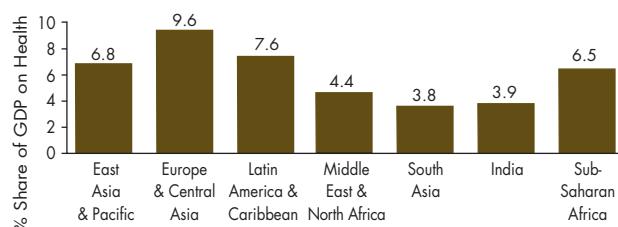
As nations progress along the epidemiological transition, the nature of healthcare expenditure changes drastically. Communicable diseases are containable through simpler public health strategies and when requiring intervention, require urgent and short-term treatment. In contrast, non-communicable diseases (NCDs) require longer-term and more expensive treatment, which may include laboratory testing as well. Different regions of the world are in different stages of epidemiological transition process. The World Health Organisation (WHO) estimates of the causes of death in 2008 indicate that in the 'more developed regions, excluding Eastern Europe', a majority of all deaths (80 per cent) were attributable to NCDs (UN 2012). Together with the high life expectancy at birth, the pattern of deaths by cause reveals that this group of countries as a whole is in the advanced stages of the demographic and epidemiologic transitions. In stark contrast, death due to communicable diseases as well as maternal, perinatal and nutritional conditions continue to be responsible for a large proportion of mortality in several regions, where life expectancy at birth is also substantially lower than in the more developed regions. In Africa, the region of the world with the lowest life expectancy at birth of 55 years, the majority of deaths in 2008 (61 per cent) was due to communicable diseases as well as maternal, perinatal and nutritional conditions.

While coping with each of either communicable or NCDs poses considerable challenges, India is confronted with both simultaneously. India is in the middle stage of this epidemiological transition with a dual burden of diseases—communicable diseases among younger age population and NCDs among population of age 45 years or more. Growing importance of NCDs will only rise as the population continues to age. Healthcare systems in India are ill-equipped to address these challenges.

Health expenditure around the world is highly asymmetrical in nature. Developed countries in the Europe and Central Asian region have the highest healthcare expenditure, 9.6 per cent of the gross domestic product (Figure 5.1). Healthcare spending (as a per cent of gross domestic product [GDP]) is also higher in the Latin America and Caribbean region (7.6 per cent) and East Asia and Pacific region (6.8 per cent). In contrast, countries in the South Asian region spend barely 3.8 per cent of the GDP on healthcare. In spite of a rapid economic growth in the last two decades, healthcare spending in India has not gone up significantly. Healthcare spending in India (3.9 per cent) is slightly higher than the average spending of her South Asian neighbours, but considerably lower than the developed nations.

Even compared to other middle income nations, per capita spending on health in India is the lowest among the BRICS (Brazil, Russia, India, China and South Africa) countries as reflected in the World Bank World Development Indicators (Table 5.1). All other countries in this group spend higher share of their GDP

FIGURE 5.1 Healthcare Expenditure as a Percentage of GDP by World Regions and India, 2011



Source: World Development Indicators (2011).

on health than India. Health outcome in terms of life expectancy at birth (LEB) also reveals India in a relatively disadvantageous position, just higher than South Africa. The poor LEB in South Africa is largely attributable to the loss of life years due to opportunistic infections, mainly tuberculosis due to HIV/AIDS since the 1990s.

What makes Indian healthcare pattern unique is the importance of household out-of-pocket (OOP) expenditure. A majority of the illnesses are treated by private healthcare providers and with the exception of Rashtriya Swasthya Bima Yojana (RSBY) health insurance coverage is negligible, a majority of spending tends to be out of pocket. In spite of the higher prevalence of poverty, 61 per cent of total healthcare expenditure is met through OOP spending by the households (Table 5.1). This OOP health spending is the key source of healthcare financing in India and this leads to catastrophic level of spending for healthcare to many households and push them into poverty (Ghosh 2011, Pal 2010, Berman et al. 2010). The proportion of households facing catastrophic OOP health payments during 2004–05, as measured by Ghosh (2011) was 15.37 per cent. This varied widely among states, from 3.46 per cent in Assam to 32.42 per cent in Kerala.

TWELFTH FIVE YEAR PLAN ON HEALTH: SOME RAYS OF HOPE

The Eleventh Five Year Plan (2007–12) made only minor progress on achieving service provision goals. During the Eleventh Plan, funding for health by Centre and state together has increased from earlier 0.94 per cent of GDP to 1.04 per cent of GDP in 2011–12 (Planning Commission 2013). Healthcare facilities are still inadequate and the Eleventh Plan has failed to achieve the desired levels. Despite considerable improvement in recruitment of health personnel the gap between need for health personnel and availability remains large (*ibid.*). Underperformance in creating resources and inefficient management has contributed in widening the gap in actual and desired levels of health outcome during the Eleventh Plan period.

However, the Twelfth Five Year Plan (2012–17) contains a lot of promise and hope. The Twelfth Plan strategy has been set up based on a comprehensive discussion by a High Level Expert Group (HLEG) formulated by the Planning Commission of India. The Twelfth Plan is set to roll out Universal Health Coverage (UHC) to achieve the long-term health goals. The HLEG has defined UHC as, ... ensuring equitable access for all Indian citizens, resident in any part of the country, regardless of income level, social status, gender, caste or religion, to affordable, accountable, appropriate health services of assured quality (promotive, preventive, curative and rehabilitative) as well as public health services addressing the wider determinants of health delivered to individuals and populations, with the government being the guarantor and enabler, although not necessarily the only provider, of health and related services'. Due to financial constraint, the HLEG has recommended the prioritisation of primary healthcare, while ensuring that

TABLE 5.1 Life Expectancy at Birth, GDP Per-Capita and Share of Healthcare Expenditure on GDP among BRICS Countries, 2011

BRICS Countries	LEB (Years)	PCHE (current US \$)	GDP per capita (PPP US \$)	HCE as % of GDP	OOP as % of total HCE
Brazil	73	1,121	11,634	8.9	30.6
Russia	69	807	22,408	6.2	31.4
India	65	59	3,714	3.9	61.2
China	73	278	8,408	5.2	36.6
South Africa	53	689	11,028	8.5	16.6

Note: LEB: Life Expectancy at Birth, PCHE: Per Capita Health Expenditure, OOP: Out-of-pocket, PPP: Purchasing Power Parity, HCE: Healthcare Expenditure

Source: World Development Indicators (2011).

the Essential Health Package (EHP) includes essential services at all levels of care. Government allocation (both central and state) on healthcare, broadly defined, has been set to achieve 2.5 per cent of GDP by the end of the Twelfth Plan. At the same time, it emphasises the need to refocus the financial and managerial system to ensure more efficient utilisation of available resources. Public-Private Partnerships (PPPs) have been encouraged to provide efficient care to people in reasonable price.

Below, we examine empirical data on use of healthcare services and healthcare expenditure by households to see how experiences of households on-the-ground varies by their socio-economic conditions and availability of healthcare.

MORBIDITY SCENARIO IN INDIA: PREVALENCE OF DISEASES AND TREATMENT RATE

The asymmetric demographic transition among Indian states has contributed to the co-existence of communicable as well as non-communicable diseases NCDs across wide geographic region. Poor and inadequate supply of public health services, including safe drinking water and sanitation, along with broad base of younger age population particularly in the high fertility states have contributed to the higher prevalence of communicable diseases. Again, states in the southern part of India and some other states, who are leading in the demographic transition process, are burdened with long-term chronic morbidities, such as diabetes, cardiac ailments, etc. Both types of morbidities have different healthcare needs. The minor morbidities such as fever, respiratory infection and diarrhoea are subject to frequent out-patient visit, which although inexpensive per visit, can be cumulatively onerous with higher frequency of occurrence and are mostly not covered by the insurance schemes. On the other side, with major morbidities, people require long-term intense care, which may be less frequent but expensive when encountered.

The prevalence of various minor and major morbidities and treatment seeking behaviour, as noted in the India Human Development Survey-I (2004–05), are depicted in Table 5.2. IHDS-I is a nationally representative, multi-topic survey of 41,554 households in 1503 villages and 971 urban neighbourhoods across India. Along with the rich content on education,

employment, income, it has collected information on reproductive health, and broader health and health beliefs of the Indian population with an intention to follow them up over time.

The survey reveals that, as many as 124 per 1,000 people in India suffered from fever, cough and cold or diarrhoea during the 30 days prior to the survey (Table 5.2). Fever is the most frequently observed among all minor morbidities. Almost half (45 per cent) of all Indian households had someone who suffered from one of these minor illnesses. The prevalence of any long-term morbidities in the last 365 days prior to the survey was half that of the prevalence of minor morbidities with a 30 day reference period. The most frequently reported long-term illness was the unspecified ‘other’ category (23 per 1,000), which mostly includes accident. Prevalence of high blood pressure (14 per 1,000) is the second highest among all long-term morbidities. Among the other long-term morbidities, diabetes, asthma, cataract and heart disease share a fair prevalence. Multiple morbidities were reported by 14 per cent of these populations. Twenty-seven per cent of the Indian households had at least one person suffering from any long-term illness. However, these reported prevalence rate are lower than the actual prevalence, mainly because the survey collected information from the members of the household, who were present during the interview and the morbidities include the diagnosed ailments only (Desai et al. 2010).

People often seek treatment for minor morbidities (or fail to report a minor illness for which no treatment is sought), but non-treated ailment is higher for the major morbidities. Nearly 6 per cent of the minor morbidities are not treated compared to 9 per cent of the long-term morbidities. 42.5 per cent of the polio cases, reported in the IHDS survey, were not treated in the year prior to the survey. One in every four patients suffering from mental illness was not treated. Non-treatment was also higher in case of cataract (20.7 per cent), paralysis (18.2 per cent) and epilepsy (14.7 per cent).

The statistics on source of provider for the patients, who sought treatment, gives a gloomy picture about the use of public facilities for both minor and major illnesses. In spite of higher treatment cost, people overwhelmingly prefer to use private healthcare providers rather than public facilities. Three-fourth of the patients visited private facilities for treatment for both type of illnesses. Visit to public facilities were comparatively higher for long-term illnesses than short-term illnesses.

TABLE 5.2 Treatment Rate for Short- and Long-term Morbidities in India, 2004–05

	Prevalence ('000)	Treated in (in percentage)			Percentage not treated	Numbers
		Government	Private	Other		
Any short-term morbidity	124	16.2	73.2	10.6	5.7	25,505
Fever	107	16.4	74.6	9.1	4.7	21,848
Cough	86	15.3	75.5	9.2	5.6	17,585
Diarrhoea	30	12.2	76.3	11.5	5.5	6,140
Any long-term morbidity	64	20.2	74.9	4.9	9.0	12,704
Cataract	6	31.5	63.3	5.2	20.7	1,243
Tuberculosis	4	22.3	74.5	3.2	12.2	722
High BP	14	21.5	74.4	4.2	3.7	2,728
Heart disease	5	22.2	74.4	3.4	8.7	1,085
Diabetes	8	24.3	72.1	3.7	3.2	1,554
Leprosy	1	20.1	76.0	3.9	9.7	143
Cancer	1	18.3	73.0	8.8	2.7	143
Asthma	7	16.8	78.7	4.5	4.7	1,363
Polio	1	17.5	75.1	7.5	42.5	241
Paralysis	2	20.2	73.5	6.3	18.2	308
Epilepsy	1	15.7	73.1	11.3	14.7	245
Mental illness	2	21.5	69.5	9.0	25.0	304
STD or AIDS	1	18.5	76.2	5.3	13.8	128
Other long-term	23	16.5	78.3	5.2	6.0	4,518

Source: India Human Development Survey (2004–05).

While long-term illnesses are more devastating, short-term illnesses are more prevalent. Short-term morbidity accounts for substantial time loss from usual activities. A person suffering from any short-term illness was incapacitated, or unable to perform his or her usual activities for four-and-a-half days in 30 days prior to the survey. Although short-term illnesses are more common for children, days lost per illness increases with age, somewhat counterbalancing the lower prevalence at younger ages. A person who was ill with a long-term disease was, on an average, unable to perform his or her normal activities for almost 60 days during the previous year. The elderly were more affected than others. They lost 71 days of normal activity if sick with one of these diseases. Across the entire population, long-term illnesses accounted for about four days (per person-per year) of lost activity, compared with seven days for short-term illnesses. This difference is due to the lower prevalence of long-term than short-term morbidity (*ibid.*).

The working age adults (15–59 years) lose about 5.5 days per year because of fevers, coughs and diarrhoea, school-age children lose seven days, and the elderly lose

10 days per year respectively. On the other hand, long-term illness results a loss of four days for working age adults, one day for school-going children and 15 days for elderly. Days lost in long-term major morbidities are more pronounced than short-term morbidities for the older population as both the prevalence and days incapacitated due to long-term illnesses are higher among this age group.

HEALTHCARE EXPENDITURE AND FINANCING

As discussed earlier, healthcare in India is dominated by the private healthcare providers. Over two-thirds of the patients, suffering from either type of morbidity seek private care. But, private healthcare is subject to large OOP expenditure since health insurance coverage is negligible.

At the same time, in spite of the ostensibly free nature of government healthcare, substantial costs are involved in the form of medication costs or tips. Average treatment cost of minor morbidity in government

facilities was Rs 319 and in private it was Rs 350 (Table 5.3), not a large difference. The difference between public and private facilities is larger when it comes to major illnesses. Average annual cost of treatment for long-term illnesses is Rs 4,569 in public facilities and Rs 6,139 in private. Both of these are substantially higher than minor illness related expenditure.¹ Heart disease, cancer, paralysis are the few among the long-term diseases noted in IHDS-I survey, which demands for a huge spending on treatment.

Our observation of a small difference between government and private healthcare during minor illnesses may be partly due to a huge variation in the quality and the cost of private healthcare. The private medical sector in India is extremely heterogeneous in nature. People usually go to traditional healers for minor illnesses, who prescribe relatively cheap ayurvedic or homeopathic medicines. However, when it comes to major illnesses, the difference in doctors' costs between public and private providers is greater, possibly because this is where patients visit more qualified and expensive private doctors (*ibid.*).

Since the cost of treatment of both minor and major illnesses is not exceptionally lower in government facilities than private, people opt for private treatment over government, mainly for easy access and flexible visiting hour. Moreover, the cost of treatment was significantly lower while using some provider, such as pharmacist (*ibid.*).

Indian households spend a surprisingly large proportion of their income on medical care and medical expenses are an important reason to push them into poverty trap. Table 5.4 provides a comprehensive picture of the toll of healthcare expenditure on household income. The share of short-term morbidities is higher in the share of total health expenditure on household income.

The IHDS survey data shows that, about 6 per cent of the monthly household income is spent on healthcare, out of which 4.4 per cent is spent for minor illness and 1.6 per cent is for long-term illness. Higher share of household income is spent on healthcare in rural areas than urban areas. Again, among the urban dwellers, share of income spent in healthcare is lower in metros than their other counterparts. This finding is probably attributable to the fact that healthcare expenditure is more or less constant across various income groups, while the income varies; the poor spend a greater

TABLE 5.3 Average Healthcare Expenditure in Government and Private Facilities by Type of Illness, 2004–05

	Average Health Expenditure (in Rs)			Sample size	
	Govt.	Pvt.	Total	Govt.	Pvt.
Any short-term morbidity	319	350	294	5,235	17,111
Fever	330	356	308	4,626	15,246
Cough	345	331	287	3,521	12,213
Diarrhoea	348	357	304	875	3,594
Any long-term morbidity	4,654	6,139	5,053	3,369	8,412
Cataract	4,068	5,254	3,482	384	648
Tuberculosis	4,608	6,973	5,477	210	387
High BP	3,023	4,610	3,930	883	2,091
Heart disease	7,770	10,018	8,179	345	762
Diabetes	4,226	6,286	5,439	434	1,195
Leprosy*	7,777	5,175	4,445	31	81
Cancer*	14,578	19,670	15,399	47	99
Asthma	4,156	4,528	4,016	350	843
Polio*	7,949	6,677	3,761	41	110
Paralysis*	7,351	11,515	8,073	81	206
Epilepsy*	10,544	7,077	5,874	47	158
Mental illness*	7,920	7,531	6,036	74	169
STD or AIDS*	6,150	3,925	3,574	23	68
Other long-term	5,860	7,083	6,181	1,067	3,081

Note: The reference period for short-term morbidity is 30 days prior to the survey and for long-term morbidity is 365 days prior to the survey. * Figures not reliable due to small sample size.

Source: India Human Development Survey (2004–05).

percentage of their income on healthcare. The higher availability and easy access to health facilities in the urban areas make the healthcare cost cheaper in urban areas than rural. The rural people, more often, have to leave their local areas for treatment and are slightly more likely to be hospitalised, which raise costs (*ibid.*). Lower treatment cost along with higher household income in the urban areas lead to spend lower share of household income on health compared to the rural households. Poor households spent 14.5 per cent of their monthly income on healthcare expenditure, compared to 0.7 per cent among the richest households. The Adivasis and the Muslims spent a lower share (3.9 per cent and 4.8 per cent respectively) of their monthly income on healthcare. On the other hand,

¹ Reference period for short-term morbidity expenditure is 30 days while that for long-term illnesses is 12 months.

TABLE 5.4 Share of Total Household Income, Spend on Healthcare in India, 2004–05

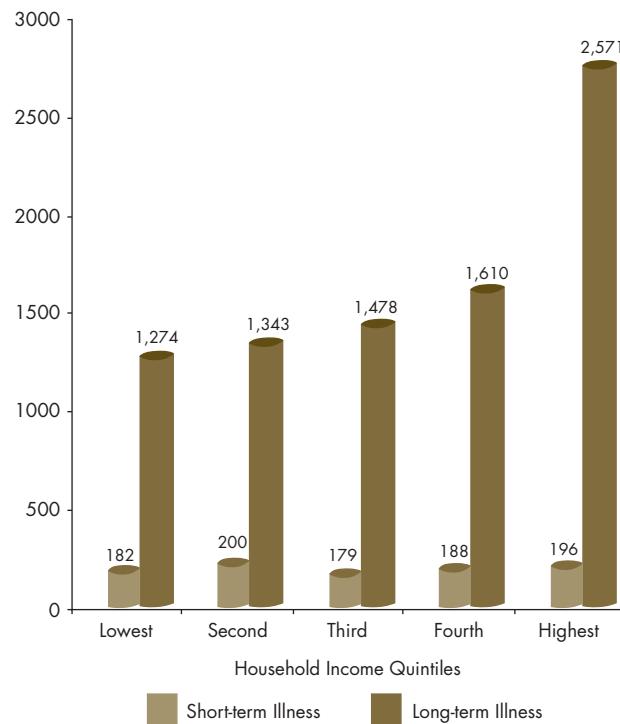
	<i>Healthcare spending (%) on monthly household income</i>		
	<i>Any morbidity</i>	<i>Short-term</i>	<i>Long-term</i>
All-India	6.02	4.43	1.59
Place of Residence			
Metro	1.13	0.67	0.46
Other Urban	3.57	2.42	1.15
More developed village	7.73	5.72	2.01
Less developed village	6.87	5.18	1.69
Income			
Lowest quintile	14.53	11.15	3.38
2nd quintile	4.53	3.27	1.26
3rd quintile	2.44	1.74	0.70
4th quintile	1.44	1.02	0.42
Top quintile	0.65	0.37	0.28
Social Groups			
High caste Hindu	5.13	3.65	1.48
OBC	7.59	5.66	1.93
Dalit	5.32	4.06	1.26
Adivasi	3.88	2.78	1.10
Muslim	4.84	3.88	0.96
Other religion	9.19	4.36	4.83

Source: India Human Development Survey (2004–05).

a larger share (9.2 per cent) of household income of people, belong to other minority religious communities were spent on healthcare during 2004–05. The prevalence of short-term as well as long-term morbidity is lowest among the Adivasi group. This may be due to under-reporting of ailments among Adivasis. Again, a higher proportion of sick Adivasis were treated in government facilities, which resulted into a lower treatment cost. The median treatment cost incurred by Adivasis for any short-term and long-term morbidities are Rs 80 and Rs 600 respectively, which are far less than the national level (Rs 120 for short-term and Rs 1,900 for long-term).

The healthcare spending by household income category gives an interesting picture (see Figure 5.2). When it comes to minor illnesses, the rich and poor spend about the same. But the treatment cost for long-term illnesses vary substantially, with a range of Rs 1,274 in the lowest income quintile to Rs 2,571 in the highest income quintile, and a sharp increase between the fourth and fifth quintile. Since, primary costs for short-term illnesses are related to medicine, these are unlikely to vary by household income. However, major

FIGURE 5.2 Median Medical Spending (in Rs) for Short- and Long-term Morbidities by Household Income Quintiles in India, 2004–05



Source: Authors' calculation based on India Human Development Survey (2004–05)

illnesses require more expensive tests and treatment options, which physicians may hesitate to recommend to poor patients, and poor households may be less likely to undertake, even if recommended (*ibid.*). Whatever may be the reason, Figure 5.2 reveals that the healthcare expenditure variation across income groups is not very large. Consequently, it implies a larger proportion of income among the poor is spent on healthcare.

WHY DO PEOPLE USE PRIVATE CARE?

The above analysis indicates that, despite a higher treatment cost, average Indian patient opts for private healthcare services. There are two main components—(1) structure of government healthcare, and (2) quality of care.

Structure of Government Healthcare

In spite of attempts in every Five Year Plan to improve public healthcare infrastructure, the shortfall remains significantly high. While urban residents generally have a choice of public or private providers, rural residents face far fewer choices. Currently, a sub-centre covers an average

radial distance of about 2.59 kms, whereas primary health centres (PHCs) and community health centres (CHCs) cover 6.42 kms and 14.33 kms respectively (MoHFW 2013). This shows a relatively higher access to sub-centres to the rural Indian population.

A CHC is supposed to provide minimum specialist services to the rural population. As per minimum norms, a CHC is required to be manned by four medical specialists, i.e. surgeons, physicians, gynaecologists and paediatricians supported by paramedical and other staff. It is mandated to have 30 indoor beds with one operation theatre, X-ray, labour room and laboratory facilities. It serves as a referral centre for 4 PHCs and also provides facilities for obstetric care and specialist consultations. One CHC is to cover a population of 80,000 in hilly/tribal/difficult areas and 1.2 lakh in plain areas. As of March 2012, 16 states/UTs are serving more than 1.2 lakh population and the situation in Bihar is the worst. A CHC in Bihar is serving 13.2 lakh population, 11 times higher than the specified norm (*ibid.*).

PHCs are the cornerstone of the rural healthcare delivery system. This is the first contact point between village community and the medical officer. The PHCs were envisaged to provide an integrated curative and preventive healthcare to the rural population with emphasis on preventive and promotive aspects of healthcare. The activities of PHC involve curative, preventive, promotive and family welfare services. One PHC is to cover a population of 20,000 in hilly/tribal/difficult areas and 30,000 in plain areas. As per minimum requirement, a PHC is to be manned by a medical officer supported by 14 paramedical and other staff. Under National Rural Health Mission (NRHM), there is a provision for two additional staff nurses at PHCs on contract basis. It acts as a referral unit for 6 sub-centres and has 4–6 beds for patients. The latest statistics reveals that, PHCs in 14 states/UTs are serving a population higher than the limit suggested by Indian Public Health Standards (IPHS). PHCs in most of the major states are serving more than 30,000 population (*ibid.*).

A health sub-centre in India usually covers a population of 5,000 in plain area and 3,000 population in hilly/tribal/difficult area. Each sub-centre is required to be manned by at least one Auxiliary Nurse Midwife (ANM)/Female Health Worker and one Male Health Worker. Under NRHM, there is a provision to have one additional ANM on contract basis. Sub-centres are assigned tasks relating to interpersonal communication in order to bring about behavioural change and provide services in relation to maternal and child health, family welfare, nutrition, immunisation, diarrhoea control and

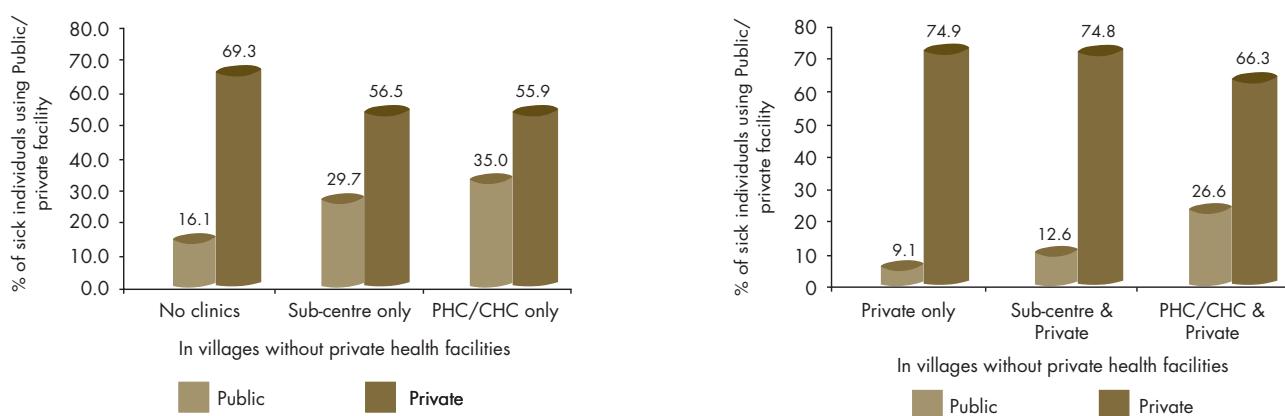
control of communicable diseases programmes. The sub-centres are provided with basic drugs for minor ailments needed for taking care of essential health needs of men, women and children. Sub-centres in the rural areas of 13 states/UTs are serving more than 5,000 population, the limit suggested by IPHS (*ibid.*).

The Twelfth Five Year Plan (2012–17) has put a strong emphasis on a very broad range of preventive, promotive and curative care to be made available at the sub-centre and PHC level, with more than 70 per cent of the total healthcare investment expected to flow at this level (Planning Commission 2013). A strict gate-keeping at the sub-centre-level has been prescribed to ensure that more than 95 per cent of the patients are fully cared at this level (Mor 2013). A number of researchers have expressed their doubt if the central or state budget will be able to support the huge expenditure required to enhance the existing healthcare system (Rao and Singh 2005, Rao and Choudhury 2012). Moreover, if the money were to become available, bringing about all the changes will take a great deal of time and manpower.

However, access to a sub-centre is not enough to encourage the use of a government facility for short-term care, particularly if a private facility is also present (Desai et al. 2010). In the absence of any health facilities, 16 per cent of the sick individuals go outside the village for treatment in public facilities against a huge 69 per cent in private facilities (Figure 5.3). In spite of having a sub-centre in the village, 57 per cent go out of the village for private treatment. The use of sub-centre is less by 17 percentage points and that of PHC/CHC by 8 percentage points, when any private medical facility co-exists.

Accredited Social Health Activist (ASHA) works as a bridge between ANM and the community. The mandated qualification level for an ASHA worker is formal education up to class 8. The criterion is also relaxed if person with suitable qualification is not available. But, whether education upto class 8 is sufficient for the tasks ASHA workers are expected to perform is not clear. Since ASHA workers are expected to keep records and advice patients about appropriate care, their ability to read instructions is important to their ability to perform their job. Keeping aside educational qualification, the performance of the community health workers like ASHA is highly dependent on the on-the-job training received by them. Studies reveal that a huge lack of introductory as well as regular training of these low-educated ASHA workers has aggravated the situation further which often results into a low level of knowledge to perform the job efficiently. A study by Bajpai and Dholakia (2011) provides qualitative

FIGURE 5.3 Use of Public/Private Facilities (in percentage) by Availability of Facilities in the Village, 2004–05



Source: India Human Development Survey (2004–05).

findings on the recruitment, responsibilities, training, incentives and supervision of ASHA workers, in a few states, using cross-sectional, mixed-method surveys and focus group discussions. They found that nearly half of the ASHA workers in Assam could not specify their job responsibilities, whereas ASHAs in Bihar receive less than 10 of the 23 days recommended training. Again, most of these ‘barefoot’ community workers have received their on-the-job training from ANMs, who are not officially recognised as the supervisor or trainers of the ASHAs. These translate into very poor health knowledge among these workers, and evidence suggests that many ASHAs lack essential knowledge to perform their jobs well (Bajpai et al. 2011).

Quality of Care

Judging by the overwhelming preference of Indian consumers for private sector health services, we might be tempted to assume that private providers offer far superior care than public providers. However, this appears not to be the case.

The Indian medical system is mainly managed by three types of providers—trained (MBBS) public sector doctors, trained (MBBS) private sector doctors and untrained private sector doctors. The public sector is vast, but is sorely underfunded and not nearly large enough to meet the growing health needs of the country. Moreover, it is overly centralised and rigid in planning, politically manipulated, and poorly managed and governed. However, private sector providers are not significantly better. The mushrooming private sector is undirected and unregulated. It rarely meets the standards of care populated by many unqualified practitioners, and provides too many inappropriate treatments (Preker et al. 2002).

A vast majority of private medical practitioners in India are unqualified and lack proper training, especially those in the rural areas (Rao 2012). IHDS (2004–05) documented that 86 per cent of government doctors had an MBBS (Bachelor of Medicine and Bachelor of Surgery) degree, but only 60 per cent of the private providers are so qualified. Das et al. (2008) pointed out that the quality of medical advice, delivered by a medical practitioner in low income countries including India is very low. They measured the variation in quality of medical advice in a combination of variation in *competence* (defined as what doctors know) and variation in *effort* (defined as how hard doctors work). The gap between knowledge and practice is stark among Indian health practitioners. The study reveals that private doctors without an MBBS degree know only 20 per cent of the essential tasks, but they do pretty much all they know to do. The performance of this set of doctors is restricted by competence. The private doctors with an MBBS degree know 40 per cent of the essential tasks, but in practice, they use 25 per cent of them. The constraint of their performance is effort. The gap between competence and practice is even higher among public sector doctors. These set of doctors knew 30 per cent of their essential tasks but execute only 8 per cent in practice. Here also, effort is the constraint in performance.

This suggests that, although most of the public health facilities (PHCs/CHCs) are equipped with MBBS doctors, their competence as well as efforts to put knowledge into practice is negligible. The private sector, dominating the health market is also poorly equipped. Private hospitals are over-crowded by huge volume of patients, mostly due to the weak government healthcare delivery system and poor quality of care offered by it

(Rao 2012). Homan and Thankappan (1999), based on a study in Kerala showed that private city hospitals had higher occupancy rate than public hospitals. Again, the competence of private doctors need not be taken for granted. Using vignettes, coupled with direct observation of practice, Das and Hammer (2004) observed that the competence necessary to recognise and handle common and dangerous conditions is quite low among private medical practitioners in Delhi. They also commented that urban India pays a lot of 'Money for Nothing' in the private health sector as there is a lot of expenditure on unnecessary drugs (Das et al. 2007). A number of other studies also noted poor health system and medically unnecessary procedures in the private sector (Nandraj et al. 1999).

However, this tends to disadvantage some sections of Indian society who cannot afford high quality private care and end up relying on poorly qualified and motivated private providers. For example, IHDS data records that households spend far less on women's healthcare than they do in men's healthcare; for minor illnesses, expenditure for men is Rs 126 compared to Rs 105 for women, for major illnesses expenditure for men is Rs 2,100 compared to Rs 1,700 for women (Desai et al. 2010). Thus, higher quality government services could be particularly important for the disadvantaged populations. The role of government services also remains important in control of vector-borne diseases such as malaria and in screening services such as organising dental and eye examination camps.

It is a well-established fact that India is lacking required health infrastructure and the supply side gaps need to be fulfilled to make the system efficient. There has been an increase in the number of public health facilities over the 2007–11 period. Sub-centres have increased by 2 per cent, PHCs by 6 per cent, CHCs by 16 per cent and district hospitals by 45 per cent. Yet, shortfalls remain by 20 per cent for sub-centres, 24 per cent for PHCs and 37 per cent for CHCs, particularly in Bihar, Jharkhand, Madhya Pradesh and Uttar Pradesh. Though most CHCs and 34 per cent PHCs have been upgraded and operationalised as 24 × 7 facilities, at least in theory, and First Referral Units (FRUs) have doubled, yet the commitment of the Eleventh Plan to make all public facilities meet IPHS norms, and to provide emergency obstetric care at all CHCs have not been achieved. Access to safe abortion services is not available in all CHCs, and this gap is likely to contribute to maternal mortality, as abortion becomes essential during some pregnancy complications. Though

Mobile Medical Units (MMUs) have been deployed in 449 districts of the country, their outreach medical services are not enough to meet the need. Availability of healthcare services from the public and private sectors taken together is quantitatively inadequate. This is starkly evident from the data on doctors or nurses per lakh of the population. At the start of the Eleventh Plan, the number of doctors per lakh of population was only 45 against the desirable number of 85. Similarly, the number of nurses and ANMs available was only 75 per lakh population against the desirable number of 255. The overall shortage is aggravated by a wide geographical variation in availability across the country with the rural areas being poorly served in particular (Planning Commission 2013). Today, rural India needs specialists on a priority basis (Deo 2013). Seventy per cent posts of specialists (surgeons, physicians, paediatricians, gynaecologists, etc.) at the CHCs are lying vacant and the shortfall has widened against 46 per cent in 2005 (MoHFW 2013).

But, one should also look into the demand side factors of preference of private healthcare facilities over public. Whatever may be the cause, the higher reliance on private sector and the high expenses of medical treatment lead to higher OOP expenditure, further leading to middle and lower middle income people into poverty trap. The Government of India is experimenting with different aspects of healthcare financing to protect households from health trap. The Rashtriya Swasthya Bima Yojana (RSBY) is one among them, which is beyond the scope of this present paper. However, the mechanism of the RSBY scheme has been criticised on a number of grounds (Mor 2013, Krishnaswamy et al. 2011).

CONCLUSION

Health policy in India has implicitly and often explicitly envisioned a healthcare system dominated by the public sector. Public policies have tried to live up to these expectations. A vast network of PHCs and sub-centres, as well as larger government hospitals has been put in place, along with medical colleges to train providers. Programmes for malaria, tuberculosis control, and immunisation are but a few of the vertically integrated programmes initiated by the government. A substantial investment has been made in developing community-based programmes, such as Integrated Child Development Services (ICDS), and networks of village-level health workers. In spite of these efforts, growth utilisation of government services has failed to

keep pace with the private sector, particularly in the past two decades. The results presented in this paper show that Indian families, even poor families, receive most of their medical care from private practitioners. Maternity care is a partial exception here. For most other forms of care, however, the public sector is dwarfed by the reliance on the private sector, even though the quality of private sector providers and services remains highly variable (Desai et al. 2010).

One of the principles of Indian public health philosophy, as outlined in the Bhore Committee Report in 1946, emphasises that services should be placed as close to the people as possible, in order to ensure their maximum use by the community, which they are meant to serve (Gangolli et al. 2005). This focus on community-based services has been further amplified in the recent years, particularly in the NRHM. Recent policy discussions continue to emphasise the need to strengthen service-delivery points located close to the patients, for example, the use of sub-centres as first referral point is emphasised in the HLEG Report. Given the shortage of medical personnel and costs involved in providing almost door-step service delivery, attempts are being made to use community health workers to guide and motivate patients and nurses and paramedics to provide some of the basic services. For example, the allocation for ASHA workers has been substantially increased in recent budgets.

These observations present an interesting paradox. The data presented above indicate that despite the government's efforts to deliver healthcare services at the door-step, the utilisation of public health services is far from the norm. People rush to private facilities for both short-term as well as long-term illnesses, irrespective of the availability of any government health facility in the locality. This suggests that presence of any public facility is not sufficient; however, when a somewhat better equipped facility like PHC or CHC is present, patients are more likely to use them. The use of sub-centres as the FRU is emphasised in the HLEG Report. However, we suggest that sub-centre facilities may not be adequate to attract patients. We may need

better equipped facilities with qualified doctors. This may require a totally different approach to medical care. Instead of door-step care, we may need to focus on more centralised and well-equipped facilities. Will patients travel to these centralised facilities to obtain better quality care? We think they will. Striking increase in hospital delivery rate, from about 50 per cent to over 70 per cent following the implementation of Janani Suraksha Yojana (JSY) suggests that distance is less of a concern than is typically assumed to be the case.

Another advantage of focusing on centralised service delivery is that these facilities will be located in slightly larger towns and hence will be attractive to doctors and health technicians. Doctor absenteeism is a serious problem in rural India and setting up facilities where doctors may be willing to reside would reduce this problem. Deo (2013) has pointed out that doctors are reluctant to serve in the villages. Since, studies suggest that the government facilities lack the effort rather than competencies, any system that increases—or at least does not decrease—provider motivation deserves serious attention.

The ongoing demographic transition of the country provides a further justification for moving away from a door-step-based delivery system. With rising proportion of the elderly and decline in communicable diseases, the NCDs are increasingly emerging as the leading causes of morbidity and mortality. Most of these NCDs are not curable through simple interventions and require long-term care and access to diagnostic and monitoring facilities. These require more laboratory tests and specially-trained doctors. So, India has little choice but to invest in training of more doctors and strengthening public health delivery system.

Our arguments should not be taken to mean that we move away from government services towards private services. We actually argue the opposite; we suggest that poor quality of government services drives patients towards equally poor private services. Provision of higher quality government services may help redress this low-level equilibrium.

REFERENCES

- Bajpai, N., and Ravindra H. Dholakia. 2011. 'Improving the Performance of Accredited Social Health Activists in India'. *Working Paper No. 1*. Mumbai: Columbia Global Centers.
- Berman, P., Rajeev Ahuja, and Laveesh Bhandari. 2010. 'The Impoverishing Effect of Healthcare Payments in India: New Methodology and Findings.' *Economic and Political Weekly* 45 (16): 65–71.
- Das, J., J. Hammer, and K. Leonard. 2008. 'The Quality of Medical Advice in Low-income Countries.' *Journal of Economic Perspective* 22 (2): 93–114.
- Das, J., and J. Hammer. 2007. 'Money for Nothing: The Dire

- Straits of Medical Practice in Delhi, India.' *Journal of Development Economics* 83 (1): 1–36.
- _____. 2004. 'Strained Mercy: Quality of Medical Care in Delhi'. *Economic and Political Weekly* 39 (9): 951–61.
- Deo, Madhav G. 2013. 'Doctor Population Ratio for India—The Reality'. *Indian Journal of Medical Research* 137 (4): 632–35.
- Desai, S. A. Dubey, B. L. Joshi, M. Sen, A. Shariff, and R. Vanneman. 2010. *Human Development in India: Challenges for a Society in Transition*. New Delhi: Oxford University Press.
- Gallup, J. L., and Jeffrey D. Sachs. 2001. 'The Economic Burden of Malaria.' *American Journal of Tropical Medicine and Hygiene* 64 (1, 2): 85–96.
- Gangolli, Leena V., Ravi Duggal, and Abhay Shukla. 2005. 'Review of Healthcare in India.' *Centre for Enquiry into Health and Allied Themes*, Mumbai, India.
- Ghosh, S. 2011. 'Catastrophic Payments and Impoverishment Due to Out-of-Pocket Health Spending'. *Economic and Political Weekly* 46 (47): 63–70.
- Homan, R. K., and K. R. Thankappan. 1999. 'An Examination of Public and Private Sector Sources of Inpatient Care in Trivandrum District, Kerala (India) 1999'. Achuta Menon Centre for Health Services, Trivandrum.
- Kingdon, Geeta G. 2007. 'The Progress of School Education in India'. *Global Poverty Research Group*, Working paper series GPRG-WPS-071.
- Krishnaswamy K., and R. Ruchismita. 2011. 'Performance Trends and Policy Recommendations: An Evaluation of the Mass Health Insurance Scheme of Government of India.' *RSBY Working Paper No 11*. New Delhi: Department of Labour.
- Ministry of Health and Family Welfare. 2013. *Rural Health Statistics in India 2012*. Delhi: Government of India.
- Mor, Nachiket. 2013. 'State Level Strategies for Health Insurance and Health Care'. *Health System Research India Initiative*.
- Nandraj, S., A. Khot, and S. Menon. 1999. 'Accreditation of Hospitals: Breaking Boundaries in Health Care'. Centre for Enquiry into Health and Allied Themes, Mumbai.
- Pal, R. 2010. 'Analysing Catastrophic OOP Health Expenditure in India: Concepts, Determinants and Policy Implications'. *Working Paper No. WP-2010-001*. Mumbai: Indira Gandhi Institute of Development Research.
- Planning Commission. 2013. 'Twelfth Five Year Plan (2012–17) Social Sector', vol. 3. New Delhi: Government of India.
- Preker, Alexander S., David H. Peters, Abdo S. Yezbeck, Rashmi S. Sharma, G. N. V. Ramana, Lant H. Pritchett, and A. Wagstaff. 2002. 'Better Health Systems for India's Poor' (eds.), World Bank Publication, ISBN 9780821350294.
- Rao, M. G., and M. Choudhury. 2012. 'Health Care Financing Reforms in India', *Working Paper No. 2012-100*. New Delhi: National Institute of Public Finance and Policy.
- Rao, M. G., and N. Singh. 2005. *Political Economy of Federalism in India*. New Delhi: Oxford University Press.
- Rao, P. H. 2012. 'The Private Health Sector in India: A Framework for Improving the Quality of Care'. *ASCI Journal of Management* 41 (2): 14–39.
- UN (United Nations). 2012. 'Changing Levels and Trends in Mortality: The Role of Patterns of Death by Cause'. Department of Economic and Social Affairs, Population Division United Nations publication, ST/ESA/SER.A/318.
- World Development Indicators. 2011. World Bank Online Database, <http://data.worldbank.org/data-catalog/world-development-indicators>, accessed on 2 March 2013.

Section II

ACCESSIBILITY, AFFORDABILITY AND QUALITY

6

PRIVATE SECTOR AND PUBLIC-PRIVATE PARTNERSHIP IN HEALTH SERVICE DELIVERY IN INDIA

A. Venkat Raman*

Despite a vast network of health facilities available in the country, over the decades there has been a steady erosion in the ability of the public health system to meet the burgeoning demand for health services effectively. This is largely due to resource constraints, poor upkeep and maintenance of infrastructure, inability to attract and retain human resources, archaic management system, and overall neglect. Consequently, a substantial proportion of people, including the poor and the underserved are virtually 'forced' to seek services from the private providers. This has led to rapid expansion of private health sector in India. World Bank (2001) estimated that 93 per cent of all hospitals, 64 per cent of beds, and 85 per cent of doctors are accounted for in the private sector. Estimates of 60th Round of National Sample Survey Organisation (NSSO) (2006) suggest that 78 per cent of out-patients in rural areas (81 per cent in urban areas) and 58 per cent in-patient services (hospitalisation) in rural areas (62 per cent in urban areas) are accounted for in the private sector (see Table 6.1). A large majority of the hospitalised patients sought pre- and post-hospitalisation services from the private sector (72 per cent and 66 per cent respectively). This is despite the fact that in several states a significant proportion of beds are in government

facilities (Table 6.1). Data also suggest gradual increase in the use of private facilities over the past two decades. The proportion of in-patients treated in the private sector has grown steadily, both in the rural and urban areas. Out of every 1,000 hospitalised cases, the private sector treated 403 patients in 1986–87 (42nd Round of NSSO), 562 patients in 1995–96 (52nd Round of NSSO) and 583 patients in 2005–06 (60th Round of NSSO) in rural India. In the urban areas, the growth of private sector is substantial—from 397 patients in 1986–87 to 618 patients in 2004–05. Estimates of National Commission on Macroeconomics and Health (MoHFW 2005) indicated that the private sector accounts for more than 90 per cent of advanced radio-diagnostics (MRI and CT scan), more than 80 per cent of ECG and X-Rays, and more than 70 per cent of cataract surgeries and medical termination of pregnancies in the rural areas of India. The private sector is also dominant in medical education as well as manufacturing of medical equipment, pharmaceuticals, and provision of diagnostic services. Out of the 381 medical colleges in the country, 205 are in the private sector (Medical Council of India 2013).¹ According to an estimate, revenues from healthcare industry (hospitals, pharmaceuticals, diagnostics, medical

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¹ See <http://www.mciindia.org/InformationDesk/CollegesCoursesSearch.aspx>, accessed on 10 February 2014.

equipment and medical insurance) in India stood at \$ 78.4 billion in 2012, and are expected to reach \$ 160 billion by 2017; and private sector share in healthcare industry would increase from 66 per cent in 2005 to 81 per cent in 2015 (IBEF 2013).²

The growth of private health sector continues to be unabated. Several factors could be attributed to the rapid growth of the private sector in India. Some of these include pro-market macro-economic policies that recognised health sector as an industry and stimulus to private sector investment through subsidies and tax concessions, willingness of the people to pay for health services, absence of effective regulatory systems to harmonise unbridled growth of the private sector, and

fiscal constraints of the government leading to systematic neglect in improving the capacity of public health system to deliver clinical services in the face of demand arising from rapid increase in non-communicable diseases (NCDs).

Table 6.1 depicts the proportion of out-patient and in-patient treatment provided by the private sector across various states of India.

The private sector is not only the dominant provider of health services in India, but it is also poised to expand rapidly in the future. Inevitably, public and the private sectors need to collaborate in order to ensure equitable access to quality healthcare at affordable cost to the people; and to augment enormous resources direly

TABLE 6.1 Private Sector in Health Service Delivery and Source of Health Expenses

State	Proportion (%) of out-patients in private sector*		Proportion (%) of in-patients in private sector*		Proportion (%) of hospital beds in public sector (2002) [#]	Share of household (out-of-pocket) expenses in total health expenditure (%) [^]
	Rural	Urban	Rural	Urban		
Andhra Pradesh	79	80	73	64	40	82
Assam	73	76	26	45	84	79
Bihar	95	89	86	79	71	82
Chhattisgarh	85	80	47	51	—	81
Gujarat	79	82	69	74	42	79
Haryana	88	80	79	71	75	81
Himachal Pradesh	32	14	22	11	91	58
Jammu & Kashmir	48	49	9	14	75	49
Jharkhand	87	76	53	69	—	69
Karnataka	66	84	60	71	74	72
Kerala	63	78	64	65	31	90
Madhya Pradesh	77	77	42	52	—	82
Maharashtra	84	89	71	72	57	83
Odisha	49	46	21	27	98	80
Punjab	84	82	71	74	75	82
Rajasthan	56	47	48	36	—	76
Tamil Nadu	71	78	59	63	78	82
Uttar Pradesh	90	87	73	69	72	87
Uttarakhand	82	65	57	66	—	66
West Bengal	81	80	21	35	86	86
ALL INDIA	78	81	58	62	62	81

Note: State-wise and All-India data on Out-of-Pocket Expenses does not include expenditure on family planning services.

Source: NSSO 60th Round (2006), *Proportion derived based on 1,000 patients, [#]Health Information India, 2003 (cited in NSSO 60th Round report, p. 28), [^]National Health Accounts, 2004–05, MoHFW (2009).

² See <http://www.ibef.org/industry/healthcare-india.aspx>, accessed on 13 October 2013.

needed in the health sector. But collaboration in the form of public-private partnership (PPP) is fraught with several challenges. Besides the heterogeneous nature of unregulated private sector, policy vacuum, and lack of institutional capacity within the public health system portend significant challenges. In the following paragraphs, characteristics of the private health sector in India, a conceptual framework of PPP models and examples of such PPP models across India is discussed briefly. Operational issues in the management of PPPs, institutional- and policy-level challenges, and options to address these challenges are discussed in the latter part of the chapter.

PRIVATE HEALTH SECTOR IN INDIA: NATURE AND CHARACTERISTICS³

The private health sector in India is a complex amalgamation of non-state service providers ranging from faith-healers and quacks at one extreme of the continuum and super-specialty-corporate hospitals at the other end. They could be broadly categorised as 'for-profit' providers and 'not-for-profit' providers. The not-for-profit providers are conventionally referred to as non-governmental organisations (NGOs) that are typically managed by charitable trusts; community-based organisations, faith-based and/or philanthropic organisations. They are easy to access, provide reasonably high quality services at low cost, and largely cater to socially and economically marginalised communities. But they tend to operate in small scale covering limited geographical area, and lack sustainable resource base. According to an estimate, they constitute less than 1 per cent of healthcare providers in India (MoHFW 2005). The commercial 'for-profit' private providers include individual practitioners and institutional providers (such as diagnostic centres, blood banks, pharmacy shops, polyclinics, nursing homes and hospitals of various capacities and levels of service). There are also teaching hospitals and medical colleges in the private sector. Other types of institutional providers include community-service extensions of industrial establishments, co-operative societies, professional associations, and self-help groups (SHGs). Besides the allopathic system, a significant proportion of individual providers include AYUSH (Ayurveda, Yoga &

Naturopathy, Unani, Siddha and Homeopathy) system of medicine. Out of an estimated 1.3 million private healthcare providers in India in 2002, more than 80 per cent of them could be categorised as own-account enterprises (OAEs) or solo practitioners.⁴ Tertiary hospitals, including those registered as charitable trust hospitals providing specialty and super-specialty services comprised only 2 per cent of all private institutions, and corporate hospitals constitute less than 1 per cent (*ibid.*). It must be noted that a substantial proportion of private providers in rural areas and urban slums are unqualified, informal providers such as quacks, faith-healers, traditional birth attendants, etc. Although easily accessible at low cost, the spurious nature of their services poses serious threat to patient safety. Whether to enforce a legal ban on them or to bring them in the mainstream is a continuing debate. The private health sector could be broadly categorised in terms of size (individual practitioners to large hospitals), ownership (religious groups, charitable trusts, community-based organisations, corporate sector), motives (for-profit, not-for-profit), systems of medicine (allopathic, indigenous, faith-based), sources of funding (donations, grants, commercial borrowing), service level (primary to tertiary care), market segments (medical education, medical technology, curative service, long-term care), geographical area (tribal, rural, slum, urban), resources and technology deployed (number and quality of staff, equipment, physical standards), cost and regulatory control (unlicensed quacks to international standards).

Pre-dominance of private sector in the provision of health services in several states across India has raised serious concerns not only with respect to equity, quality, transparency and accountability of their service delivery mechanism, but also physical standards and the rationality of their clinical practices. Absence of effective regulatory framework and/or its enforcement has provided fertile ground for aberrant behaviour among the private providers. Excess capacity and infusion of advanced medical technologies seem to have resulted in irrational diagnostics, over-prescriptions and unnecessary clinical procedures. They often tend to indulge in commercial practices that undermine patient safety. They are accused of employing under-qualified or poorly trained support staff at lower wages. Subsidies by the government in the form of concessional land,

³ For a detailed description of the private sector in India, refer to Venkat Raman and Björkman (2009).

⁴ OAEs are defined as individual or a household business that provides health services without hiring additional workers on a regular basis.

duty waiver on import of medical equipment, etc. to the private hospitals, in exchange for certain proportion of free services to the poor, are rarely adhered to. Unqualified practitioners randomly prescribe allopathic drugs or steroids, thus inducing drug resistance to certain diseases. In recent years, there has been a growing demand for transparency, accountability and greater regulatory oversight in the functioning of private health sector (Nandraj 2000, Duggal 2000, MoHFW 2005). But only a few states such as Tamil Nadu, Karnataka, Maharashtra and Delhi have certain regulatory framework within which the private sector is expected to operate. Uttar Pradesh, Rajasthan and Jharkhand have recently adopted the central Clinical Establishments (Registration and Regulation) Act (2010). But implementation of the regulatory provisions is far from effective. Mushrooming growth of the private health sector without a regulatory enforcement is a major cause for concern.

Another disconcerting issue is the cost (tariffs) of care in the private sector and the source of payment for people seeking health services. The private sector is not only expensive, but there exists huge variation in the tariffs charged for similar services, within the same geographical location. There are significant inter-state and urban-rural variations. According to NSSO (60th Round), people in rural areas pay 22 times more at the private sector for an out-patient service, and spend 86 per cent of their total medical expenditure at the private sector facility. In urban areas, patients pay 43 times more at the private sector, and spend 92 per cent of total medical expenses at the private facility. These are expenses incurred at the facility towards medicines, supplies, doctors' fee, diagnostics, etc., and does not include expenses such as travel, food, stay, loss of household income, etc. A significant proportion of expenses is on account of purchase of medicines and diagnostic tests. In the absence of any insurance coverage, most expenses are borne out of pocket. Out-of-pocket (OOP) (household) expenses constitute nearly 80 per cent of all health expenditures in India (MoHFW 2009). The proportion of household expenses in various states is given in Table 6.1. A significant proportion of OOP expenses are borne from savings, borrowings, and/or selling assets. For hospitalisation expenses, people rely more on borrowings and/or sale of assets (59 per cent in rural areas and 42 per cent in urban areas) (NSSO 2006). Such financing has a debilitating effect on the poor. Hospitalisation or chronic illnesses often leads to liquidation of assets or indebtedness. Berman et al.

(2010) estimated that OOP medical expenses pushed nearly 63 million people below poverty line (BPL) in 2004 which is about 6.2 per cent of the population. People from low income groups in rural areas sell their assets more often than their urban counterparts. The number of poor not seeking treatment due to financial reasons increased from 15 per cent to 28 per cent in rural areas; and from 10 per cent to 20 per cent in urban areas since 1986–87 (NSSO 2006). Notwithstanding the serious concerns about the characteristics of private health sector in India, the private sector is acknowledged to be geographically pervasive thus physically easy to access, possesses technical and managerial skills that are often not found in the public sector hospitals, innovative and flexible in the deployment of resources, and is perceived to provide better quality services with greater efficiency.

There is a growing recognition that given their relative strengths and 'weaknesses', neither the public sector nor the private sector alone is in the best interests of the health system; and healthcare needs of people could be met more effectively if both public and private sectors worked together. Collaboration between the public and private sector in the form of PPP could potentially offer several benefits. Partnerships are more useful when the net benefits of partnership exceed those of independent activities, and when the joint efforts result in more efficient or effective services than through independent action (Bazzoli et al. 1997). Some of the assumed benefits of PPPs include: (a) improve access to services in underserved areas or services not available in the public sector; (b) prevent impoverishment among the uninsured poor while seeking services from expensive private sector; (c) deploy and utilise the technical and managerial expertise of private sector; (d) expand health infrastructure through private sector investment; (e) achieve optimal efficiency (avoid duplication) of health system by leveraging each other's resources; (f) enable regulatory oversight and monitoring of the private sector; and (g) reduced cost of care due to negotiated tariffs or competition.

During the past two decades, several countries across the world adopted PPP as one of the policy options to improve health service delivery. For example, the OECD (Organisation for Economic Co-operation and Development) countries has had a long history of health sector PPPs, ranging from contracting private physicians for primary care service delivery (Mills and Broomberg 1998, England 2004), to management contracts in the USA, and more complex infrastructure projects under Private Finance Initiative (PFI) in the UK (Hodge

and Greve 2007). The Government of India also recognises that partnerships could help ameliorate the problem of poor delivery of health services and increase mobilisation of resources for healthcare (Government of India 2005). The Eleventh Five Year Plan (2007–12) emphasised the need to work in close collaboration with the private sector. According to the estimates of Twelfth Five Year Plan, by 2017, India will require an addition of 650,000 hospital beds and an investment of more than Rs 162,000 crores (*Business Standard* 2013). The country would also require substantial investment in improving the supply of human resources in the health sector. Government alone will not be able to invest in such a large scale.

PPP IN THE HEALTH SECTOR

Although a widely used term, due to lack of clarity, PPP is often mired in ideological and rhetorical discourse. Some consider PPP as clandestine privatisation, while others consider all forms of interaction between government and private sector as PPP. There are several definitions to PPP. Some of these definitions (not restricted to the health sector) are given here. The World Economic Forum (WEF 2005) defined PPP as a 'form of agreement [that] entails reciprocal obligations and mutual accountability, voluntary or contractual relationships, the sharing of investment and reputational risks, and joint responsibility for design and execution.' According to Heilman and Johnston (1992), PPP is a 'combination of a public need with private capability and resources to create a market opportunity through which the public need is met and profit is made.' In the health sector, Buse and Walt (2000) define PPP as 'means to bring together a set of actors for the common goal of improving the health of a population based on the mutually agreed roles and principles.' Axelsson et al. (2003) provide a more detailed definition of PPP as a 'variety of co-operative arrangements between the government and private sector in delivering public goods or services and/or securing the use of assets necessary to deliver public services. The structure of the partnership varies to take advantage of the expertise of each partner, so that resources, risks and rewards can be allocated in a way that best meets clearly defined public needs.' PPP in the health sector could be defined as '... collaborative effort and reciprocal relationship between the government or a

public authority (purchaser) and a private organisation (provider) with carefully structured, time-bound, formal agreements (contracts) with clear terms and conditions, mutual commitments, with specified performance indicators for the production or delivery of specified set of health services' (Venkat Raman and Björkman 2009). In summary, PPPs are collaborative efforts with mutually agreed obligations, clear accountability terms, willing to share risks with well-defined management systems and structures, for producing and/or delivering specified public good, with specified performance outcomes, with certain quality and efficiency, within a stipulated period of time, harmonising public good with private commercial interests.

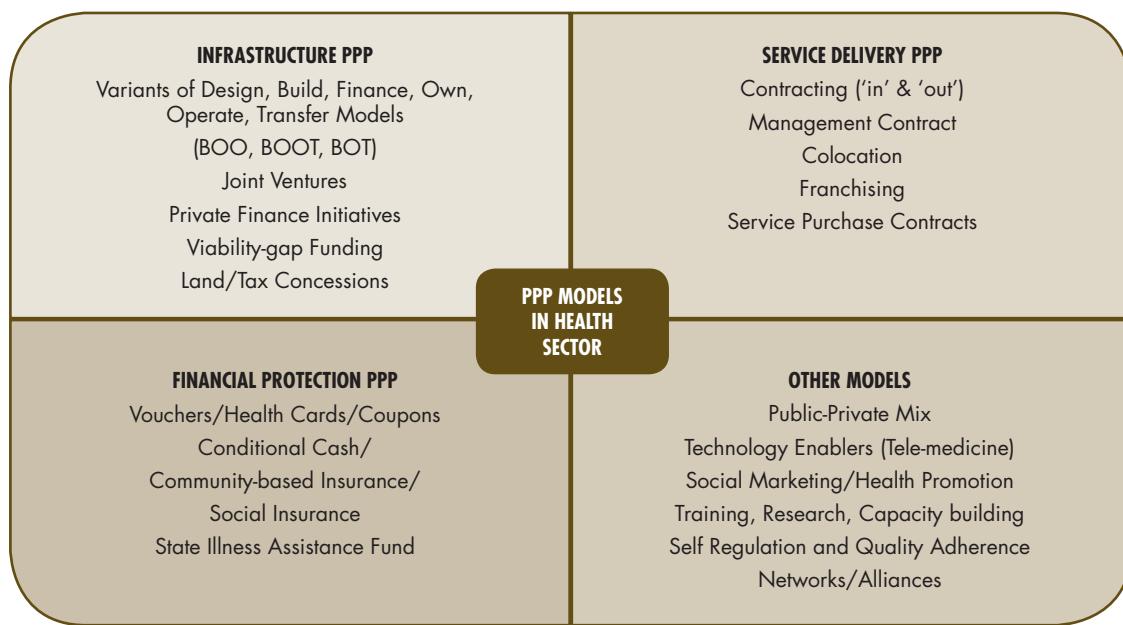
Commercial interests do not necessarily imply profits. For example, partnerships with not-for-profit sector should be based on the principle of financial viability of contract implementation for the NGOs.

There are several types and models of PPP. PPP models vary according to the scope and objective of the partnership (contract), ownership and management of assets, contract duration, nature of investment, obligations and risks, financing (purchasing) mechanism, management control, etc. Some consider construction of hospitals (and/or clinical units) with private sector investment or management over a long time period as the only form of PPP. Such models are often termed as PFIs or a combination of design-build-finance-own-operate-transfer (DBF/BOT/BOOT) models. Yet, others consider a wide range of collaborative arrangements between government and private sector as PPPs. Broadly, PPPs in health sector could be categorised into four types, based on the scope and objectives of partnership. These are: (a) Health infrastructure PPPs (for investing in creating or expanding health facilities); (b) Service delivery PPPs (for managing government-owned health facilities and/or delivering health services); (c) Financial protection PPPs (using demand-side financing instruments such as vouchers or service coupons for purchasing services from any empanelled private sector provider); and (d) other forms of private sector engagement (e.g., social marketing, research, advocacy, etc.). Figure 6.1 provides a brief summary of various models of PPP.⁵

A brief description of some of these models is given in Appendix 6.1. Besides the models indicated below, governments, corporate philanthropies, multilateral

⁵ A. Venkat Raman, 63rd Global Health Histories Seminar presentation at WHO, Geneva, 9 May 2012.

FIGURE 6.1 PPP in Health Sector: Scope and Models



Source: Author's illustration.

development agencies and pharmaceutical companies across the world are involved in 'Global PPPs' for developing vaccines and drugs on a number of pandemic diseases such as HIV/AIDS, tuberculosis, malaria, Severe Acute Respiratory Syndrome (SARS), etc.

The appropriateness of a PPP model depends on the contextual factors, scope of services, and partnership objectives. Irrespective of the scope, context, objectives and model, PPPs should ensure adherence to the principles of equity, access, quality, efficiency, accountability and mutual benefits. At the same time, if partnerships are to succeed, certain underlying principles are essential (as 'rules of the game'). These are, sense of **equality** between the partners (not a master-servant relationship); **mutual trust** (that both will abide by the spirit of the contract); **mutual benefits** (recognition that financial benefit is legitimate for the private sector and government has constitutional obligations); **autonomy and Independence** (right to take independent decisions); **commitment** (towards mutual obligations and towards public health goals); **risk sharing** (partners assume equal share of risks); and **accountability** (for quality services to the beneficiaries). Contracts under PPPs are distinct from classic forms of contract because it involves collaboration and coordination among the partners based on the above attributes (Venkat Raman and Björkman 2009).

PPP MODELS IN INDIA

A wide range of PPP models are operational across various parts of India (Table 6.2). While some are still at a nascent stage or at different stages of design, others have been in operation for several years. Since health is a state subject, most of these models are state specific.

Apart from the PPP models listed below, the scope of other partnership initiatives include disease control (TB, malaria, HIV/AIDS, etc.); pharmacy stores; franchising, tele-medicine, etc. Service delivery contract models and financial protection models are the predominant forms of PPPs in health sector in India.

Some of the popular models of PPPs currently operating in India are: Management Contract (O&M) Model (e.g., BSES Municipal General Hospital, Mumbai), Demand-side Financing Model (e.g., Chiranjeevi Scheme, Gujarat), Colocation Model (e.g., CT Scan and MRI Service Facility, SMS Hospital, Jaipur), Build, Operate And Transfer (BOT) Model (e.g., Cardiac Care Unit [Fortis Escorts Hospital], DDU Hospital, Dehradun), and Service Delivery Contract Model (e.g., Mobile Health Vans, Uttarakhand) (for details see Box 6.1).

TABLE 6.2 Indicative List of PPP Models in Health Sector in India

<i>PPP Models</i>	<i>Illustrative states</i>
Management of primary health centres (PHCs)/urban health centres (e.g., Karuna Trust)	Karnataka, Odisha, Assam, Arunachal Pradesh and Andhra Pradesh
Management of community health centres (CHCs) (e.g., Shamlaji)	Gujarat and Uttarakhand
Management of specialty care hospitals (e.g., Apollo Hospital, Raichur; BSES, Mumbai)	Karnataka, and municipal bodies of Mumbai, Pune
Management contracts of mobile health services, including emergency transport (e.g., UMHRC, HMRI, Janani Express)	Uttarakhand, Andhra Pradesh, Madhya Pradesh, Rajasthan and Bihar
Contracting and co-location for laboratory, diagnostic services, and other clinical services (e.g., SMS Hospital, Jaipur)	Rajasthan, Tamil Nadu, Andhra Pradesh and Bihar
Land subsidy/joint ventures/BOT for hospitals, specialty units, diagnostic units, and medical college (e.g., Indraprastha Apollo; Coronation Hospital, Dehradun; Medall, Andhra Pradesh)	Delhi, Uttarakhand, Punjab, Gujarat, Odisha, Andhra Pradesh, Mumbai, Jharkhand and Meghalaya
Demand-side financing options, including vouchers/health cards (e.g., Chiranjeevi, Sambhav Voucher, Janani Sahyogi)	Gujarat, Uttarakhand and Madhya Pradesh
Community-based health insurance and other forms of health coverage (e.g., Yeshasvini, RSBY, Arogyashree, etc.)	Karnataka, Andhra, and almost all states.
Contracting non-clinical hospital support services (e.g., hospital waste, house-keeping, laundry, diet, etc.)	Several states

Source: Author's illustration.

BOX 6.1 Examples of PPPs in the Health Sector in India

MANAGEMENT CONTRACT (O&M) MODEL

BSES Municipal General Hospital, Mumbai: Almost half of Mumbai's 18 million people live in slums that depend on the city's municipal public health system. Besides exorbitant costs of building new hospitals, the municipal corporation is unable to attract specialist doctors to work in its hospitals. The BSES municipal hospital (88-bed maternity hospital) was originally built on the municipal corporation land by Bombay Suburban Electric Supply Company or BSES, a private company, as part of their corporate social responsibility (CSR) initiative and handed over to Brihanmumbai Municipal Corporation (BMC) in 2000. Due to budgetary constraints, the BMC could not run the hospital. In 2002, it signed a contract with Global Hospital and Research Centre Trust (GHRC), (Bramhakumari Trust) to manage the hospital. The GHRC would hire staff, deploy additional equipment, and manage the hospital. The contract is for a period of 30 years. The contract specifies the GHRC to provide 40 per cent of out-patient department (OPD) services and 33 per cent admissions to the poor as per the user fees charged in the BMC hospitals. For non-subsidised patients, the hospital would follow a tariff structure approved by the advisory committee. Subsidised services are in four clinical disciplines (medicine, surgery, obstetrics and gynaecology and paediatrics). The hospital is free to expand the services to other disciplines without compromising the service volume in four disciplines. The contract does not provide for any type of reimbursement from BMC or revenue sharing. Currently, no major issues have been reported between the BMC and the GHRC. The hospital operates 120 beds with additional services such as radio diagnostics, rehabilitation medicine, cardiac care, oncology, and sports medicine.

DEMAND-SIDE FINANCING MODEL

Chiranjeevi Scheme, Gujarat: In 2005, against a total requirement of 273 obstetricians in rural hospitals, only 7 were in position impeding access to maternal and child health (MCH) services among the rural and tribal population, a cause for high infant and maternal deaths. Realising the limitation in attracting or retaining obstetricians in rural health facilities, the government explored the possibility of involvement of private sector to improve access to MCH services. The Chiranjeevi Scheme was launched in December 2005, on a pilot basis in 5 most underserved/tribal districts in the state, and in September 2006, the scheme was scaled up to cover the entire state. The primary objective of the scheme is to improve

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access to quality MCH services and institutional deliveries. Beneficiaries under the scheme (pregnant women from BPL families or women from socially marginalised groups), could seek MCH services from any of the certified/empanelled private obstetricians/clinics/hospitals, free of charge. The government reimburses the private provider on the basis of a pre-negotiated tariff (Rs 380,000) for every 100 deliveries conducted. Alternatively the private obstetricians can also offer the same services in a government hospital and receive the same amount (Rs 3,800 per delivery). Pregnant women may receive the scheme card at a government hospital or from village officials. The scheme includes reimbursement of transport costs and a fee for the village health worker who accompanies the beneficiary. The beneficiary will not have to bear any charges related to medicines, anaesthesia, laboratory investigations or operation theatre (OT) charges. Since the launch of the scheme in 2005 till March 2011, there were 618,948 deliveries conducted with only 96 maternal deaths. The scheme has been expanded to cover emergency transport, neonatal care (*Bal Sakha* scheme) and care of low birth weight babies from remote districts of the state.

COLOCATION MODEL

CT Scan and MRI Service Facility, SMS Hospital, Jaipur: As one of the premier teaching hospitals in India, services at SMS hospital was severely handicapped due to poor maintenance of its obsolete radio diagnostic equipment. Patients were forced to seek radiological services from private providers who flourished near the hospital, charging high tariffs and causing severe financial burden on the poor patients. In 2004, the hospital (government) signed a contract with a private company to operate and maintain CT and MRI machines within the hospital premises, for a period of 7 years. The negotiated tariffs were almost 60 per cent cheaper than private operators in the vicinity. Services would be free for BPL patients (estimated at 20 per cent of all patients). The BPL status is to be verified by the hospital administrator. The hospital administrator and the head of the radiology department conducted quarterly performance audit. If the machine is idle, outside patients could be engaged as per the pre-approved rates. Private provider must make alternative arrangement for the hospital patients, during any downtime periods, at the same rates as approved. SMS hospital provided physical space, but the private provider is responsible for installation, pay electricity/water charges, deploy staff, procure films/supplies, maintenance, and keep patient records. The facility would be used for teaching and training of graduate and post-graduate students as well as research by faculty members without any extra payment. In 2012, after the expiry of the old contract, a new contract was signed with another private agency. New equipment was installed, tariff structure was revised, and the contract specifies 30 per cent of total cases to be free of cost not in terms of the number of patients, but in terms of value of the services. The contract also provides for revenue sharing from the services. Patient reports (films, diagnosis) are to be made available electronically on-line immediately on the work stations of the hospital.

BUILD, OPERATE AND TRANSFER (BOT) MODEL

Cardiac Care Unit (Fortis Escorts Hospital), DDU Hospital, Dehradun: Tertiary care services are largely concentrated with the private hospitals in a few cities across Uttarakhand. Even large government hospitals do not have surgical specialties forcing people to seek services either from private hospitals or travel to Delhi. Pandit Deen Dayal Upadhyay Hospital (DDU), Dehradun, is one of the largest government hospitals in the state. But due to shortage of specialist doctors, the hospital was unable to offer any super-specialty services. In 2011, the government decided to engage Fortis Hospitals to build and operate a 50-bed cardiac care unit (CCU) within the premises of DDU. The initial contract would be for 10 years. Under the contract, 25 in-patient beds (out of 50) would be reserved for BPL patients at government stipulated rates. Services provided to the BPL patients are reimbursed by the government. The government also agreed to pay Rs 99,200 per month per occupied bed as a grant. Each day, OPD consultation is free of charge for all patients and at a specified time of the day. Services include cath lab, cath recovery, heart command, intensive care unit (ICU) and advanced diagnostics. The facility deployed 11 full-time doctors including specialists.

SERVICE DELIVERY CONTRACT

Mobile Health Vans, Uttarakhand: More than 80 per cent of Uttarakhand is mountainous, and the villages are sparsely populated. Public health facilities in most parts of the state are dysfunctional and the private facilities are concentrated in the bigger cities and towns mostly in the plains. The cost of accessing health services in distant urban locations is a major deterrent for seeking timely treatment for any ailments. In 2002, the state government launched a pilot project to provide basic clinical and diagnostic services through a mobile health unit (with financial support from Technology Information Forecasting and Assessment Council, which is a Government of India agency). The van equipped with X-Ray, ECG, ultra

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(Box 6.1 contd...)

sound machine, laboratory equipment, doctors and clinical support staff travelled on fixed routes in a pre-determined area to conduct a day-long 'health camp'. The medical team provided out-patient consultations, including antenatal services for women, immunisations, birth control devices, diagnosis of reproductive tract infections, etc. All BPL patients received services free of cost, while other patients were charged a nominal registration fee, plus fixed but subsidised charges for X-Rays, lab tests, ECG, etc. In 2009, the government re-launched an expanded version of the scheme (one mobile van for each district) through four private providers. The government provides budgetary support for operational management of the van by covering staff salaries, fuel costs, vehicle maintenance, campsite expenditures and office expenses. Medicines are supplied by the government on a monthly basis. A cell was created within the government for monitoring, coordination, performance review and handling grievances. A minimum performance levels were set for each camp. The private agency is also assigned outcome-based performance indicators. The state is considering expansion of the fleet of mobile health vans.

PPP IN HEALTH SECTOR IN INDIA: ISSUES AND CHALLENGES

Although PPPs portend enormous potential, they are equally complex and challenging in terms of operational management of partnerships as well as institutional and policy constraints. The following paragraphs highlight some of the key challenges and constraints.

- a) *Private Sector and Defining Partnership:* Private sector in India is predominantly non-institutional providers. However, government systems normally do not allow engaging (contracting) non-institutional providers due to entry barriers such as minimum eligibility conditions (in terms of beds, staff, assets or resources) for the bidder (in the tender). Second, in the absence of any incentive, penalty and regulatory compulsion, most institutional providers have not sought or do not have accreditation or compliance to minimal physical standards. Lack of formal accreditation is one of the major deterrents for PPP contracts. Another key challenge is the lack of robust information on the private sector in terms of size, structure, distribution, capacity, tariff, etc. Lack of information on the private sector impedes governments' desire to leverage PPP as a planned strategy in situations where it may find partnership with the private sector to be more beneficial. There is also a widely held, cognitive level perception that private sector is generally exploitative in nature, which is often reinforced through popular sentiments (films, media, political discourse, etc.). Popular discourse in social sector usually scorns at 'profit' motivated private sector. As a result no favourable eco-system has evolved in accepting PPP an alternate policy option.

The government and private sector (including not-for-profit sector) do not easily trust each other in terms of their motives and objectives. To overcome mutual suspicion is the foundation for effective partnerships. Some of the prominent service delivery partnerships in India are characterised by prior informal consultations, relationships based on trust among senior officials of partner organisations, and commitment to public health goals. But such relationships could sour quickly on certain pretexts and senior bureaucrats could move out of the scene (transferred). There is little understanding on what constitutes a PPP in health sector. PPPs are professional contracts between two or more formal organisations, with clear terms and conditions, defined structures and systems, coordination mechanism, and performance indicators. Conventional competitive tenders are often assumed as PPP transactions.

- b) *Contract Design and Institutional Capacity:* PPPs are meant to achieve certain objectives such as greater access, better quality, improved efficiency, etc. Besides service specifications (volume, beneficiaries, tariffs, etc.), contracts must include performance indicators for monitoring the benefits of PPP. Contracts must be robust and detailed. There must be clarity on definitions, decision authority, obligations, incentives and penalties, risk mitigation, termination and exit options, contract management systems, accountability framework, governance structure, service benchmarks, information system, standard operating procedures (SoPs)-protocols, etc. However, officials of health department may find it difficult to design such detailed contracts due to lack of technical capacity. In an in-depth review of several health sector PPP contracts across India, the author

found all contracts to be highly inadequate (Venkat Raman and Björkman 2006, Venkat Raman and La Forgia 2013).

The government may seek transaction advisors to help the health departments to design robust contracts. But often there is a disconnect between transaction consultants and the government, in terms of what they desire in a contract. While transaction advisors tend to focus more on contract structure, cost effectiveness (value for money), legal and management systems, they often have limited understanding of issues such as equity, access, clinical standards, and contextual relevance for PPP. Government officials on the other hand are more concerned about clinical aspects, budgetary implications, and administrative workload but have little understanding on the technical complexities of a transaction. PPP units (and professional consultants) exist in other ministries (e.g., roads, etc.), which could help the health ministry. But such units are primarily focused on high value, high risk, and long-term projects (e.g., infrastructure PPPs) and are either not interested or do not comprehend clinical service delivery or management contracts. The health ministry must possess certain minimum technical and managerial capacity for private sector engagement as well as working with transaction advisors. Building capacity among health officials should be considered a precondition before PPP transactions take place.

- c) *Selection of Private Partners:* Governments often resort to competitive bidding for selection of private partners for PPP. But unlike infrastructure PPPs, health services are complex and are not easy to benchmark in terms of cost and quality and health outcomes from partnership contracts are not easy to fathom. Under competitive bidding, the focus is primarily on using entry-level (input) conditions such as minimum experience and resources (staff, capital and infrastructure) of the bidders, and selection is based on lowest commercial bid. Although such a system ensures transparency, lowest commercial bid would not necessarily guarantee better services. Government tendering system is less flexible on pre-consultation or pre-negotiated contract and tend to follow 'procurement' guidelines that are meant for infrastructure PPPs. Perhaps government officials are more anxious to fulfil transparent tendering process (in order to avoid any adverse audit scrutiny), rather than concerned about service delivery objectives.

After having won the bid at a lower commercial value, 'contractors' often compromise on services by 'cutting corners' or deploying less than 'committed' resources. In the absence of performance indicators as well as poor supervision and monitoring, the service quality declines over a period of time. In PHC management contracts, governments often choose remote, inaccessible facilities for contract. Bid documents are invariably designed to encourage not-for-profit, community-based organisations that have experience of operating in the region to apply for such PPPs. However, the NGOs that are willing to manage such facilities are allocated less resources. For example, under PHC management contracts, states (Department of Health) release only 75 per cent to 90 per cent of the allocated budgetary resources to the NGO. This is due to: (a) department of finance expects justification on the grounds of financial prudence, i.e. contract with NGO does not require more resources than budgeted; and (b) fear of audit objections. The NGO is expected to furnish proof of mobilising the remaining resources, and are not allowed to charge user fee from patients. Besides assigning remote PHCs with less resources, no incentives are available to the NGOs for delivering services to population that have no access to any form of health services. Even after such harsh contract, governments often release payments/ reimbursement after considerable delay. Governments should ideally move away from 'input'-based contracts to performance or output/results-based contracts. While background (eligibility) of the service provider is important, what is even more critical is the service delivery performance, and outcomes. Primary care PPPs offer greater scope for performance-based contracts. Such contracts could be structured in a way so as to offer incentives for performance (and/ or results), remoteness, population characteristics, geographical complexity, etc. But in order to develop such contracts, dedicated PPP units with adequate technical capacity is required within the health ministry.

- d) *Contract Management:* Partnerships fail not only due to poor contract design, but also due to lack of supervision, monitoring, delays in payments, lack of grievance—dispute settlement system, interpretation of beneficiaries, local political interference, and other managerial issues. Government facility managers are often not informed or consulted before contracts are issued. As a result, the managers are either indifferent

or overtly hostile to the private contractors. The facility managers are also not trained to manage or monitor contracts. In the absence of verifiable performance indicators in the contract, monitoring service delivery is often informal and subjective. PPP contracts have certain proportion of services earmarked for the poor (free or subsidised). However, in the absence of uniform procedures to verify the authenticity of the target beneficiaries, interpretation of their eligibility for free services is left to the facility managers. There are allegations that the private contractor (private sector facility managers) often asks poor patients to deposit money before their authenticity could be verified.

Disagreements escalate to confrontation between patients and private contractor, and the facility manager, which eventually aggravates into interference by local political leaders. Local political leaders also exert pressure to convert ineligible patients or wealthy patients as poor patients. Denial of concessions leads to agitation and false propaganda. Stationing a government representative at the reception counter in every PPP facility could help address this situation (Björkman and Venkat Raman 2013).

One of the serious problems in PPP contracts relate to delayed release of payments or reimbursements. There are several procedural bottlenecks before funds are released. Release of payments are not only related to the red tape and lack of efficiency of bureaucracy, but also tied to 'grease payments'. PPP contracts often do not specify time limits for release of payments. Delinking payment from contracting authority, advance payments to contractors, direct electronic transfer of payment, and penalty on government officials for non-timely release of payments could be some of the possible options to alleviate this major constraint. Contracts that do not specify management structures or co-ordination mechanism tend to experience poor communication and misunderstanding among partners. Absence of any formal forum for regular meetings, discussion of problems, and consultation about quality and service standards, leads to prejudice or misconceptions about each other.

- e) *Policy and Institutional Framework:* Despite acknowledging the unregulated omnipresence of the private sector, most states across India do not have any comprehensive policy that encapsulates a strategy for planned growth of the private sector, and the role

of the government towards licensing, regulation, accreditation, and harnessing of private sector. For example, the Government of Rajasthan has a policy to promote private sector in healthcare, but the policy does not specify its role with respect to regulation and accreditation. Recently, the Government of Uttar Pradesh notified a PPP policy in health sector, which briefly mentions the government's role in regulation and accreditation. Also, the Ministry of Health does not have a separate dedicated unit with sufficient resources (staff, funds and capacity) to either oversee the private sector or work with them. Absence of effective regulation curtails the potential for PPP as a policy option in India. Widely reported aberrant behaviour of the private sector and lack of demonstrable control over them have raised doubts about the capacity of the government to manage PPPs. The Clinical Establishments (Registration and Regulation) Act (2010) has been adopted by only a few states (Arunachal Pradesh, Himachal Pradesh, Mizoram, Sikkim, Jharkhand, Rajasthan and Uttar Pradesh). States that have legal and regulatory framework (e.g., Delhi, Maharashtra and Karnataka) do not possess adequate resources to enforce the rules.

It is widely believed that since a significant proportion of the private sector is controlled by public health staff (moonlighting/rent-seeking), and politically influential interest groups, there is little enthusiasm (by health ministry) to regulate them. Wherever the private sector has grown extensively, there is a huge resistance for state oversight. Likewise, thriving market opportunity for the private sector would evoke little interest for partnership with government. Regulation as a phrase is negatively conceived as 'intrusiveness', 'fault finding', and 'punitive action' and thus evoke resistance from the private sector.

A large segment of private sector in India is 'owner operated clinics' and standards are not easy to prescribe or apply to them. The National Accreditation Board for Hospitals and Healthcare Providers (NABH) and National Accreditation Board for Testing and Calibration Laboratories (NABL) lay out physical standards and norms for accreditation. However, the number of hospitals and laboratories opting for NABH/NABL are far too few. Services that do not adhere to physical or clinical standards or norms could be detrimental to patient safety. The government cannot be seen

to be invoking PPP with entities that jeopardise patient safety. Under management contracts (PHCs and CHCs), governments insist on deployment of resources according to the norms laid by Indian Public Health Standards (IPHS). But augmenting resources especially staff, according to IPHS standards, are not easy.

Prominent service delivery PPPs across India could be characterised as 'partnerships of good faith' based on trust between senior bureaucrats (or minister) and private sector managers. While senior bureaucrats understand the nuances of PPPs, they are often transferred. Some bureaucrats and political leaders view PPPs from ideological and/or populist prism. Health officials on the other hand are not only suspicious of PPPs, but are often hostile to the idea, due to lack of clarity about PPPs. Once the senior official or minister (who initiated a PPP) is transferred, the partnership project is left to the mercy of the new incumbent. Partnerships are often hostage to personalities, perceptions and styles. PPPs in the health sector in India seem to have arisen as ad-hoc efforts to solve service delivery problems rather than a well-considered long-term strategic option. The governments that are interested in health sector PPPs should develop health sector specific PPP policy. A policy-based PPP strategy would: (a) assure the private sector of the government's long-term commitment towards PPPs; (b) provide continuity to partnership projects irrespective of personalities at the helm; (c) pave way for creating institutional structures for PPP transactions in a professional manner; (d) provide clarity to key stakeholders, especially health officials and the beneficiaries, on the objectives of PPP; and (e) create enabling conditions for regulatory oversight and accountability of both public and the private sector. Policy must highlight the need for public and the private sector to work together in ensuring universal access to health services for all citizens.

At the same time, the private sector needs to appreciate that they are also new to PPP, and have a long learning curve to follow. Public health objectives are at the core of any long-term PPP strategy. The government's own ability to convince the merits of working with the private sector to its own stakeholders will depend on how sensitive and appreciative is the private sector to be accountable, socially conscious, and willing to work with the government over the medium and long term. PPPs are not short-term commercial gain game.

THE WAY FORWARD

If PPPs are being considered as a long-term sustainable policy strategy, the government should lay certain essential foundations as well as create enabling conditions for them to materialise and function. While the PPP policy, institutional structures, and institutional capacity for contracting are essential conditions; incentivising private sector to adhere to physical standards and accreditation, and creating regulatory framework and its effective enforcement could be considered as ideal enabling conditions. These have been highlighted below.

- i) **Adopt a Health Sector PPP Policy** (or a policy towards private health sector), that spells out the objectives, priority areas, political and administrative commitment, financial, legal and institutional framework, fiduciary risks, risk mitigation options, benefits, etc.: Partnership-specific guidelines, including terms and conditions and contract templates should be prepared to complement the policy. The policy may explicitly state the institutional framework for different types of PPPs. For example, the directorate of health services may take the lead in low value, low risk, short-term PPPs such as facility management contracts or services delivery contracts, while the infrastructure development authority (under the ministry of commerce and industries) may lead on high value, high risk, long-term health infrastructure PPPs (e.g., building hospitals, medical colleges, etc.). The PPP policy should be developed after detailed consultations with key stakeholders, which includes public health staff and the private sector. A PPP policy would assuage the apprehensions of the private sector signalling a long-term vision of the government, irrespective of political or bureaucratic dispensation.
- ii) **Create Institutional Structure and Build Capacity:** The health departments are generally organised to directly operate service facilities not to monitor or regulate or contract the private sector. PPP is an unknown entity to health officials. A separate PPP unit or cell (or private sector unit) must be created, with sufficient resources (staff and resources) and capacity (technical and managerial) to design, contract and manage (supervise, monitor, settle disputes, and release payment in time) the partnership contracts. The PPP cell should be mandated to implement the state health sector PPP policy and should be embedded in the directorate

- of health services. The PPP cell should be headed by a senior officer along with support staff who has certain expertise in PPP. The PPP cell may appoint professional transaction advisors in case they are unable to develop detailed contracts themselves. The specialists in PPP cell could focus on costing, rational tariff structures (rather than just lowest bid), negotiation, measure outcomes, etc. Although PPP cell may appoint transaction advisors, but in order to ensure that the consultants prepare contracts in tune with the government's public health objectives, the staff at the cell should have certain minimum technical knowledge and skills.
- iii) **Certification and Accreditation of Physical Standards:** The government should aggressively pursue mandating certification of physical standards (and progressively a formal accreditation) with appropriate incentives (and disincentives). Besides compiling comprehensive information about the private sector and its characteristics, the state governments should establish state-level or divisional-level authorities (state accreditation council) for formal certification. Such certification should be robust enough to be considered as the first stage of accreditation. As an incentive, the government may engage only those certified providers for state-funded schemes (e.g., RSBY). While certification and accreditation of the private sector is critical, it is equally essential for government health facilities to improve its own physical standards. Partnerships cannot be a fault-finding exercise.
- iv) **Regulatory Framework:** Regulation and oversight of the private sector is mired in complex power equations. While governments have constitutional mandate to oversee the functioning of health service providers, simply adopting or endorsing a legal framework (e.g., Clinical Establishment Act or State-specific Nursing Home Act, etc.) is not sufficient. It ought to create an institutional system to oversee all health establishments, not just private sector. The government may create state-level health establishment regulatory commissions, with independent members from judiciary, medical professional, public health experts, public and private sector representatives, and health activists. Creation of such independent commission could insulate the government from all kinds of pressure groups. The commission may also act as an ombudsman or arbitrator for any disputes arising from PPP.

CONCLUSION

PPPs are intended to complement (and not substitute) the efforts of government to provide equitable access to quality health services for the poor by leveraging each sector's strengths. But, due to a variety of reasons such as ad-hocism (not policy based), absence of institutional structures and systems, and lack of technical and managerial capacity to design, supervise, manage, and monitor the contracts, the potential of PPPs is yet to be fully harnessed. The potential of PPPs is also constrained by poor compliance to accreditation system and ineffective regulatory enforcement. The absence of policy-driven PPP strategy or dedicated contract authority may deter large private hospitals to work with the government. They may fear more risks than benefits under the PPP. Unlike other ministries, the health ministry is relatively inexperienced in designing or managing PPPs. Several states have implemented some service delivery PPPs (in primary care and diagnostic services); but are unable to scale up and move 'up the value chain' in designing and implementing more complex PPPs.

It is unlikely that the much needed radical reforms in the public health system would take place in the near future, given the archaic nature of human resource management, and continued neglect of capacity of public health facilities. Healthcare demands arising from rapid transition in the morbidity conditions of India's population could be met only if both public and private sectors collaborate with each other. Given the mandate for ensuring universal access to healthcare, the government has greater onus to seek partnerships. But sustainable partnerships are possible by initiating more pilot partnership models, building on the lessons and the experience of the existing models, building greater trust between public and private sector, and creating institutional enabling conditions. Although PPPs portend enormous potential, it suffers from ideological rhetoric rather than dispassionate, evidence-based discourse. Even as the evidence on the merits and demerits of PPPs in the health sector is still being compiled across the world, in the Indian context, absence of ideal, enabling conditions for PPPs (such as policy-based approach, institutional system, and capacity to design and manage PPPs) pose severe limitations to any objective, empirical evaluation. It would only be fair to judge the merits (or demerits) of PPPs in the health sector in India, if appropriate institutional systems are in place. Without such empirical evidence, it would be unfair to conclude that PPPs in health sector does not work in India.

APPENDIX 6.1 PPP TYPES AND MODELS

- **Design-Build-Finance-Own-Operate-Transfer Combinations:** The private sector is invited to build hospitals/medical institutions, with their own funds, on government land (or part funding from government). The government negotiates to purchase certain volume of services from the hospital on a long-term basis. The facility is transferred to government after the contract period. This model helps augment private sector resources to create/expand health infrastructure.
- **Joint Ventures:** The government, in collaboration with a private provider, builds a hospital or health facility. It may participate through land and/or capital investment or tax and other subsidies. The private provider deploys capital, equipment and human resources; and manages the hospital. The government investment is leveraged to buy a proportion of services to poor patients—freely or through revenue sharing mechanism. This model is used when the government is unable to invest or operate tertiary care hospitals, on its own.
- **Contracting Out:** The government facility is transferred to a private provider to manage and deliver services (also called management contracts). It may also transfer funds equivalent to the budgetary allocation earmarked for the facility. This model is used when the government is unable to run the facility due to HR constraints or remoteness or low level of service utilisation.
- **Contracting In:** A private provider is ‘hired’ to provide specific set of services inside the public hospital managed by the government (also called as co-location). The services could range from high-end radio-diagnostics, specialty clinical wards, non-clinical ancillary services, etc. This model is useful when the government is unable to run such services efficiently or unable to invest in high-end technology.
- **Vouchers/Service Coupons/Health Cards:** The government empanels private providers who agree to provide specific set of clinical services; target beneficiaries are issued purchase instruments (vouchers or health cards) to avail such services free of cost, from the designated private providers (besides clinical services, the vouchers may include transport, hospitalisation, medicines, etc.). The purchase instruments are reimbursed by the government. Such instruments are used to protect the poor from the financial burden of spending OOP while accessing services at private service delivery points.
- **Supply-side Financing:** The government offers incentives to private providers to provide services in public health public facilities (cash incentives to private obstetricians to perform birth deliveries in public hospital or incentives to provide DOTS [Directly Observed Treatment, Short-course] treatment to TB patients in their own facilities).
- **Community-based Health Insurance:** The government partakes in such schemes organised by private (for profit or not-for-profit) service providers by paying premium on behalf of the poor (target beneficiaries).
- **Franchising:** The government agrees to subsidise (or buy) products or services from exclusive private sector managed branded clinics (franchisee) under a service-level agreement. Franchised clinics are often used for reproductive and child health services, birth deliveries, immunisation, etc.
- **Social Marketing:** The private sector is ‘hired’ to use marketing techniques to achieve behavioural changes or distribute low cost health products (contraceptives, insecticidal bed-nets, oral rehydration solution, etc.).
- **Corporate Social Responsibility (CSR):** The government encourages or mandates the private sector to contribute part of their profits in meeting public health needs either directly or through other healthcare providers.
- **Public-Private Mix:** Private providers are involved in surveillance, diagnosis, counselling, and treatment of TB, HIV/AIDS, malaria, and other diseases through government incentives.

REFERENCES

- Axelsson H., F. Bustreo, and A. Harding. 2003. 'Private Sector Participation in Child Health: A Review of World Bank Projects, 1993–2002'. Washington, DC: The World Bank.
- Bazzoli, G., R. Stein, J. A. Alexander, D. A. Conrad, S. Sofaer, and S. M. Shortell. 1997. 'Public-Private Collaboration in Health and Human Service Delivery: Evidence from Community Partnerships'. *The Milbank Quarterly* 75: 533–61.
- Berman, P., R. Ahuja, and L. Bhandari. 2010. 'The Impoverishing Effect of Healthcare Payments in India: New Methodology and Findings'. *Economic and Political Weekly* 45 (16): 65–71.
- Buse, K., and G. Walt. 2000. 'Global Public-Private Partnerships: Part I—A New Development in Health?' *Bulletin of the World Health Organisation* 78: 549–61.
- Business Standard*. 2013. 'India Needs Rs 1.63 lakh crore Investment in Healthcare by 2017', http://www.business-standard.com/article/companies/india-needs-rs-1-63-lakh-cr-investment-in-healthcare-by-2017-113102700121_1.html, accessed on 27 October 2013.
- Björkman, J. W., and A. Venkat Raman. 2013. 'Public-Private Partnerships in Health Care Delivery: Context, Outcomes and Lessons in India', in G. Minderman, A. Venkat Raman, F. Cloete and G. Woods (eds.), *Good, Bad and Next in Public Governance: The Winelands Papers 2012*, pp. 13–38. The Hague: Eleven International Publishers.
- Duggal, R. 2000. 'The Private Health Sector in India: Nature, Trends and a Critique'. New Delhi: Voluntary Health Association of India.
- England, R. 2004. 'Experiences of Contracting with the Private Sector: A Selective Review'. London: Health Systems Resource Centre, Department for International Development.
- Government of India. 2005. *Concept Note on Public Private Partnerships*. New Delhi: Department of Family Welfare, Ministry of Health and Family Welfare.
- Heilman, J., and G. Johnston. 1992. *The Politics of Economics of Privatization*. Tuscaloosa: University of Alabama Press.
- Hodge, G. A., and C. Greve. 2007. 'Public-Private Partnerships: An International Performance Review'. *Public Administration Review* 67: 545–58.
- Mills, A., and J. Broomberg. 1998. *Experiences of Contracting Health Services: An Overview of the Literature*. London: London School of Hygiene and Tropical Medicine.
- MoHFW (Ministry of Health and Family Welfare). 2009. *National Health Accounts India: 2004–05*. National Health Accounts Cell, Ministry of Health and Family Welfare, Government of India. September.
- _____. 2005. *Report of the National Commission on Macroeconomics and Health*. New Delhi: MoHFW, Government of India.
- Nandraj, S. 2000. 'The Private Health Sector: Concerns, Challenges and Options'. Mimeo. Mumbai: CEHAT.
- NSSO (National Sample Survey Organisation). 2006. 'Morbidity, Health Care and the Condition of the Aged'. National Sample Survey Organisation 60th Round, Report No. 507. Ministry of Statistics and Programme Implementation, Government of India, March 2006.
- Venkat Raman, A., and J. W. Björkman. 2009. *Public-Private Partnerships in Health Care in India: Lessons for Developing Countries*. London: Routledge.
- _____. 2006. 'Public-Private Partnership in the Provision of Health Care Services to the Poor in India'. ICSSR-IDPAD Research Report, Faculty of Management Studies, University of Delhi. www.south.du.ac.in/fms/idpad/idpad.html, 13 October 2013.
- Venkat Raman, A., and G. M. La Forgia. 2013. PPP Hospitals in India: A Comparative Analysis of Purchasing Arrangements and Performance. Human Development Department (HNP) South Asia'. New Delhi: The World Bank.
- WEF (World Economic Forum). 2005. *Building on the Monterrey Consensus: The Growing Role of Public-Private Partnerships in Mobilising Resources for Development*. Geneva: United Nations High-level Plenary Meeting on Financing for Development (September).
- World Bank. 2001. *India: Raising the Sights: Better Health Systems for India's Poor*. Washington, DC: HNP Unit-India, Report No. 22304.

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INNOVATIVE SOCIAL ENTERPRISE MODELS FOR RURAL HEALTHCARE DELIVERY

Poonam Madan

At about 1 per cent of gross domestic product (GDP), public spending on healthcare in India is among the lowest in the world. The share of public spending in total healthcare spending is just 28 per cent when compared with the major emerging markets—75 per cent in Thailand, 54 per cent in China and 47 per cent in Brazil or even when compared with its neighbours such as Sri Lanka (45 per cent) and Pakistan (76.5 per cent) (WHO 2013). As a result, private spending by Indians on healthcare, at about 3 per cent of GDP, is one of the highest in the world.¹

The public healthcare system is in a dismal state due to poor incentive structures as well as inadequate infrastructure and facilities. There is low utilisation of primary out-patient care in public facilities because of long distances², inconvenient opening hours, lengthy waiting,

staff absenteeism, poor availability of medicines, and poor quality of care (Dalal and Dawad 2009). Another study (Gautham et al. 2011) reinforces the same and finds that non-degree allopathic practitioners fill in a huge demand for primary curative care which the public system does not satisfy, and are the *de facto* first-level access in most cases. In secondary and tertiary centres, there is overcrowding and lack of quality care in public hospitals. Moreover, as the High Level Expert Group (HLEG) Report on Universal Health Coverage (UHC) (Planning Commission 2011a) for India pointed to research findings that 30 per cent of the patients in government facilities said they had to pay bribes or use influence for basic hospital rights such as out-patient appointments, clean bedsheets and better food.

All these constraints make the poor turn to private providers, and for primary healthcare, largely to the

¹ Based on rounded off figure for total healthcare spending as share of GDP (Planning Commission 2013).

² In a six-state household-level study by Iyengar and Dholakia (2011), it was reported that in almost all the states some of the primary health centres (PHCs) and even community health centres (CHCs) were located outside the village or town and in some cases at a far off distance. This caused a great inconvenience for individuals to reach to the health facilities in the rural areas. Moreover, in some cases the logic of location of the PHCs and CHCs was unclear. It so happened that for the users it was easier and better to reach CHCs as both would be located almost at the same distance in different directions. This resulted in underutilisation of the PHCs and hence a wastage of resources on the part of the public health system. This was a factor that was common to all visited states. Travelling greater distances for availing public healthcare services imposes cost and is also a waste of time. This persuaded people to use the services of private healthcare practitioners who provided service in the village itself. These service providers were usually unregistered medical practitioners providing treatments at affordable charges to the rural poor.

next door quack. At the same time, structural gaps in regulation of private healthcare and a complex web of pressure group politics (Baru 2013) has led to poor monitoring and enforcement of a disjointed set of laws and rules applicable on a diverse set of segments such as private practice, diagnostics, pharmaceuticals and hospitals. The sector poses a challenge in quality of treatment and service; the principal-agent problem arising out of information asymmetry results in-patients spending far more on diagnostics and medicines or procedures than warranted. A related issue has been of a higher focus on investments in specialised tertiary care, at the cost of primary and preventive care. And here, the rapidly growing private sector mostly has not been meeting its minimum legal obligations of providing free care to poor patients, in return for concessions and benefits that it gets from the government (*The Hindu* 2011). The problems are, therefore, of inadequate availability, unequal access, and poor quality and costly healthcare services across small towns and rural India. High out-of-pocket (OOP) expenses and ancillary costs (travel and wage loss) have increased household indebtedness for the rural population, which uses a larger share of consumption spending on healthcare than the urban population.

The Planning Commission has recommended that the government increase its health expenditure to 2.5 per cent of GDP by the end of the Twelfth Plan (2012–17). The Plan envisages greater private sector provision through the twin approaches of state-funded insurance (Rashtriya Swasthya Bima Yojana [RSBY] and others) and contracting-in of private sector providers. There has been much debate about the role of government—a choice between being the primary provider of healthcare or the primary provider of funds for healthcare. Poor performance of the private commercial sector in providing affordable access has led to greater emphasis by public health experts and activists on enhancing the public delivery system instead of relinquishing its management. It would seem that given the systemic inefficiencies in government provision, higher public allocation could perhaps be better deployed through a well-regulated combine of the private sector's core competencies with the state's capacities of financing and outreach through its vast physical presence in the form of primary health centres (PHCs) and community

health centres (CHCs). The question is whether good regulation and well-designed contracts are enough to leverage the private sector's capabilities, or do we need more innovative thinking to collectively address the real challenges in rural healthcare delivery—such as human resource constraints and community outreach and engagement. One trend is worth examining: the growing momentum and success stories in this sector of social entrepreneurship, which is primarily driven by the objective of social change through self-sustainable approaches.

This chapter covers an overview of the role of the private sector in addressing glaring gaps in rural healthcare services in India through innovative social-enterprise models. It is based on secondary data, news reports, published case studies and discussions with select social entrepreneurs and impact investors. From the larger universe of models for affordable access to healthcare, those selected for this exercise offer some good insights on strategies adopted for rural delivery.

SOCIAL ENTREPRENEURSHIP AND HEALTHCARE

Social entrepreneurs are change-makers who strive to find innovative solutions to social problems. There is relatively little theoretical work on this yet, but among the most comprehensive definitions is one by J. Gregory Dees.³ It emphasises on social innovation, building on the concepts of entrepreneurship defined by Jean Baptiste Say and Joseph Schumpeter. Say said, 'The entrepreneur shifts economic resources out of an area of lower and into an area of higher productivity and greater yield.' Building on this, social entrepreneurship is a phenomenon that deploys the forces of *Unternehmer* (Schumpeter's term for entrepreneurial spirit), sets off a chain reaction and ultimately propagates the innovation to the point of 'creative destruction', a state at which the new venture and all its related ventures effectively render existing ... models obsolete (Martin and Osberg 2007). Core to Dees' proposition is the idea that enterprising social innovation blends, or blurs the boundaries between business and philanthropy approaches to create social value that is sustainable and has the potential for large-scale impact. Innovation could mean creating

³J. Gregory Dees, Professor of Practice in Social Entrepreneurship, Founding Faculty Director, and Beth Anderson, Lecturer and Managing Director of Fuqua School of Business Center for the Advancement of Social Entrepreneurship (CASE), Duke University.

a new good or service, or producing or delivering an existing good or service in a new way or to a new market. Social entrepreneurship can be seen both in for-profit and non-profit structures in India. It is entrepreneurial zest with a change-making goal that leads to innovations that can transform existing approaches, for instance, of enabling affordable access to education, healthcare, water and sanitation, energy and so on.

Affordable healthcare is one of the relatively more robust social enterprise (SE) sectors in India, with more initiatives for building sustainable models as compared with the past when this sector was more the domain of charitable institutions dependent on various sources of donations. The sector is witnessing many experiments and solutions aimed at efficiency and efficacy through product and process innovation, primarily driven by new technologies and smarter deployment. Major innovative elements include: local human resource development; quality of product/service; asset-light infrastructure to minimise costs; pricing; payment instruments; and community-based demand generation.

The financing of SEs is still a niche and underdeveloped space, but the healthcare sector has it a bit better than some other sectors (Dimovska et al. 2009). To fund the initial set-up, the major sources of capital are self-financed equity (personal, family and friends), borrowing and grants. The main source of early stage external equity is impact investment. Impact investors are important actors in the SE space who seek measurable social and environmental benefits from enterprises they invest in. Examples include the Omidyar Network, Aavishkaar, Seedfund, Acumen Fund, Unitus, Elevar Equity, Bamboofinance (Oasis Fund). Early-stage SEs also prefer such 'patient capital', as impact investors understand and are aligned with the fact that SEs will take more time than commercial enterprises to fine-tune their business models and scale them 'in a way that preserves their social mission'.

With early-stage investors supporting the emergence of the healthcare SE sector, more investor interest is getting generated. In many cases, private equity and venture capital has funded expansion. Institutional debt (such as bank loans) has been limited, but is likely to improve, with SEs' access to equity finance growing, as a recent ADB (2012) Report assessed. The government also seems keen to encourage more such investment. The National Innovation Council is considering setting up a government-backed \$200 million venture capital fund to address developmental needs in education, health, infrastructure and sanitation. The Securities and Exchange Board of

India (SEBI) recently floated a policy paper suggesting the need to separately recognise and regulate 'Social Venture Funds', commenting that such funds are for investors seeking 'muted' returns in return for social gains.

The question is whether such initiatives can be replicated and scaled up. It is evident that meaningful scale-up can be achieved through collaborations across the healthcare value chain and with the government, which is the largest network of rural healthcare delivery.

INNOVATIONS IN RURAL HEALTHCARE DELIVERY

Narayana Health (NH)

One of India's largest multi-specialty hospital chains, Narayana Hrudayalaya, now called Narayana Health (NH) created an affordable delivery model using a 'Walmart' approach to procurement, inventory and processes, combined with efficient talent management based on core competencies. It has 18 hospitals across 14 cities and plans to fully penetrate tier-II towns and beyond (Kothandaraman and Mookerjee 2007). NH strives to make every initiative large-scale and affordable and plans to expand from 6,000 to 30,000 beds in the next 7 years. Its leadership, being both professionally sound and commercially savvy, has sought to create an organisation culture where the teams continuously look at cost reduction, keeping quality intact.

Affordability: Its strategy includes low capital expenditure, a competitive but fixed salary structure for doctors, very high volumes including from international patients and high-capacity utilisation, standardised processes with sound protocols as guidelines, use of generic drugs, innovation-based partnerships such as with Texas Instruments to reduce equipment costs and continuous monitoring and feedback. The NH quality of care and success rate can be compared with the world's best hospitals, but comes at a fraction of the cost. Sustainability at NH is evident in high profit margins even as it provides affordable access to the poor. An interesting initiative is of engaging families' idle waiting time in structured training for rehabilitative care at home.

Rural outreach strategy: NH combines a large tele-medicine network, mobile clinic outreach, referral partnerships, cross-subsidisation of patients with sliding-scale pricing and microinsurance. In Karnataka, NH has launched an innovative delivery partnership (Hrudaya Post)

with the state postal circle. This network enables rural heart patients to scan and send their medical records to NH for free consultation. The hospital reverts with a detailed report and advice within 24 hours. Patients only pay service charges to the post office.

NH's microinsurance scheme 'Yeshaswini', conceptualised by Dr Devi Shetty, was launched in 2002 in association with the Karnataka government. This covers more than 3 million farmer families for all surgical procedures and out-patient care, at a monthly premium of Rs 18, up from Rs 5 at inception. Government infrastructure such as post offices are used to collect monthly premiums, track payments and issue health insurance cards.

NH has the largest tele-medicine network in the world, with comprehensive medical solutions for emergencies, quick and accurate diagnoses and efficient patient care as its hallmarks. Coronary care units and rural tele-medicine centres are linked to NH hospitals. Senior specialists in tertiary centres guide paramedics and general physicians (GPs) in remote areas to conduct screenings and stabilise critical patients. Starting in 2002, NH initially used the Indian Space Research Organisation (ISRO) satellite for connectivity. The network has grown to 17 coronary care units in remote cardiac hospitals and 39 tele-medicine centres providing 24-hour support for patients. NH recently moved on to add Internet-based Skype⁴ connections, extending their reach to 100 facilities in India. NH facilitates access by installing tele-medicine equipment in its out-patient departments (OPDs) so that specialists can handle both virtual and physical patients.

Aravind Eye Care System

Aravind Eye Care System (AECS), the world's largest provider of ophthalmological services, is a not-for-profit trust sustained by charging users based on their ability to pay, without compromising on quality of care. Started in 1976 as an 11-bed hospital in Madurai, the AECS network now includes 6 hospitals, apart from a research institute, an intraocular lens factory, eye bank, and a training institute. AECS deploys tele-medicine for primary and preventive care. In the year ending March 2013, AECS treated 3.1 million out-patients and performed more than 370,000 surgeries. The group has examined 35 million out-patients and performed 4.3 million surgeries since inception.⁵ Aravind has also

replicated its experience with similar results in more than 200 other eye hospitals. Established in 1992, the Lions Aravind Institute of Community Ophthalmology (LAICO) offers consultancy and capacity building programmes. Through its contract model, LAICO manages eye hospitals with Aravind-trained personnel and provides technical support to eye hospitals in West Bengal, Gujarat and Uttar Pradesh.

The group has developed a successful social business model under the leadership of its founder Dr Venkataswamy. Their core principles are market development and conversion of need into demand; excellence in execution and value delivery by being patient-centric.

Differential pricing or cross-subsidisation: Setting prices based on patients' ability to pay and containing costs within those estimates made the system financially viable. Differential pricing depends on patients' choice of amenities (private rooms or open dormitories) and the type of lens (hard or soft). Profitability from paying patients helps AECS provide free or very low-priced care to 65 per cent of its patients and fund expansion as well.

Economies of scale: The system relies on intensive specialisation in every part of the workflow to generate operational and equipment efficiencies. It keeps productivity high and unit costs low, with surgeons performing 25–40 procedures daily, far more than national and international benchmarks. This is done by optimising doctors' workload and enhancing the role of paramedics in a process that resembles a factory assembly line. AECS is able to generate a surplus, which it re-invests. Expansion has been aggressive; it invested Rs 200 crores over the previous five years, according to a January 2013 report in *Business Today* (Madhavan 2013).

Tech-enabled efficiency: With online non-clinical processes such as billing, scheduling, discharge and almost 1.5 million electronic medical records in its database, AECS can retrieve a registered patient's data instantly and register a new patient in two minutes. Today, patients can be safely discharged even in less than a day, leading to huge cost-savings with more beds available for other patients. The use of Radio-Frequency Identification (RFID) enables efficient management of

⁴ See <http://pharmabiz.com/PrintArticle.aspx?aid=70033&sid=1>, accessed on 15 November 2013.

⁵ See <http://aravind.org/ClinicalServices.aspx>, accessed on 15 November 2013.

patients, doctors, nurses and equipment in each service station, correct routing of patients, and productivity of each location. AECS manages patient complaints through hand-held devices.

Vertical integration (Levine et al. 2007): The hospitals' costs were reduced very significantly by addressing a major part of surgical costs due to dependence on costly imported intraocular lenses. It got support from US-based Seva Foundation and the Combat Blindness Foundation in the form of transfer of technology, and set up Aurolabin 1992 to manufacture the lenses at a tiny fraction of the cost, deploying young women from rural backgrounds to produce them at par with global quality standards. Aurolab subsequently scaled up this effort to nearly 2 million lenses annually, exporting them to 120 countries, and has 7 per cent of the global market share for intraocular lenses by volume. The product portfolio later expanded to include suture needles, micro-surgical blades, lasers and eye drops, and enhanced the group's revenues.⁶

Rural outreach through tele-medicine and community engagement: Providing free treatment was not enough as a majority of the patients belongs to the rural areas, with villagers having to walk a long distance and forego wage earnings to get treated. AECS experimented with many options including mobile vans and eye camps. It found that permanent eye care facilities in rural areas motivate people to seek earlier treatment, which allows them to re-integrate back into the workforce instead of becoming visually impaired. For them to proactively seek eye care before it is too late, AECS set up rural vision centres as primary eye clinics where patients are remotely diagnosed by doctors via high-speed wireless video-conferencing, get prescription glasses, eye drops and blood tests, are referred to a hospital if surgery is needed and receive post-operative care. It launched the Aravind Tele-Ophthalmology Network in 2002 along with Orbis International and Acumen Fund. Now, all its satellite hospitals are linked with more than 40 such vision centres across Tamil Nadu, each covering a population of 45,000–50,000.⁷ These centres work closely with community workers to create awareness on eye health and change health-seeking behaviour.

IGEHRc: Replicating the Aravind Model⁸

Replicability of the Aravind model can be seen in the case of the Indira Gandhi Eye Hospital and Research Centre (IGEHRc) in Uttar Pradesh, set up by the Rajiv Gandhi Charitable Trust (RGCT) to eliminate avoidable blindness, and bridge the gap between demand and supply of affordable high quality eye care, particularly in northern India. RGCT initially collaborated with AECS to develop IGEHRc systems. Today, IGEHRc is run by a team of highly trained and committed medical, paramedical and managerial staff. Its hub and spoke model allows efficient use of resources and provides quality eye care to the unserved, supported by cross-subsidisation from paying patients and donor grants. At the primary level, IGEHRc vision centres address basic problems through general eye check-ups and out-patient services while referring more complex cases to its secondary care hospital. The even more complex cases from there are sent to the tertiary hospital, a super-specialty hub facility. Community outreach is an intrinsic part of the model, and all three levels of its eye care services work with the belief that quality services must be delivered regardless of the ability to pay. Young women from nearby villages undergo rigorous two-year training to become ophthalmic assistants forming the service backbone. Since its inception in 2005 to March 2013, IGEHRc hospitals have treated over 1,200,000 out-patients and performed nearly 150,000 sight restoring surgeries for patients from across the districts in the state, making IGEHRc one of the largest providers of quality eye care in Uttar Pradesh.

Vaatsalya Healthcare

Founded in 2004 by two doctor friends from the Hubli-based Karnataka Medical College—Dr Ashwin Naik and Dr Veerendra Hiremath, Vaatsalya provides good quality, affordable primary and secondary care in rural and semi-urban India. Over 8 years since their first hospital with 20 beds in Hubli, they have grown to 17 multi-specialty hospitals across Karnataka and Andhra Pradesh with a total bed strength of more than 1,200, serving around 130,000 OPD patients and 5,000 in-patient department (IPD) patients every month.⁹

Cost efficiency: The model minimises capital and operational expenditure while maintaining high

⁶ See <http://www.forbes.com/global/2010/0315/companies-india-madurai-blindness-nam-familys-vision.html>, accessed on 6 December 2013.

⁷ See <http://www.aravind.org/communityoutreach/primaryeyecarecentres.aspx>, accessed on 18 October 2013.

⁸ Based on author's discussion with RGCT and documents provided by them.

⁹ See <http://vaatsalya.com/web/hospital-listing>, accessed on 15 November 2013.

capacity utilisation. To keep outlays low, Vaatsalya leases and refurbishes existing hospitals and leverages the existing clinical staff where feasible. Its core services focus on 70 per cent of the healthcare needs of the community in which it operates. It invests only in good-quality medical equipment strictly necessary for its work. Vaatsalya hospitals provide 'no frills' care with strong service quality controls and streamlined operations in order to be replicable and scalable. Preventive care and chronic disease management are included in its focus areas. Timely interventions at primary and secondary levels avoid complications and often obviate the need for tertiary care. Vaatsalya also offers specialised services such as dialysis, intensive care units, paediatric surgery, diabetology and neuro-surgery, based on unmet needs of the local community (Datta 2010). Based on ground realities, Vaatsalya has changed its initial approach of fully outsourcing pharmacy in order to better control availability and quality of medicines. It also partners with local diagnostic providers on revenue-share basis where the latter set up facilities on its premises. Centralised bulk procurement saves 20 per cent on its costs. At Rs 100–300 per bed in the general ward per night, and consultancy fees ranging from Rs 25–100, Vaatsalya prices are 15 to 20 per cent of what an average urban hospital would charge patients (Mukherji 2011). The hospitals have more than 80 per cent capacity utilisation in a steady state of operations. Breakeven (the point at which their revenue equals costs incurred on receiving that revenue) time has improved from 3 years for the first hospital to 12–18 months later.

Talent strategy: In order to address one of the biggest constraints—availability and retention of good medical professionals—Vaatsalya developed its own doctor-centric model: practitioners are carefully chosen based on their semi-urban or rural background, often attracted back to the hometowns they had moved out of and at better remuneration and designations than what they would get in the larger cities. There is a strong focus on personal and professional motivation as well as incentives based on a revenue-sharing approach.

Customer-orientation: One of the key challenges is the hesitance of patients to visit private hospitals with a perception of high costs and fears of losing relationships with local familiar, often unqualified, practitioners. Vaatsalya strives to create an environment of caring and long-term relationships with patients and chronic disease management is a strong focus area. Another

challenge is the common perception among patients that private hospitals over-charge them; Vaatsalya has a thrust on transparency in billing, especially since its customers are largely non-insured and pay in cash. Its regular surveys indicate positive customer feedback as a result of such efforts.

Sustaining ethical values: Decentralisation is an integral element in Vaatsalya's rapid scaling. This poses a challenge in ensuring their carefully established ethical values and organisational culture is consistently maintained. Vaatsalya ensures that new hires spend adequate time with its core team members to 'understand, appreciate and imbibe their philosophy'.

Local stakeholder engagement: Vaatsalya engages with local doctors and communities well before a new hospital launch to inform them about its facilities and gets into a variety of partnerships with local practitioners. A key challenge is that of the nexus between local doctors, diagnostic laboratories, and pharmacists—a system of commissions that may be exchanged for each referral. Since these commissions are not paid out of provider profits but rather added to the patient bill—thus inflating the costs for patients. This practice though prevalent and largely accepted, Vaatsalya considered this to be unethical and hence made it a corporate policy that it would neither pay nor receive any referral fees.

Extending outreach to the hinterland: Vaatsalya's initial plan was to create several spokes for each of its hub hospitals, but instead experience led them to first focus on building the hubs. In Gadag, a small town in Karnataka, their four outreach centres linked to the main hospital were not sustainable primarily because of the manpower constraint. Qualified doctors preferred to work at the main centre; and the operational model of having one gynaecologist at the hub could not handle all cases coming in. As partnering with local practitioners is the way it can extend its outreach; Vaatsalya is developing a new model for low-cost birthing services. These centres are being created with the objective of reducing maternal mortality and the cost of pregnancy care in villages, and have midwives for attending to deliveries along with an antenatal programme of consultations, diagnostics and medicines. In a PPP (public-private partnership) with Deshpande Foundation (Hubli) and the local village panchayat, the first rural birthing centre was set up in 2011 at Kotumuchagi, about 20 km away from Gadag.

Treating the lowest economic strata: Vaatsalya works with RSBY (central government), Rajiv Arogyasri (Andhra Pradesh), National Rural Health Mission (NRHM) and Janani Suraksha Yojana (JSY) (for neonatal and maternal care). However, there remains the need for a financing model that can effectively bridge the gap between patients' income-led incremental cash inflows and one-time lumpy cash outflows as healthcare expenses. Vaatsalya is exploring a variety of relationships with various organisations and institutions to extend the reach of their services. This includes the government, micro-health insurance agencies, as well as foundations and charitable trusts, who can provide financial assistance to its poor patients. Vaatsalya is also dependent on medical technology companies to innovate and provide medical equipment at lower prices that enable it to bring down costs of procedures such as dialysis, which are still out of reach for most of its poor patients. Vaatsalya was earlier working towards a microinsurance scheme that builds on government schemes, adding discounted outpatient services such as doctor consultations, diagnostics and drugs, with funding from the Microinsurance Innovation Facility (MIF) at the ILO (International Labour Organisation) in 2010. However, the funding did not come through and no further information is publicly available on these plans.

Glocal Healthcare

A medical doctor and former civil servant, Dr Sabahat Azim founded Glocal Healthcare Systems in 2010 with ambitious plans to offer affordable healthcare services at scale in the unserved parts of urban, semi-urban and rural India. Glocal successfully implemented five hospitals in West Bengal within two years. All hospitals have broken even financially and rapid scaling of volumes is playing a role in their sustainability. Their hospitals break even in 8 months on average, significantly much lesser time than the industry standard. By end-January 2013, the hospitals had treated 77,834 patients, conducted 3,452 surgeries and till end-December 2012, had managed 274 childbirths and 2,505 emergencies including trauma and accident cases.¹⁰

Glocal's approach is based on rising ability to pay driven by growth in incomes as well as the increasing penetration of government schemes such as Rashtriya

Swasthya Bima Yojana (RSBY). Glocal is in the process of implementing its next phase, of 50 primary and secondary care hospitals in Uttar Pradesh, Bihar, Chhattisgarh, Odisha, West Bengal and Jharkhand. Each hospital will cater to a sub-district, serving a population of approximately 5 lakh within a radius of 15 km. The group's vision is to be the largest rural healthcare provider in India and to grow to a network of 2,000 hospitals across the country.¹¹ Glocal aims to reduce costs to almost one-third of current standards with its Information and Communication Technology (ICT)-backed protocol-driven cost-efficient and high-volume delivery model.

Affordable pricing: Currently, 44 per cent of Glocal's revenue comes from RSBY patients while the rest is from cash patients.¹² For surgical procedures, cash patients are charged the same rate as RSBY patients, as Glocal finds the RSBY rates (Rs 500 per day for bed, doctors, food and medicines) reasonable enough. It is only in the case of conservatives (patients who do not have surgery but are hospitalised and given medication) that they charge higher (Rs 700 per day plus medicine costs) from cash patients, as the RSBY rates are lower than the cost of treatment. While there are valid concerns that RSBY has led to private hospitals doing unnecessary surgeries, Glocal believes in the RSBY system's market-based incentives built in to ensure service providers and insurers end up working together to reduce fraud. Use of generics drugs and scale in procurement further helps in cost-efficient treatment.

Zero-based approach: Most private hospitals focus on the tertiary segment and expensive high technology instruments for high-end patient care with higher margins. However, based on the findings of the National Commission of Macroeconomics and Health, Glocal has focused on 42 diseases that constitute 95 per cent of the country's disease load, none of which require highly specialised treatment, thus reducing its capital expenditure per bed. Glocal has created a modular hospital design that optimises movement of man and material, thus maximising efficiency and eliminating excess and waiting spaces, reducing capital cost per bed to Rs 7–8 lakh, almost half the current private

¹⁰ See http://civilsocietyonline.com/pages/Glocal_Hospitals.htm, accessed on 5 October 2013.

¹¹ See <http://ghspl.com/idea.aspx>, accessed on 5 October 2013.

¹² See http://civilsocietyonline.com/pages/Glocal_Hospitals.htm, accessed on 5 October 2013.

sector benchmark. Each hospital commences operation within 12 months from start of construction. Instead of buying equipment off the shelf, Glocal has equipment assembled at much lower costs.

Standardisation: Instead of a doctor-driven model, Glocal aims to be an ICT-backed protocol-driven model facilitated by doctors. All processes from diagnosis to management are standardised to ensure error-free delivery. From diagnostic algorithms to standard treatment protocols, its processes are well-defined and well-measured. Information about patient outcomes is captured at each hospital location through follow-up calls and surveys and fed back to dynamically update treatment protocols and for industry benchmarking.

Technology-driven delivery: Extensive use of technology to ensure lean operations across clinical and administrative work improves accuracy and efficiency of its delivery. Glocal sets up fully paperless hospitals where their proprietary Health Management Information System (HMIS) and Medical Diagnosis and Management System (MDMS) integrate all processes including disease epidemiology, electronic health records, e-prescriptions and tele-medicine and outcome management. A well-designed ICT platform shares data within and between hospitals. With the knowledge being built into its systems along with a tele-medicine backbone for remote consultations, Glocal seeks to reduce the need for in-house super-specialists in its hospitals.

Talent strategy: Glocal's professional environment and emphasis on quality healthcare help attract skilled and motivated doctors. Apart from competitive salaries, its strategy is to provide opportunities for continuing medical education and advanced learning. Glocal has a Memorandum of Understanding (MoU) with the Mount Sinai Hospital and Mount Sinai School of Medicine in New York, USA for this. With plans for hiring support staff from its hospitals' neighbourhood, Glocal has also acquired major stake in another social enterprise, Indigram Skills and Knowledge Initiatives, and plans to set up a programme at each hospital site to train paramedics in various skills for primary care and back-end operations.

Local partnerships: With a geographically-spread model that requires dealing with rules and regulation of different states and directly connecting with local communities, Glocal ties up with local doctors and entrepreneurs in a limited liability partnership. Local partners help identify land parcels and assist in clearances, implementation and operations; create awareness through existing networks; and integrate local practitioners as health advisors for counselling, referrals to the hospital and selling health insurance.

CARE Rural Health Mission for Primary Care

Care Hospitals was founded in 1997¹³ by a group of physicians, chaired by Dr Soma Raju, who had worked at Nizam's Institute of Medical Sciences in Hyderabad for a decade. The group now comprises Care Hospitals, Care Foundation, and Relisys Medical Devices. Their core mission objectives are to address quality, cost and access. They have a holistic approach in the form of a networked healthcare delivery system for various levels of care, across geographies, and for both urban and rural populations. To make quality care affordable and accessible, the Care model involves process innovation and high volumes. While the group has grown to about 1,700 beds across 13 tertiary care hospitals in 5 states, it has also developed an affordable high-quality primary care rural delivery model by the Care Foundation under the Care Rural Health Mission¹⁴ (CRHM).

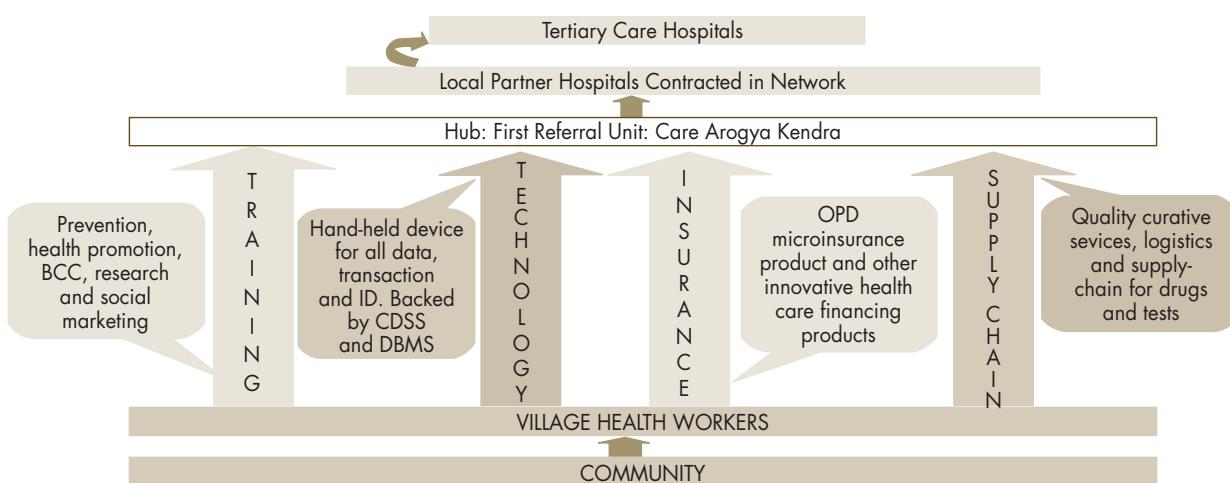
CRHM's 4 pillars of rural health: The model is based on four pillars—local human resource development, relevant technology tools, supply-chain management, and finance for preventive and primary care. Care uses tele-medicine for remote regions; and is working to leverage existing delivery channels by building a network of private and public partners for primary and secondary care.

Local community-based manpower: Village health champions (VHCs) are local, educated women paramedics trained by care in primary care and tele-medicine facilitation. The VHCs, who receive a base salary and a performance-based incentive, also have entrepreneurial abilities to develop a sustainable local business. They are equipped with a hand-held device

¹³ See http://healthmarketinnovations.org/sites/default/files/Care_Hospitals_Case_final.pdf, accessed on 3 October 2013.

¹⁴ See <http://www.carehospitals.com/crhm/approach.htm>, accessed on 5 October 2013.

FIGURE 7.1 CRHM Delivery Model



Source: Care Hospitals Website.

(mini-computer) that can perform basic tests for monitoring chronic conditions and has software with algorithms for accurate diagnosis and treatment. It is linked with a supervising doctor via a mobile network, and prints out doctor-approved prescriptions. The VHC issues the medicines, and the mini-computer logs the information in the supply chain database. The device issues a smart card for patients, and records each consultation and transaction.

The model seeks to detect disease at an early stage in the village and manage it under medical supervision, providing referrals to a hospital when needed. As much as 60–70 per cent of primary care treatment can be managed by VHCs at the village level, and the balance at referral primary health centres. CARE started its Arogya Kendra programme in Maharashtra in early 2008. The project connects 50 villages covering a population of 100,000. If the illness cannot be treated locally and through the remote system, patients are referred to the 'CARE Arogya Clinic' at Yavatmal and to CARE hospitals at Nagpur and Hyderabad, for specialty and super-specialty care, respectively.

Supply-chain management: A network solution enables cost-effective delivery of drugs within a specified period of time at door-step, point-of-care tests for simple blood tests and referral support in cases of emergencies using local resources and support.

Microinsurance: CARE Foundation has a partnership with the Centre for Insurance and Risk

Management (CIRM) for a microinsurance project where individuals who buy pre-paid health cards from the VHC scan access first level primary and preventive care services at nominal fees from the VHC network. The membership at a fee of Rs 300 for a family of four (2 adults and 2 children) provides for consultation, common low-cost, non-branded OTC (over-the-counter) medicines, blood tests, IV fluids and injections with a sum assured of Rs 2,500 and with provisions of cashless service and no limits on frequency of usage. Chronic conditions can be treated at an additional fee of Rs 50 per monthly visit with low-cost effective generic drugs. The project is supported by MIF at ILO for the innovation of 'Insuring Primary Care—A Sustainable Financing Solution for Rural Primary Health'. An evaluation of its pilot covering 50 villages in Yavatmal, rural Maharashtra, shows promising preliminary results. It is an out-patient product launched in 2009 through an innovative self-insured scheme, co-conceived and evaluated by research partner CIRM. The product has a number of limits and exclusions (in particular treatment of chronic and pre-existing conditions). Care supplements the out-patient product with value-added services such as health education and discounted prices for preventative health items such as mosquito repellents and antiseptic soap. Discounts on in-patient care at Care hospitals are also offered.

Results (Mahal et al. 2013) of a randomised controlled trial that evaluated the impact of the initiative on the targeted population were also published in

the *Lancet* (2013).¹⁵ The authors derive two policy implications from the evaluation: First, provisioning of primary care through a prepaid card model may have significantly higher client impact by way of improved treatment seeking behaviour among patients compared with a pay-per-use model, even when the fee per visit is small. Second, insurers and government agencies deploying hospitalisation insurance products in markets where access to healthcare is poor may benefit if the in-patient cover was bundled with out-patient insurance. Access to primary care in such markets could help reduce hospitalisation, decrease claims ratios, and thereby improve the financial viability of the insurer. Lower claims ratios would also help contain future premiums, which, along with the utilisation of primary care services, will give clients reasons to renew the policy even if they did not file a hospitalisation claim. Their finding of reduction in hospitalisation expenses of Rs 1,140 per year suggests that the drop in claims in a hypothetical in-patient product bundled with primary care may offset the costs of offering the primary care component, thus potentially making it a viable proposition for insurers. Moreover, they say, there may be a significant percentage of hospitalisation cases whose frequency and intensity could be contained through timely primary care, thus making a case for bundling out-patient insurance with in-patient insurance to improve client value. The authors hope these findings would motivate further examination of the link between primary care insurance and hospital utilisation, saying that given the mixed evidence from past evaluations of healthcare financing schemes, isolating and evaluating individual components of such programmes may be informative.

ICTPH: Pro-active Delivery of Primary Care¹⁶

IKP Centre for Technologies in Public Health (ICTPH) is an action-research non-profit aiming to demonstrate sustainable and scalable models of pro-active rural healthcare delivery that both the public and private sectors can adopt. ICTPH, largely driven by co-directors Dr Zeena Johar and Dr Nachiket Mor, has piloted its model with field partner Sugha Vazhvru Healthcare in Thanjavur, Tamil Nadu.

The Sugha Vazhvru Health Model follows the

preventive and curative approach of primary healthcare. It is meant for rural communities where quality healthcare is not available or is highly limited. Sugha Vazhvru does not try to attract doctors from cities to the villages. It seeks to leverage a rules-based delivery system. Sugha Vazhvru follows rules for everything: from capturing medical information to performing basic tests to diagnosing ailments—and believes that such protocols can deal with 80 per cent of diseases. Its model envisages that a single doctor should be able to manage as many as 20 of their rural health centres.¹⁷ Curative care and basic diagnosis services are provided by a nurse under a doctor's supervision and outreach activities are performed by health extension workers from the community.

Key highlights of the model include: (i) a structured approach to engaging with the local community through local health extension workers and specialised community camps and by involving local opinion leaders; (ii) developing Electronic Health Records for easy access to medical history which would reduce transaction costs and the chances of human error; and (iii) a HMIS for primary healthcare management. The HMIS would not only track patient-physician interactions, but also support supply-chain management as well as monitoring and evaluation.

The current design seeks to serve a population of 200,000 individuals or approximately 50,000 families in a clearly defined geography. The first step in implementation of the model is to identify 20 distinct contiguous areas in each of which 2,500 families live.

Identification and enrolment: A locally-hired and trained, temporary team of enrolment officers enrolls these families and maps their basic information, such as name, age and gender of each family member, along with latitude and longitude Global Positioning System (GPS) co-ordinates of the household. The population database of a region thus generated helps build knowledge about geographical distribution of prevailing diseases and guides what needs to be studied further.

Rural Micro Health Centre (RMHC): The community-based centre provides the broadest possible range of

¹⁵ See [www.thelancet.com/journals/Lancet/article/PIIS0140-6736\(13\)61341-0/fulltext#article_upsel](http://www.thelancet.com/journals/Lancet/article/PIIS0140-6736(13)61341-0/fulltext#article_upsel), accessed on 14 June 2014.

¹⁶ Based on the author's conversation with SughaVazhvru and documents provided by them.

¹⁷ Rajarshi Banerjee, 'The Story of Sugha Vazhvru', *Harvard College-Global Health Review*, <http://www.hcs.harvard.edu/~hgcr/wp-content/uploads/2012/11/12S-Issue.10.pdf>, accessed on 14 June 2014.

services from acute care, chronic disease management, ophthalmic care, dental care, and population-level screening and aggressive management of health for high-risk individuals. Each RMHC serves an enrolled and risk-graded population of 2,500 families. It is staffed by an independent care provider, assisted by a health extension worker (HEW) hired from the local community and trained. For every five RMHCs there is a fully equipped diagnostic centre which costs about Rs 500,000.

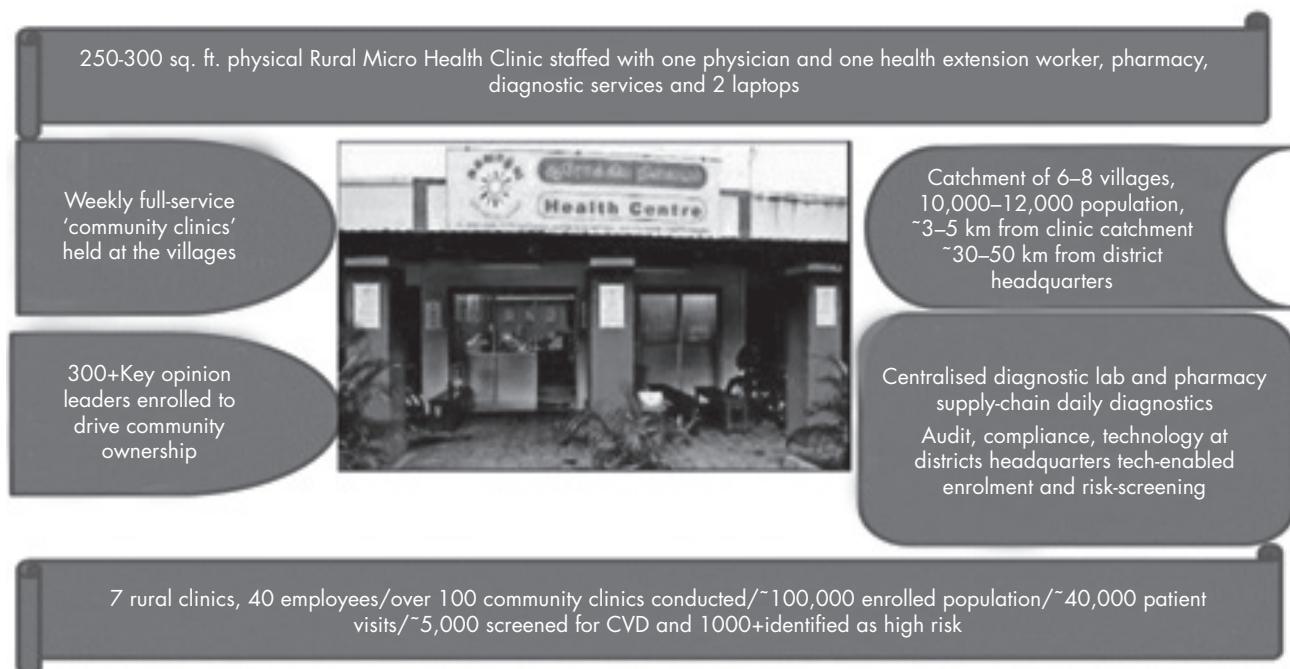
Each fully equipped RMHC on average costs about Rs 400,000 to construct and fit out. It has a monthly operating cost of about Rs 35,000. A typical rural clinic is a 500 sq.ft. refurbished rented facility in the village common place. Each rural clinic primarily has three sections:

- Patient waiting area including space for the HEW to screen patients;
- Physician consultation room (almost 50–60 per cent of space) equipped with an examination bed, pharmacy unit, blood collection unit, basic diagnostic tests, emergency management unit, vision assessment unit, autoclave unit, and internet-enabled laptop;
- Cervical screening room with bed and basic equipment.

Rapid Risk Assessment (RRA): It is done for each individual at each enrolled household using mobile phones, and is based on a Population-based Individual Screening Protocol (PISP). It captures weight, height, waist and hip circumference, marital status, pregnancy, blood pressure, diabetes and tobacco use. Bar-coded individual identity cards are issued to all enrolled—this builds the database and helps provide continual care. All adult individuals identified at risk, primarily for cardiovascular diseases and pregnancy, are given diagnostic vouchers for aiding confirmatory assessment. They also get free treatment at the health centre. The cost of this one-time effort is estimated at Rs 40,000 for each location. The idea behind PISP is a flowchart-based approach to diagnosis, contrary to the general approach of doctors prescribing multiple and unnecessary tests. Quick diagnosis at the primary level is critical in deciding the right level of escalation for a patient's ailment, thus saving valuable time and expenditure.

Local human resource: The model leverages the large qualified and severely under-utilised AYUSH (Ayurveda, Yoga & Naturopathy, Unnani, Siddha and Homeopathy) talent pool (that is legally permitted to practice allopathic medicine) and trains them

FIGURE 7.2 Sugha Vazhu Operating Model



Source: Sugha Vazhu.

on evidence-based protocols. The selected trainees typically hold an undergraduate degree in Ayurveda or Siddha systems of medicine. After being trained under a three-month Bridge Training Programme (BTP), they serve as certified 'independent care providers' in a rural primary care setting. The programme helps cover critical knowledge deficits, for example in pharmacology and drug interaction. It trains the practitioners in ICTPH's disease management protocols that govern the assessment and management of 82 common primary care conditions such as management of infectious diseases, non-communicable diseases (NCDs), dental treatments including scaling and fillings, eye examination (refractive error correction, cataract detection, basic fundus examination and eye infections) and prescription and dispensation of spectacles, and cervical screening including cervical cancer using established visual inspection methods. Practitioners and health extension workers also undergo modules for Continuous Medical Education (CME).

Expansion plans: Over the next three years, ICTPH plans to create a replicable model at scale (100–150 clinics, 1 million+target population).¹⁸ The RMHC expansion follows the proximate catchment methodology in order to benefit from word-of-mouth awareness building, optimal supply-chain management across the network, and most importantly, measurable health outcomes throughout the Sugha Vazhvum value network. Plans are also underway to implement a partnership with Apollo Hospitals in Chittoor district to establish replicability and integration with higher levels of care, as are talks for a partnership with the Uttarakhand government for revamping primary healthcare in the state.

Innovative health financing: One of the important themes is innovative financing, such as inclusion of credit/savings structures which are better suited for low cost, likely events, since insurance is more geared for high-cost, low-probability events.

ICTPH is working on a self-sustaining user-fee model. It estimates that the full suite of primary care offered by the RMHC including medicines and diagnostics can be offered to each individual at approximately Rs 700 per capita per year including all costs. Secondary and tertiary care health insurance can

be provided to each individual at approximately Rs 300 per year assuming tight gate-keeping at the primary care level and proactive work to ensure that the high risk individuals identified in the RRA are able to bring their risk levels down to moderate levels. The insurance will pay for care at an identified preferred network of providers. So, ICTPH estimates that a comprehensive plan (with no deductible or co-pay, that is the insured does not pay anything OOP at the time of seeking service) can be put together at approximately at a cost of Rs 1,000 per person or Rs 5,000 per family per year. The government actually spends Rs 500 per person per year, while the actual annual OOP spending in India is estimated at Rs 2,000 (in rural India much of this is spent on unqualified practitioners). ICTPH suggests that the Rs 500 per year gap between this comprehensive per person plan of Rs 1,000 and government spending of Rs 500 can be met by the insured individuals. The idea is that this could reduce the cost burden on the rural poor to a fraction of what they pay as OOP expenses on average.

For starters, ICTPH has defined health-poverty as having a high-risk status on its RRA thus entitling the individual to completely free care for that condition until they reach a moderate risk status. In time, if they can demonstrate this as a successful Managed Care programme to their target population of 50,000 families, they plan to take these ideas to both the government as well as the private sector so that they may be taken to scale across the country.

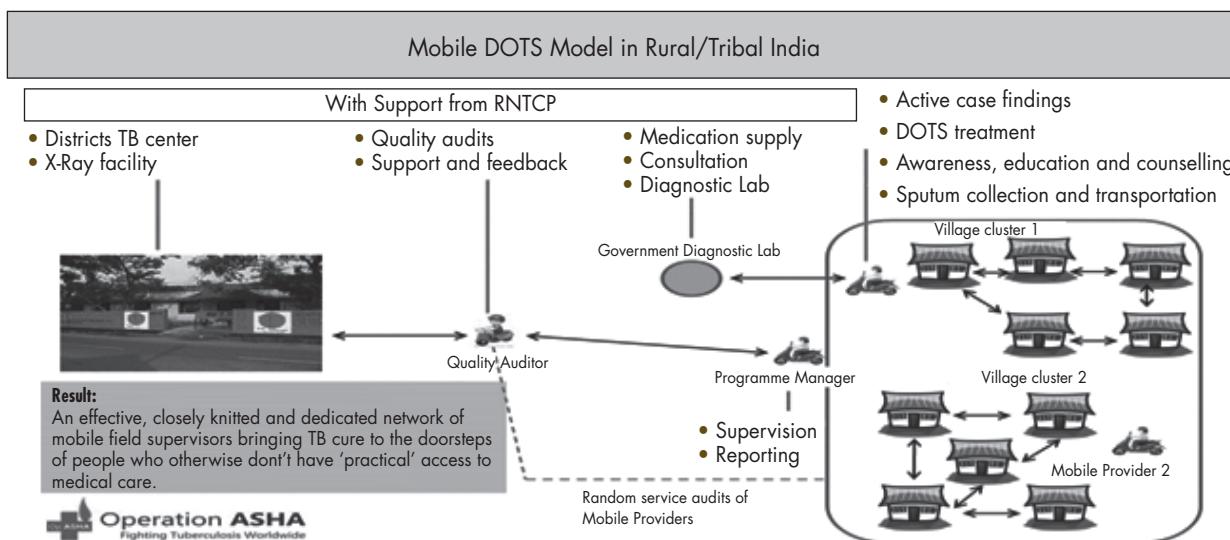
Operation ASHA: Supply-chain Management Model in Public Health Delivery¹⁹

Operation ASHA (OpASHA) is India's largest non-governmental provider of tuberculosis (TB) treatment. Dr Shelly Batra and Sandeep Ahuja founded Operation ASHA in 2005 with the vision of a TB-free India. The initiative has demonstrated how a focus on outcomes, partnerships with public and private players, technology customised to user requirements, and last mile connectivity can produce sound results in public health delivery. Its outreach extends to more than 4.8 million people from disadvantaged communities through 210 centres across eight states.

¹⁸ Data provided by SughaVazhvum.

¹⁹ Based on the author's discussions with OpASHA and documents provided by them.

FIGURE 7.3 OpASHA Mobile DOTS Model in Rural/Tribal India



Source: Operation ASHA.

India has the highest burden of TB in the world where two people die of this curable disease every three minutes. OpASHA has focused on active case finding and community education as well as delivery of full-course treatments. It cured 30,000 patients and averted 180,000 infections till June 2013,²⁰ using the World Health Organisation (WHO)-recommended DOTS (directly observed treatment, short-course) therapy. Its methodology has resulted in high detection rates, a treatment success rate of 89 per cent, and a default rate of 3 per cent, in a scenario where there have been reports of at least 36 per cent patient defaults during the six to ten month-long treatment. Its cost of treating one TB patient is Rs 4,000, 'approximately 19 times lower than the nearest other provider'; its cost of detection is Rs 1,350 per patient, 32 times lower than programmes funded by TB-REACH; and its cost of preventing one often fatal multi-drug resistant (MDR) TB case is Rs 10,000, 14–50 times lower than treating one MDR patient.

These results are ascribed to its supply chain model of last mile service delivery, as it has worked to enhance the government's capacity to reach TB treatment services to inaccessible urban and rural areas. In its quest to build a cost-efficient model of treatment, OpASHA partners with the National TB Programme to leverage existing infrastructure and manpower (government's free medicines, hospital care and diagnostic services) as well as government grant support to enhance the reach of the public health programme. It is also funded

by donor organisations. Cost efficiencies are built into the system by training and deploying unemployed community members for case detection, treatment and compliance rather than professionals. Cost- and time-efficiencies are also achieved by using its innovative, low-cost technology, the e-Compliance system. Developed in collaboration with Microsoft Research and Innovators in Health, this is an electronic biometric tool to enable accurate follow-up with all patients.

A key strength of the OpASHA model is that it has fine-tuned strategies based on learnings from the field. The model is adapted to address local community concerns. For instance, in urban slums, the health centres are located within easy reach of the beneficiaries and are open for long hours so that the beneficiaries do not have to miss wages to come in for treatment. Each centre serves 5,000–25,000 people within a 1.5 km radius. Further, to avoid delays and inconvenience caused by the unavailability of government laboratory technicians who conduct tests, the project counsellor fixes a day in the week that best suits the technician on which all patients who need to be tested are taken to the lab. In the rural areas, they use mobile DOTS, where a provider travels across villages on a motorcycle/scooter, carrying the e-Compliance system, drugs and other supplies. The provider gives the medicine to each patient at her house or a mutually convenient place, and observes them swallow the dose. Fifteen per cent of centres in India and 90 per cent in Cambodia follow this pattern.

²⁰ See http://www.opasha.org/wp-content/uploads/2013/09/Operation-ASHA_USAID-Sept.-2013-1.pdf, accessed on 1 November 2013.

Across 210 centres in eight states, the programme has trained and worked with local community health workers and other partners, leveraging local knowledge and relationships. Community health workers, apart from receiving basic remuneration, are given performance-based incentives for every enrolment and successful treatment and are motivated by a desire to serve and be recognised by the community. Partners for the urban region centres receive basic remuneration for space and service and are given performance-based incentives for patient enrolment. It has created 190 full-time jobs for semi-literate youth and enhanced livelihoods for 178 micro-entrepreneurs or community partners. Sixty per cent of OpASHA's expenses are used to thus generate livelihoods in the slums and villages while simultaneously fighting TB.

The model has been acclaimed for another innovation: introducing quality audits into a public health delivery system. Each centre is audited for quality on a bi-monthly basis and the audit report includes behaviour of the community health worker and the staff towards patients apart from metrics such as user satisfaction, number of new enrolments, detections by active case finding and default percentages.

The model has been successfully replicated in Cambodia. Starting with the first centre in December 2010, OpASHA grew to 51 centres across 1,283 villages and covered a rural population of 1.08 million. More than 3,760 patients were enrolled, nearly 2,181 have completed treatment, and the detection rate has increased by more than 30 per cent over earlier years. Apart from the country head who is Indian, OpASHA Cambodia operation is staffed and run by 65 full-time local community health workers. Another example of replication is the Millennium Villages Project replicating the OpASHA model in Uganda. The entire training for replication was done over eight hours of Skype calls. The software was uploaded onto the Millennium Villages Project's notebook computers in Uganda from India. Three e-Compliance terminals and three trained, mobile community health workers were deployed in July 2012 in Ruhiira, rural southwest area of Uganda with a population of 50,000. The results: death and default rate is down to zero from over 16 per cent in the preceding year. The project is being scaled up there and plans are also underway for replication in other countries in Africa.

While it was initiated for TB interventions, the OpASHA supply chain is disease and geography agnostic and can be deployed to deliver other health and

social services and products to excluded communities. Its cost-effectiveness, efficiency and outcome orientation make a strong case for its wider adoption. The model lends itself just as easily to addressing public health issues in rural India—such as acute child malnutrition and immunisation, among others—which also require treatment over prolonged periods where compliance to treatment, and tracking and reduction of non-compliance assume great importance. The OpASHA model can be adapted to contexts where instead of community health workers supplying the medication and registering patients' visits/medication on the e-Compliance terminal, these tasks could be performed by government functionaries such as the anganwadi worker or the nurse at the government primary health centre/hospital. In parallel, incentivised community health workers/counsellors, trained in simple processes could continue to detect new cases, link them to government services, enrol them in treatment programmes and ensure success of treatment.

SALIENT FEATURES AND KEY TAKEAWAYS

It is evident that social entrepreneurs are addressing the critical challenge of making rural healthcare delivery viable through a combination of approaches.

Hub and Spoke-based Strategies

All the models are based on two common elements: local community-based human resource development and tele-medicine for value delivery. This outreach captures the essence of their spokes. The CARE model seeks to detect disease at an early stage in the village itself with the help of community-based paramedics and manage it under medical supervision. It indicates that 60–70 per cent of primary care treatment can be managed at the village level, and the balance at referral primary health centres. ICTPH is focused on primary care centres with supervision at zonal level and plans to link into higher levels of care.

Local partnerships: NH has an innovative outreach partnership (Hrudaya Post) with the state postal circle, apart from local outreach centres. OpASHA, on the other hand, demonstrates itself as the outreach partner that can enhance last mile delivery of government programmes. Glocal's geographically spread model has increased the scope of its local associations—through a structured limited liability partnership, where local

TABLE 7.1 Salient Features of Adopted Strategies

<i>Challenge driver</i>	<i>Hub and Spoke model-based strategic approach of combining outreach, process efficiencies and technology for low-cost rural healthcare delivery</i>		
Delivery and quality of care when there is a scarcity of doctors in the rural regions	Local community health worker cadre development	Protocolisation for diagnosis, treatment and escalation through referrals	Technology enablers for data and process management
	Local partnerships	Structured training and performance incentives for community cadres	Tele-medicine and local hand-held mobile solutions provide viable outreach to larger numbers by empowering community health workers
Affordability—feasible provision for the rural poor	Pricing based on ability to pay	Partnering with government schemes such as RSBY and Arogyasri	Low cost models based on use of technology and process efficiencies
	Cross-subsidisation	Community-based health microinsurance	

Sources: Based on author's analysis.

doctors and entrepreneurs help identify land parcels and assist in clearances, implementation and operations; create local network awareness and integrate local practitioners for health counselling and referrals. Vaatsalya, which first focused on building the hubs, is seeking local medical practitioners as partners for developing rural birthing centres.

Investment in training: With plans for hiring support staff from its hospitals' neighbourhood, Glocal, with its subsidiary, Indigram Skills and Knowledge Initiatives, plans to set up a programme at each hospital site to train paramedics in various skills for primary care and backend operations. ICTPH has tied up with the Penn School of Nursing for its 3-month BTP to develop a cadre of independent care providers from among the vast talent pool of AYUSH physicians. The other models also incorporate suitably structured training programmes.

Inherent strengths: Routine tasks are transferred to lower-skilled health workers who become key assets for community outreach, while expert doctors can focus on more complex work. A local human resource pool gets developed. These community workers also create awareness and work for change in health-seeking behaviour. Their outreach is supported by structured and standardised processes for diagnosis at the primary care level, optimise the escalation path, reducing the cost and time burden on both patients and the service provider.

Technology as an Enabler

Outreach: All models use a combination of tele-medicine and local hand-held device solutions.

Process efficiencies: This includes enrolment, diagnosis and treatments through electronic health records and health management information systems which also support process innovations and supply-chain management. OpASHA uses its unique e-Compliance system for achieving significant cost- and time-efficiencies. AECS uses RFID for efficient management of patients, doctors, nurses and equipment in each service station, correct routing of patients, and productivity of each location. Glocal aims to reduce costs to almost one-third of current standards with its ICT-backed delivery model. All processes from diagnosis to treatment protocols for disease management are standardised to ensure error-free delivery.

Protocolisation: Efficiency in resource use and outcomes is achieved by focusing on the most common set of ailments which cover the majority of the disease burden. The ICTPH-Sugha Vazhvru Health Model follows rules for everything, from capturing medical information to performing basic tests to diagnosing ailments. It believes that such protocols can deal with 80 per cent of diseases. Glocal has identified 42 diseases that result in a majority of the rural healthcare spending on treatment. It has developed a system for clinicians to diagnose and

select medication while ensuring protection against undesirable drug interactions, contra-indications and adverse drug reactions.

Data mining for larger outcomes: ICTPH-Sugha Vazhvru also trains a locally-hired temporary team of enrolment officers to undertake a GPS-based epidemiological mapping of selected communities. This exercise lends itself to generating critical knowledge both from the service provision perspective as well as for larger scale strategies for prioritising public health issues. Glocal's MDMS is designed to store patient medical information which would create an epidemiological data bank in the next 5–7 years, having enormous valuable and effective resource in clinical research, public health studies and basic research in biological science.

Affordable Access: Pricing and Financing

Financing from government schemes: The most common approach is to partner with government healthcare funding schemes such as RSBY of the central government and other state-specific (such as the Government of Andhra Pradesh's Arogyasri) or programme-specific (such as JSY for neonatal and maternal care) schemes. Glocal, for example, has based its large-scale cross-geographies model on the back of RSBY as a sustainable solution.

Microinsurance: An additional aspect is to design locally-suited microinsurance models that build on government schemes. In the absence of government schemes such as RSBY and Arogyasri extending coverage to primary care, CARE would be relying on the success of the microinsurance approach. It has a partnership with the CIRM for a microinsurance project where individuals can buy pre-paid health cards from village health champions. The project is currently supported by MIF at ILO for the innovation of 'Insuring Primary Care—A Sustainable Financing Solution for Rural Primary Health'. Vaatsalya has added discounted out-patient services such as doctor consultations, diagnostics and drugs. NH has leveraged government infrastructure such as post offices to collect monthly premiums, track payments and issue health insurance cards.

Differential pricing or cross-subsidisation: Apart from several innovations to make their business models

no-frills and low-cost, many of the enterprises adopt the practice of cross-subsidisation. NH uses a sliding scale approach, based on the ability to pay. AECS finds itself financially viable by not only setting prices based on patients' ability to pay, but by also containing costs within those estimates. Differential pricing largely depends on patients' choice of amenities. Profitability from paying patients helps AECS provide free or very low-priced care to 65 per cent of its patients and fund expansion as well. IGEHRC serves the unserved with the help of cross-subsidisation based on paying patients and donor grants.

Others: Plug and Play Models

Value chain partners: There are several other social enterprises, which are focused on plug-ins such as solutions for outreach using technology and participatory models designed for making delivery to the disadvantaged efficient and effective; examples include Swasth India, Forus Health, E-health Point, ReMeDi-Madu, Gram Vaani, Sehat Sathi, Ekjut and Barefoot College.

Inclusive business models of the corporate sector: Some large private healthcare companies are developing initiatives for rural healthcare as an inclusive business model since the Base of the Pyramid (BoP) is being increasingly seen as a large untapped opportunity, leading to co-creation of business and social value. Examples include Apollo Reach Hospitals as well as Novartis Arogya Parivar rural marketing programme. There is opportunity for the smaller SEs and the value chain partners to collaborate and grow in this direction as well, for example, Sugha Vazhvru's interest in linking up with Apollo Reach.

It is pertinent here to comment in context of the current cacophony about anticipated substantive funds being spent by Clause 135 companies as mandatory corporate social responsibility (CSR) under the new Companies Act. Schedule VII which defines what constitutes CSR includes preventive healthcare. Instead of limiting the implementation partnership to non-governmental organisations (NGOs), the new government might like to be visionary enough and broaden the canvass to social business models. Large companies in the healthcare value chain could partner with many such initiatives and help scale them. NGOs and other civil society organisations (CSOs) could be an integral actor for the last mile outreach.

BOX 7.1 Novartis Arogya Parivar

Novartis launched its Arogya Parivar brand in 2007 as a low-income rural market initiative with the objective of using a social business approach to improve healthcare access for the under-served poor located at the 'bottom-of-the-pyramid'. India was selected as a pilot location. Detailed market research indicated that the target population, people with an income between \$1 and \$5 a day, needed basic primary care products such as antibiotics, painkillers and antacids. It sells over-the-counter (OTC) products, generic medicines from its subsidiary, Sandoz, as well as products from its Pharmaceuticals and Vaccines divisions addressing 12 prevalent disease areas. The products use local language and smaller packet sizes for acute therapy in order to keep OOP costs low. However, merely adapting these products was not enough. Limited health infrastructure and a lack of awareness of health issues proved to be the biggest challenges in reaching consumers. The company thus looked for a scalable solution that would allow it to tackle these challenges on a small and manageable scale. It came up with a decentralised model based on 'cells', which offer integrated solutions to health problems rather than just products. These cells are operational units that address a population size of about 180,000 to 220,000. The cell supervisor visits doctors and pharmacists to explain products and deliver health information, books sales and, if necessary, refers them to micro-finance institutions to obtain loans enabling them to stock essential medicines. A health educator organises community health camps and meetings to address late disease diagnosis and help prevent the loss of livelihoods. The health educator and the supervisor are recruited from the community. They speak the local language and understand local needs, enabling them to gain trust more easily. Starting on a small scale, Novartis developed three single-cell pilots in 2006 and 2007. Drawing on the experience gained in the field as well as feedback from the project's stakeholders, Arogya Parivar became financially sustainable within 3–4 years. Ultimately, the model was expanded to 257 cells serving 42 million people in 31,000 villages across 10 states in India.

Source: Extracted from a case study by Solveig Haupt and Aline Krämer based on interviews with Novartis, in a 2012 GIZ Report—*Bringing Medicines to Low-income Markets: A Guide to Creating Inclusive Business Models for Pharmaceutical Companies*, <https://www.giz.de/Wirtschaft/de/downloads/giz2012-0025en-medicines-low-income-markets.pdf>, accessed on 15 November 2013.

BOX 7.2 Apollo Reach

Apollo, one of India's largest private healthcare groups launched its first low-cost Apollo Reach hospital in Karimnagar, Andhra Pradesh, 162 km away from Hyderabad, in 2008. This hospital serves 16,800 out-patients and in-patients annually, of which about 50 per cent are low-income, according to an International Finance Corporation (IFC) case study*. The study reports that treatments in the Apollo reach model cost 20–30 per cent less than at its other hospitals. These hospitals are smaller, simpler facilities, offering more limited but robust services (including tertiary care). Each hospital has about 120–150 beds, 40 intensive care unit (ICU) beds, and 5 operation theatres (OTs). Apart from traditional ambulance services, they also offer air ambulance services for life-threatening emergencies and for greater accessibility to remote areas. Telemedicine enhances access to quality healthcare and reduces costs. To mitigate the problem of getting good doctors in less-developed locations, Apollo offers a fast-track career to doctors who work for a few years in a reach hospital. Their presence throughout India is an advantage to facilitate this strategy. Cross-subsidisation of low-income patients with higher fees paid by more affluent patients help make the hospitals profitable. The inclusive business model was based on two key factors: increasing demand for specialised care as chronic adult diseases such as cardiovascular illnesses, diabetes and cancer are on the rise; and public health insurance such as RSBY makes it feasible to serve low-income patients. IFC estimated as the initiative expands, about 30 per cent of its patients would be considered 'very poor, earning less than \$ 2 per day'. By end 2013, Apollo had 10 such hospitals in smaller towns in India, and in the next three years, it plans to have 1,300 beds in Tier I cities and 1,100 in Tier II cities reports *The Hindu Business Line*[^]. The group believes that by 2016, nearly 30 per cent of its revenues will come from Tier II cities. Estimating the set-up cost in such centres at Rs 50 lakh, less than half it takes for a larger city, the group has an optimistic view of 'rural healthcare profitability'. Apollo's expansion plans are therefore focusing on this capex-light market.

Sources: *See http://www.ifc.org/wps/wcm/connect/f15cb7004cd69900b934b99ec86113d5/CS_012_Apollo.pdf?MOD=AJPERES, accessed on 18 November 2013.

[^] See <http://www.thehindubusinessline.com/companies/apollo-pins-hopes-on-affordable-healthcare/article5138601.ece>, accessed on 18 November 2013.

CONCLUSION

Innovations discussed in this paper find resonance in both academic and policy discourses. The HLEG Report on UHC for India emphasised on the need for: (i) An ICT-based health information system that can track diseases, expenditure and delivery performance across the country and generate an epidemiological database on disease trends and outcomes; (ii) Bridge training of AYUSH doctors who can then support the provision of primary care along with trained non-physician healthcare providers ranging from community health workers to mid-level health workers such as nurse practitioners. A WHO (2007) Report on the health workforce in India had also suggested that AYUSH practitioners and other informal providers could be trained and used to staff primary care facilities in a 'bolder and more efficient way'. Rao and Mant (2012) reinforce the potential for effective role substitution in primary care. Pointing to the need for effective diagnostic triage (gate-keeping), which requires professional doctors' high-level clinical skills and ability to assess and manage risk, they highlight that new technologies can be tapped to provide clinical support (and governance) for community health workers...

Sustainability of ventures discussed in the previous section is embedded in their model design, which factors in issues such as cost-efficiency, human resource and community engagement. Beyond the delivery model and technology, sustainability depends on what drives these social enterprises: value-based leadership, organisational culture, vision and ability to develop local partnerships and outcomes orientation for social change. Beyond the strength of the model itself and the extent of community response it can generate, longer term success also needs an enabling policy environment.

Financial viability would depend upon their sources of finance and cost recovery. A critical aspect is volume—community demand for the low-priced door-step services. Improving health outcomes among the poorest population, especially in seeking sustained behaviour change for community up-take of preventive and chronic care poses a tough challenge. All the models discussed in this paper include local community awareness and sensitisation. Some of them include free treatment where the individual is too poor and or at very high risk; or when it is under specific grants from a government public health programme or linked with public-funded health microinsurance. In the case of public funding, systemic issues pose a challenge for SE healthcare

providers, such as unrealistically low grant rates or delayed recovery pose financial challenges. These could be addressed with innovative solutions such as revolving advances, interest fee on delayed payments (as for tax refunds) and linking grant rates to inflation rates (as for Dearness Allowance in government salaries).

Most of the models involve health microinsurance (HMI), either community-based or public-funded. HMI is not easy to implement at scale, and needs strong risk management techniques. Community-based health microinsurance (CBHMI), having evolved from the grassroots (led by self-help groups [SHGs], NGOs, private trusts, micro-finance institutions [MFIs]) is designed to suit customer needs and livelihoods, and uses more local information that reduces adverse selection and controls moral hazard. CBHMIs also adapt premium collection, for example leveraging the savings of SHGs or deposits by clients; soft loans to clients for premium payment or recovering premium paid through their own resources with staggered phased payments from clients. They predominantly focus on primary and secondary care (Mukherjee et al. 2012). Most of them, however, have limited standalone outreach and are highly concentrated, mostly in the south, with very few operating across more than one state. Government-run and sponsored HMI programmes such as RSBY have enabled rapid growth in outreach of health insurance and with larger pooling of risk, have reduced adverse selection. But they face the problems of moral hazard and fraud, since they are virtually free for patients and cover high-end care. At the same time, winning trust of target communities continues to be a challenge on ground. In order that intended beneficiaries can make optimal use of RSBY, there is a need for better checks and balances in terms of transparency and accountability in enrolment and in insurers providing full disclosure to them about the scheme. The government has launched pilots for covering out-patient care under RSBY as well. Conceptually, this can improve detection and treatment of disease and decrease the burden of high-cost hospitalisation, thus help sustainability of RSBY. But in reality, that expectation is debatable, given that the extremely fragmented nature of primary care delivery in India is fraught with high chances of corruption and cronyism and poor scope for monitoring. The increasing role of private insurers can bring better risk management into HMI, as they shift from a compliance approach (meeting regulatory targets for rural and social sector) into a sustainable business case approach. A growing SE sector in rural healthcare could play a significant role

both in better HMI product design and in sustainable delivery partnerships. Likewise, the sector could scale faster with growth in the HMI sector.

Scalability of the SE models covered in this paper would depend on community uptake, the range of healthcare needs they address and their ability to form strategic value-chain partnerships; the success of their innovations in service delivery and the resulting improvement in affordability and access to quality healthcare.

Replication: Most of the ventures start and grow in regionally embedded contexts. As long as the model is well-designed and offers a systemic solution, replication would be feasible. A critical factor would be the ability to adapt the model to new environments and communities while retaining the original essence and values. The role of innovators in building capacities elsewhere is critical to this. This could be modular or in entirety. An example of the modular approach is ICTPH's plans to replicate one of its key outreach elements—training local community workers as care providers across Uttarakhand. Aravind has replicated its experience with similar results in more than 200 other eye hospitals. LAICO (Lions Aravind Institute of Community Ophthalmology) manages eye hospitals with Aravind-trained personnel and provides technical support to eye hospitals in West Bengal, Gujarat and Uttar Pradesh.

Some SEs have, over time, built their capacity to directly expand pan-India—for example Narayana Health. Glocal, on the other hand, has a national-level plan from the start. Many others are seeking or building partnerships across geographies. It appears that among the newer enterprises, those with stronger networks and visibility move faster. Thus, expansion could also be a function of who can gain access through which doors than of a strategic plan; networks can be a barrier to entry and growth. Therefore, a nurturing ecosystem is extremely important.

Collective impact: What could be the primary driver for scaling innovations in rural healthcare delivery? Social enterprise models in India clearly have the potential to improve equity and, to an extent, equality in healthcare, but cannot be standalone solutions for systemic change. One way forward would be strategic collaborations for broad-based solutions within the sector and with corporate players who are serious about developing

inclusive business models. Examples of partnerships can be seen in ICTPH's proposed linking with Apollo's higher levels of care, and its ongoing work on technology with Swasth India, even as it intends to collaborate with multiple delivery partners in other regions just as it does with Sugha Vazhvru; Aravind Eye Care's work with IGEHRC in the north and with other ventures elsewhere; and OpASHA's partnership potential for public health issues beyond TB, health insurance and other rural products with government, social and corporate sectors.

With similar visions of driving social change, social innovators in rural healthcare delivery work on a common set of critical challenges. Is there a larger dialogue for more of them to work together? It is possible that once standalone social enterprises start to scale after stabilising their internal models, the need for consolidation might drive more collaboration. A possible contradiction is that with some of them developing proprietorial methodologies, the larger objective of social change might be tough to achieve in the absence of convergence and if intellectual property rights become a hurdle.

The role of the government: Given that healthcare delivery for the rural poor is a public good, scalability would eventually be up to the government. Just as local community up-take is a factor determining sustainable volumes for a programme, proactive up-take by the public sector, the largest existing network for delivery, is a must. But for this to happen at scale, we need motivation and capacity at various levels in government and relevant institutions. According to the Report of the Working Group on NRHM for the Twelfth Plan (Planning Commission 2011b), several states had embarked upon various PPP models, but the proportion of funds spent on PPPs and innovations was not substantial—as of 2009 it was as low as 2 per cent of the flexible pools available. The Working Group also found a need for district- and state-level capacity building for PPPs, pointing to likely gaps in understanding, since most are designed at state level and managed at the district level.

The HLEG Report on UHC for India has discussed several pertinent issues at length. It suggests a wide range of reforms for strengthening public delivery mechanisms and suggests that contracting-in of private providers (including both for-profit and non-profit sectors) is needed to complement government-provided health services. It says, 'The private sector has the

capacity for innovation and invention; it can supplement capital expenditure requirements for developing necessary health infrastructure, provide an element of choice to the customer and ensure that all the service providers have competitive quality benchmarks. However, in our view, the engagement model for leveraging the private sector would have to go well beyond the narrow understanding of the conventional PPP model. We advocate a shift from a primary focus on garnering additional financial resources from the private sector or subsidizing it, to an approach in which there is a well-defined service delivery partnership between government as a purchaser and the private sector as a provider.' (Planning Commission 2011a: 16–17).

The group has also identified several specific and general issues in context of transparency and governance and emphasises the need for careful structuring, managing, monitoring and auditing (including social audits) of these partnerships. Two more of HLEG's recommendations pose an opportunity for strategic partnerships and can strengthen the scalability of these SE models. One relates to a new three-year Bachelor of Rural Health Care (BRHC) degree programme that can produce a cadre of rural healthcare practitioners. The second is about the role of CSOs in community mobilisation, information dissemination, community-based monitoring of health services and capacity

building of community-based organisations and workers. They can enhance popular participation in health governance and oversight, as HLEG says.

While the HLEG cautioned about incentives in the private sector being tilted against preventive and primary care, this chapter has sought to highlight innovative practices by a certain category of private enterprise. It is important to recognise and appreciate that social enterprise models have a DNA distinctive from both, commercial business and conventional philanthropy. With the clear understanding that the driver here is to innovate for sustainable social change, the government should proactively leverage this trend. It is a moot issue just how much time and resources can get used up by social entrepreneurs in seeking public partnerships to scale their work, while it would be in the interest of the nation for governments to examine, identify and work with them. Till such time as a systemic approach for partnering is developed, the government could do well to reduce their transaction costs and facilitate SEs' engagement with relevant central and state entities. This will build a more enabling environment and encourage more social entrepreneurs to share learning from their ventures with policy-makers for evolving a flexible partnership-based system that aligns the needs of rural healthcare with solutions from those responsible for its delivery.

REFERENCES

- ADB (Asian Development Bank). 2012. *India Social Enterprise Landscape Report*, <http://www.adb.org/sites/default/files/pub/2012/india-social-enterprise-landscape-report.pdf>, accessed on 15 November 2013.
- Baru, Rama V. 2013. 'Challenges for Regulating the Private Health Services in India for Achieving Universal Health Care.' *Indian Journal of Public Health* 57 (4), October–December.
- Dalal, K., and S. Dawad. 2009. 'Non-utilization of Public Healthcare Facilities: Examining the Reasons Through a National Study of Women in India'. *Rural Remote Health* 9: 1178: 1–10.
- Datta, Rita. 2010. 'Low on Cost, High on Expansion.' *Express Healthcare*, December.
- Gautham, Meenakshi, Erika Binnendijk, Ruth Koren, and David. M. Dror. 2011. 'First We Go to the Small Doctor': First Contact for Curative Health Care Sought by Rural Communities in Andhra Pradesh & Orissa, India. *Indian Journal of Medical Research* 134: 627-638.
- Hindu, The. 2011. 'Getting for the Poor Their Due in Private Hospitals.' July 31, <http://www.thehindu.com/opinion/Readers-Editor/getting-for-the-poor-their-due-in-private-hospitals/article2311139.ece>, accessed on 15 October 2013.
- Iyengar, Shreekanth, and Ravindra H. Dholakia. 2011. 'Access of the Rural Poor to Primary Healthcare in India.' IIM (Indian Institute of Management), Ahmedabad, <http://www.iimahd.ernet.in/assets/snippets/workingpaperpdf/3937368102011-05-03.pdf>, accessed on 18 November 2013.
- Kothandaraman, Prabakar, and Sunita Mookerjee. 2007. *Healthcare for All: Narayana Hrudayalaya, Bangalore*. UNDP (United Nations Development Programme), http://growinginclusivemarkets.org/media/cases/India_Narayana_2008.pdf, accessed on 18 November 2013.
- Levine, Ruth and The What Works Working Group. 2007. 'Treating Cataracts in India.' *Case Studies in Global Health: Millions Saved*. USA: Jones and Bartlett Publishers.
- Madhavan, N. 2013. 'Aravind Hospitals: A Sight for Sore Eyes.' *Business Today*, 6 January, <http://businesstoday.intoday.in/story/madurai-based-aravind-eye-hospitals/1/190804.html>, accessed on 15 November 2013.

- Mahal, Ajay, Karuna Krishnaswamy, Rupalee Ruchismita, and D. Girish Babu. 2013. 'What is a Health Card Worth? An Evaluation of an Outpatient Health Insurance Product in Rural India', <http://www.microinsurancefacility.org/sites/default/files/repaper30.pdf>, accessed on 18 November 2013.
- Martin, Roger L., and Sally Osberg. 2007. 'Social Entrepreneurship: The Case for Definition'. *Stanford Social Innovation Review*, Spring.
- Mukherjee, Premasis, Rosalind Piggot, and Sunil Bhat. 2012. *Securing the Silent Microinsurance in India—The Story So Far*. MicroSave, http://www.microsave.net/files/pdf/MI_report_web_version_pdf.pdf, accessed on 15 February 2014.
- Mukherji, Sourav. 2011. *Vaatsalya Hospitals: Inclusiveness through Proximity*. UNDP (United Nations Development Programme), http://www.growinginclusivemarkets.org/media/cases/India_Vaatsalya_2011.pdf, accessed on 18 November 2013
- Planning Commission. 2013. *Twelfth Five Year Plan 2012–17*. New Delhi: Planning Commission.
- . 2012. *Report of the Steering Committee on Health for the Twelfth Five Year Plan*. Delhi: Planning Commission.
- . 2011a. *High Level Expert Group Report on Universal Health Coverage for India*. New Delhi: Planning Commission.
- . 2011b. *Report of the Working Group on National Rural Health Mission (NRHM) for the Twelfth Five Year Plan (2012–2017)*. New Delhi: Planning Commission.
- Rao, Mala, and David Mant. 2012. 'Strengthening Primary Healthcare in India: White Paper on Opportunities for Partnership'. *BMJ*, 344:e3151, <http://www.bmj.com/content/344/bmj.e3151>, accessed on 12 November 2013.
- Research Paper No. 30, CIRM Design and Research Labs, Micro Insurance Innovation Facility, ILO, Geneva, <http://www.microinsurancefacility.org/sites/default/files/repaper30.pdf>, accessed on 15 April 2014.
- Shreekant, Iyengar, and Ravindra H. Dholakia. 2011. 'Access of the Rural Poor to Primary Healthcare in India'. W.P. No. 2011-05-03. Ahmedabad: Indian Institute of Management.
- WHO (World Health Organisation). 2007. *Not Enough Here... Too Many There... Health Workforce in India*. New Delhi: WHO
- WHO (World Health Organisation). 2013. *World Health Statistics*. Geneva: WHO.

FURTHER READINGS

- Aavishkar 2013. *Aavishkar Impact Report 2013*, <http://www.aavishkaar.in/wp-content/uploads/2013/10/Aavishkaar-Impact-Report-2013.pdf>, accessed on 15 February 2014.
- Advancing Healthcare with the Base of the Pyramid, Special series by NextBillion.net, February 21–4 March 2011.
- CHMI (Centre for Health Market Innovations), <http://healthmarketinnovations.org/programs>, accessed on 15 February 2014.
- Dimovska, Donika, Stephanie Sealy, Sofi Bergkvist, and Hanna Pernefeldt. 2009. *Innovative Pro-Poor Healthcare Financing and Delivery Models*. Washington, DC: Results for Development Institute.
- GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit). 2012. *Enablers for change—A Market Landscape of the Indian Social Enterprise Ecosystem*, <http://www.giz.de/en/downloads/giz2012-enablers-for-change-india-en.pdf>, accessed on 18 November 2013.
- Next Billion 2011. 'Advancing healthcare with the Base of the Pyramid'. A Special Series by Next Billion. February 21–March 4, <http://www.nextbillion.net/subblog.aspx?sbid=13>, accessed on 18 November 2013.
- World Bank 2011. 'Health System Innovation in India'. *The World Bank Blog: Let's Talk Development*, <http://blogs.worldbank.org/developmenttalk/>, accessed on 15 November 2013.

8

LEVERAGING THE UNTAPPED POTENTIAL OF NON-STATE PLAYERS FOR UNIVERSAL HEALTH COVERAGE

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In India, especially for the economically poor and vulnerable section of the population, the state provides the major portion of affordable healthcare. However, the contribution of some of the non-state players (NSPs) in providing substantial healthcare especially in the hard-to-reach and underdeveloped districts of our country often goes unrecognised. This chapter is an attempt to articulate the crucial and significant role played by the NSPs, especially the largest faith-based healthcare network in the country, the Christian healthcare networks. Faith-based healthcare networks have an untapped potential, which can be leveraged by the state governments to provide affordable, equitable and quality healthcare, more so to the vulnerable section of the population, and make Universal Health Coverage (UHC) a reality. This untapped potential can be observed by the presence of the Christian healthcare network members in the priority districts¹ of the country, wherein in the 331 priority districts the Christian

network members have 653 institutions and 18,379 in-patient beds (see Table 8.1). These institutions provide low cost high quality medical services which provide curative as well as preventive and promotion of good health practices.

THE HEALTH SYSTEM IN INDIA

A health system is the sum total of the organisations, institutions and resources which works towards achieving the primary goal of improving the health of the population. The health system in India is a mixed system with multiple and varied players at every level of healthcare—primary, secondary and tertiary. Conventionally, the health system has been categorised into government (public) and private. The private sector can be further classified into not-for-profit charitable organisations, corporate hospitals, and smaller private clinics (Birla and Taneja 2010). The diversity and the large variation

¹ 'Priority districts' are those which have been included in one or more of the lists below:

- Ministry of Health and Family Welfare (MoHFW), Government of India 2005. *Report of the National Commission on Macroeconomics and Health*.
- Sarma Committee: List of 100 most backward districts of India prepared in 1997 by a Committee of the Government of India's Ministry of Rural Areas and Employment. The Committee was headed by E. A. S. Sarma, then Principal Advisor to the Planning Commission.
- National Health System Resource Centre (NHRC)—accelerating maternal and child survival; the high focus districts' approach.
- Planning Commission of India (MLP Division) Backward Districts Initiative—Rashtriya Sam Vikas Yojana—The Scheme and Guidelines for Preparation of District Plans.
- Planning Commission of India, 2008. *Expert Group Report on Development Challenges in Extremist Affected Areas*.
- Planning Commission, Integrated Action Plan (IAP) for 60 Selected Tribal and Backward Districts 2010–11.

TABLE 8.1 Institutions and In-patient Beds Available under Christian Health Networks in Priority Districts

State	Number of priority districts	Number of institutions	Number of in-patient beds
Andhra Pradesh	13	66	2,488
Arunachal Pradesh	3	2	0
Assam	15	31	442
Bihar	37	42	1,383
Chhattisgarh	20	72	1,807
Gujarat	7	1	2
Haryana	3	0	0
Himachal Pradesh	5	1	7
Jharkhand	22	89	2,077
Jammu & Kashmir	10	0	0
Karnataka	8	25	743
Kerala	2	27	1,013
Madhya Pradesh	32	51	1,274
Maharashtra	17	31	1,419
Manipur	4	6	65
Meghalaya	5	11	383
Mizoram	1	1	100
Nagaland	1	0	0
Odisha	22	48	1,050
Pondicherry	0	0	0
Punjab	5	4	190
Rajasthan	21	11	77
Sikkim	2	0	0
Tripura	2	3	16
Tamil Nadu	5	46	1,278
Uttar Pradesh	52	53	2,151
Uttarakhand	6	2	30
West Bengal	11	28	384
Total	331	653	18,379

in geography, socio-economic levels, ethnicity and culture add further complexity to the health system of India.

Government Healthcare System (Public Sector/State)

The public sector in India provides basic healthcare services through a three-tier system of primary, secondary and tertiary health services. Such services are delivered via a network of primary health sub-centres,

primary health centres (PHCs), community health centres (CHCs), and tertiary care hospitals like district hospitals and government medical colleges.

Non-state Healthcare Players

The private sector can be further divided into for-profit organisations like corporate hospitals, other private hospitals and the not-for-profit organisations like faith-based healthcare networks and other charitable trusts and societies.

At present, the channels of communication and platforms for discussion among the various key players in healthcare are not that well defined. In our opinion, this has resulted in duplication and wastage of limited resources, subtle competition and has resulted in major gaps in health infrastructure, health expenditure and human resources, especially for the economically poor and the vulnerable section of the population.

DEFINING THE ROLE OF THE NON-STATE PLAYERS

In order to address the healthcare needs of the general public and to achieve the Millennium Developmental Goals (MDGs), the NSPs are also being called upon by the government to contribute through an effectively regulated and managed Public-Private Partnership (PPP). Involving faith-based hospitals and healthcare networks in PPP is crucial for achieving the above-mentioned goal; in many hard-to-reach and backward areas, these faith-based hospitals and nurse-run clinics may be providing the most basic and at times the only of healthcare to the vulnerable section of the population. Given the extent of the present involvement of the NSPs in healthcare, state policies must continue to focus on leveraging this through newer and innovative mechanisms (McPake and Mills 2008, Brugha and Zwi 1998, Mills et al. 2002).

Faith-based healthcare networks can bring innovations to universal healthcare by reducing the cost of care without diminishing efficiency and quality, and also by disease prevention and health promotion. Some areas where faith-based healthcare networks can make a major difference to is home-based care, palliative care, and task-shifting coupled with skill-building to address glaring human resource gaps. Through appropriate PPP policies, the priorities and agendas of the state as well as the faith-based

healthcare networks can be aligned as per the national health goals of the country and bring about significant changes in the healthcare system which will benefit many more citizens.

CONTRIBUTION OF THE CHRISTIAN HEALTHCARE NETWORKS

Origin

In 1513, the Portuguese missionaries set up the 'Holy Houses of Mercy' in Kochi and Goa. Subsequently, the 'House of Mercy' in Kochi was developed into the first mission hospital in the country in 1527. Historically, the Christian Mission hospitals have made significant contribution to the development of modern medicine in India. In 1920, these Christian institutions ran nearly half the hospitals in the country (Johnson et al. 2000) and were largely focused on providing care to women in the rural areas. They piloted many of the national programmes in tuberculosis (TB), leprosy, blindness control and several infectious diseases besides pioneering healthcare innovations in the areas of mental health, substance abuse rehabilitation, HIV/AIDS, and palliative care.

Medical Education and Research

Christian healthcare institutions pioneered medical education in India, especially in the fields of nursing and allied healthcare. The first medical college for women was started in Ludhiana in Punjab in 1894. As specialties developed, these institutions pioneered postgraduate training in a number of fields of medicine and surgery. These institutions have pioneered and developed many innovations and reforms in medical education too. Important research was also carried out through these institutions, especially in many neglected fields like mental health, rehabilitation medicine and so on. Nursing education was pioneered by mission hospitals and the first hospital to train nurses in 1867 was St. Stephen's Hospital in Delhi (Krishnan 2009).

The Christian missionary nurses started nursing education in India in the late 1800s. From this

initiative emerged the Board of Nursing Education, South India Branch (BNESIB) and Mid-India Branch of Education (MIBE) of today, the Trained Nurses Association of India (TNAI), the Indian Nursing Council (INC), and the State Nursing Councils. This year, the centenary celebrations are on for the BNESIB. Many nursing schools were started by the Christian healthcare networks even before the INC, the recognising body of nursing education in the country, was formed. The Christian schools of nursing have tried to maintain and prepare guidelines and standards for in-patient care and nursing education, against many odds. As of now, these training colleges and schools account for nearly 30 per cent of quality nurses passing out every year.

Institution-based Healthcare

At this point of time, the Christian healthcare networks are managing over 3,731 healthcare facilities in India and approximately 80,895² beds, ranging from sub-centres/ PHCs to secondary and tertiary hospitals. Out of these facilities, about 80 per cent of them are in remote and hard-to-reach areas. These healthcare networks reach out to what have been designated as 'priority districts', through 653³ secondary and tertiary care hospitals with a total of 18,379 in-patient beds, thereby providing healthcare, especially to people who are the poor and vulnerable in the country. As per a rough estimate, Christian medical establishments and institutions provide about 10 per cent of the hospital beds provided in India. Thus, given the very small percentage of Christians in the country, their contribution towards health infrastructure in the country is immense.

Public Health Programmes

The healthcare facilities of the Christian healthcare networks are involved in the management of communicable diseases such as TB, malaria, polio, leprosy, Kala-Azar, HIV/AIDS, mother and child care, immunisation and so on. They are also involved in non-communicable diseases (NCDs) like diabetes, hypertension, mental disorders, and blindness control. The timely interventions, offered by these institutions to children below the age of 5 for respiratory infections and

² Information from database of Catholic Health Association of India (CHAI) and Christian Medical Association of India (CMAI).

³ See Table 8.1 for the number of institutions and in-patient beds available under Christian health networks in the priority districts of India.

diarrhoea helps save a lot of precious lives. The same is true regarding emergency obstetric care, where the lives of many young mothers are being saved. In addition, Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homeopathy (AYUSH) treatment is made available in many institutions. This alternative medical system offers affordable treatment that is of native origin. Many of these institutions also train and work with local community volunteers and local health volunteers in order to reach out to the community around these health facilities. Some of these institutions collaborate formally with the national health programmes of the government to address the above-mentioned diseases. But, many of them are financially supported through affordable user fees, supplemented by private funding that are not very sustainable in the long run (Silent Waves 2012). These untapped potential can be leveraged through PPPs.

Community Development

It is a well-accepted fact that community development contributes much towards the development of a healthy society. The Christian networks are involved also in community development by motivating communities regarding education, agriculture, animal husbandry, and socio-economic empowerment of people, especially women. These interventions help to meet the basic needs of the vulnerable population for achieving a dignified life. This is being implemented through the various non-governmental organisations (NGOs) of the Christian networks. A vast number of the beneficiaries of these programmes are Scheduled Castes (SCs) and Scheduled Tribes (STs). More women benefit and work in these NGOs both as employees and volunteers. A number of self-help groups (SHGs) are formed and are being managed all over the country through these Christian NGOs, with special focus on women.

CHALLENGES TOWARDS UNIVERSAL HEALTH COVERAGE

UHC is an initiative proposed to ensure that every citizen of India is entitled to a range of essential health services defined by a national health package (NHP) which includes primary, secondary and tertiary care services, and which covers all common medical conditions and also high impact health interventions.

The High Level Expert Group (HLEG) Report on UHC (Planning Commission 2011) envisages that the expansion of the health systems will happen gradually over the next decade, but it discounts some of the major challenges and constraints. Thus, while it recommends goals and broad strategies that the Planning Commission must consider, there is still ambiguity on how these will be achieved. In our opinion, some of the bottlenecks towards universal health coverage are as follows:

Health Infrastructure

The report of the Steering Committee on Health for the Twelfth Five Year Plan alludes to this challenge when it reports that the beds in the government hospitals in rural areas is fifteen times lower than in the urban areas. Again, in an analysis of the current situation, the report points out that while only 49 per cent of the current beds are in the private sector, 60 per cent of all in-patients care and 78 per cent of the out-patient care is provided by the private sector. Further exploration reveals the disparities beyond just beds look at specific services like surgical services, including the capability of doing Caesarean section, emergency medical care (EMC), diagnostic services and other medical therapies and the present gaps appear significant. Two case studies shown in Boxes 8.1 and 8.2 highlight this. As a result, at present a significant proportion of the healthcare service delivery is being provided by the private sector.

BOX 8.1 Christian Hospital, Bissamcuttack, Odisha

The Rayagada district of Odisha, with a population of about 900,000, is one of the most backward parts of the Kalahandi, Balangir, Koraput (KBK) region. The Christian Hospital, Bissamcuttack (CHB), situated 50 km from the district headquarters, is the single biggest hospital in the district. A significant proportion of the healthcare in the district, especially those services requiring surgical facilities, are taken care of in this 58-year-old 200-bedded hospital, which also has a School of Nursing and Community Health Programme attached to it. It is estimated that CHB accounts for approximately 10 per cent of the 20,000 deliveries, about 14 per cent of the 14,000 institutional deliveries, about 70 per cent of the C-sections, and about 80 per cent of the surgical operations done, in this district. Thus, in a region which has been identified as 'priority districts' on several indicators due to its inadequate healthcare infrastructure and personnel, CHB plays a crucial role.

BOX 8.2 The Duncan Hospital, Raxaul, Purbi Champaran, Bihar

Purbi Champaran is one of the backward districts of the state of Bihar that borders Nepal. The district has some major gaps in its health infrastructure with shortages in the number of sub-centres, PHCs and additional PHCs. There is no CHCs currently in this district. The Duncan Hospital of the Emmanuel Hospital Association located in the border town of Raxaul is a 200-bedded secondary care hospital and is the largest in the district. Started in 1930, it has been serving the people of the district for the past 82 years. The Duncan Hospital contributes significantly to the healthcare delivery of the district. It conducted 5,952 institutional deliveries in 2011–12, which is about 16 per cent of the total institutional deliveries (37,218) in the district. Twenty-six per cent of the 66,253 hospitalisations in the district, during the year 2011 were at Duncan Hospital. The hospital provides a wide variety of services, which includes surgical care, critical and emergency care, diabetic services, HIV treatment, rehabilitation services, and ophthalmology. It is the only centre equipped in the region to handle complications and provide intensive care.

Human Resources

The HLEG observes that as of 2010, there should be more than 300,000 doctors in India. It acknowledges that another 60 per cent positions for doctors, 72 per cent for nursing staff, 71 per cent for lab-technicians, and 68 per cent for radiographers need to be created. The Steering Committee Report (Planning Commission 2012) also points out that 80 per cent of the doctors, especially medical specialists today are employed in the private sector. The urban density of doctors is four times than that in the rural areas. Currently, while there are 28,984 qualified medical doctors in the rural areas, 6,493 of the positions at the PHC level are vacant (as of March 2012) (MoHFW 2013). Moreover, given the mal-distribution of human resources among the states and further the variation between districts suggests that the posts in certain districts will have to be doubled. Even in the present budgeted positions there are major vacancies. As of March 2012 (*ibid.*), 4,325 specialists' posts are vacant at the CHC level, 1,052 physicians' posts, 1,180 of radiographers' posts, 3,791 lab technicians' posts, remain vacant. If data was further disaggregated at the district level, the gravity of the present vacancy would be better understood.

Thus, even with the proposed strategies it is evident that to reach universal coverage it is important to utilise all available players in the field of healthcare. Also, in order to achieve the necessary skill mix and to expand the depth of services, large-scale training and re-training of human resources in healthcare becomes an imperative. Currently, the capacity of the public health system to undertake such extensive training of reasonable quality is also questionable.

The Christian healthcare networks have been strongly supporting the central government's initiative to start a BSc course in community health to cover the

shortfall of health practitioners in rural India. A recent editorial in a newspaper has also articulated the need for such a course. This course, if initiated, would provide the much-needed trained medical personnel to cover the rural and priority districts of the country.

ROLE OF NON-STATE PLAYERS IN UNIVERSAL HEALTH COVERAGE

Earlier in this chapter we have highlighted that even today there are considerable resources among NSPs, especially the faith-based healthcare networks, when it comes to healthcare delivery, medical education, health worker training, research, and also healthcare outreach or the delivery of comprehensive primary healthcare. Given the huge gaps in health infrastructure and human resources, especially in rural India, it is critical to leverage the potential of the faith-based and other non-state healthcare networks in order to achieve UHC in India. It is important to have further discussion on the modalities of how this can be best done without stifling the growth of the public sector, or the need for suitable regulation among the private sector.

The private not-for-profit sector has always been innovating in order to achieve its social goals inspite of the resources constraints. Many of these innovations and good practices could be mainstreamed into the health system in order to increase efficiency and maximise utilisation of existing resources. In order to clarify this point, we have listed a few areas. There are many more areas that need to be explored, studied and documented.

'Shared Care'

Some of the Departments of Tertiary Hospitals, especially those associated with chronic care or long duration therapy are partnering with smaller health

centres in rural areas. For example, the Departments of Paediatric Oncology and Medical Oncology at the Christian Medical College (CMC), Vellore, are working closely with smaller hospitals in the rural areas in treating cancer patients. The medical personnel at these smaller rural centres are trained to do the follow-up, provide chemotherapy, and support the patients. Similar models of 'shared care' can be developed for a number of chronic disease conditions requiring prolonged treatment. This would make tertiary care accessible to people in remote areas and will not require them to travel out frequently or stay away from their homes to receive treatment. This would reduce the overall cost of care and the need to develop high investment, high technology hospital centres in the rural areas, while still expanding the coverage to tertiary care.

Home-based Care

The Steering Committee on Health for the Twelfth Five Year Plan emphasises the need for a continuum of care. Some of the HIV/AIDS projects and also more recently palliative care initiatives have linked home-based care with critical care centres. Thus, while much of the treatment and care is provided largely through home care delivered by para-medical staff, these are linked to health centres that provide hospitalised care during a medical crisis. The result is that patients do not unnecessarily occupy hospital beds for long duration, but only when there is a dire need. This again reduces the pressure on hospital beds. Similar models of care could be developed for many of the NCDs.

'Task-Shifting'

The World Health Organisation (WHO) now recognises 'task-shifting' as a mechanism to address the significant human resource gaps in many countries. While the need for more medical doctors in the rural areas right from the PHCs to the district hospitals cannot be denied, the fact remains that even if the number of medical graduates were doubled in the next 10 years, we cannot be sure that it would be adequate to meet the requirements for UHC. Many Christian Mission hospitals have attempted to overcome these shortages by developing alternate cadre of staff to carry out specific tasks. There are growing evidences from across the world that this is an effective strategy. Many lives especially that of women and children are being saved because of 'task-shifting'. A few examples from India are given below.

Medical Officers Delivering Emergency Obstetric Care, Including C-section

Due to non-availability of specialists, especially obstetricians, many mission hospitals train non-specialist physicians (MBBS) as well as generalists (MD, family medicine or MD, community medicine) to deliver emergency obstetric services and even conduct Caesarean section. One of the major constraints to reducing maternal mortality is the inability to provide C-sections in many rural areas. There are many district hospitals and CHCs which do not meet the Indian Public Health Service norms as they lack specialists like Obstetrician or Anaesthetists. Developing a certified training programme for this Basic Emergency Obstetric Care (BEmOC) and Comprehensive Emergency Obstetric Care (CEmOC) could easily be developed for even NSPs in order to regulate this and ensure quality of services.

Nurse Anaesthetists

General nurses are selected and trained for 6–9 months to provide anaesthesia—largely regional or spinal anaesthesia, but also general anaesthesia. Anaesthetist or a specialist doctor, usually a surgeon, monitors their functioning.

Nurse Practitioners

Nurses with upgradation training have been involved both as primary healthcare providers as well as for specific areas such as midwifery or Reproductive and Child Health (RCH) services. The Catholic Health Association of India or CHAI (one of the Christian healthcare networks) has successfully demonstrated that through a network of nurse practitioners in Andhra Pradesh they were able to deliver HIV/AIDS care effectively. The Emmanuel Hospital Association or EHA (another Christian healthcare network) has also been training nurse practitioners in RCH to provide various services, which includes Sexually Transmitted Infections (STIs) care, maternal health services, and family planning.

Tele-medicine for Primary Healthcare and Health Promotion

With a view to support the sister nurses who reach out to the patients in the far-flung, remote and medically underserved areas, CHAI has taken up a tele-medicine project since April 2012. This pilot project is spread across seven states (Bihar, Jharkhand, Odisha, Andhra Pradesh, West Bengal, Maharashtra

and Tamil Nadu) and is implemented through 53 member institutions of CHAI. Sixty sister-nurses were trained in applying technology using laptop, two-way video, email, phones and wireless tools, to exchange patients' clinical health status and e-link them from health centres to expert doctors, located at the CHAI central office in Secunderabad, who provide offsite consultation. So far, around 93,600 people from the economically vulnerable sections of the population have benefited from this programme. This project facilitated an increase in the number of patients visiting these health centres. It helped the target households to improve savings by reducing out-of-pocket (OOP) medical expenditure, while also contributing towards reducing morbidity, especially of maternal and child-related illness.

Recently it was reported in one of the newspapers that the 'Common Services Scheme' of the central government signed a tele-medicine agreement with Apollo Hospital's Rural Connect Programme. The government could also utilise the pan-India presence, the reach, and the years of experience of the faith-based healthcare networks, in order to reach the unreached through tele-medicine.

CHALLENGES FACED BY NON-STATE PLAYERS

As demonstrated above, non-state faith-based healthcare institutions provide substantial health coverage to the hard-to-reach areas of this country. However, with new regulations like the Clinical Establishments Act, 2010 and amendments to the Drugs and Cosmetics Act, 1940 have rendered their services at risk. For example, the amendment to the Drugs and Cosmetics Act has rendered unbanked direct blood transfusions (UDBT) illegal. Now blood transfusions can only be done with blood that has been procured from registered blood banks. Incidentally, for some of the hospitals and clinics owned by the faith-based healthcare providers, the closest blood bank facility is located about 150 km away. This makes it impossible for doctors in these hospitals to perform life-saving procedures. A majority of these cases are related to childbirth, maternal complications, sickle cell anaemia, and road accidents. Efforts to amend the Act have come to a naught. The emphasis at present is on blood safety and the issue of access to blood especially to the resource poor people in the hard-to-reach areas is secondary.

Emerging Health Regulatory Framework

The importance and need for a common regulatory framework as outlined in the Clinical Establishments Act of 2010 cannot be disputed, given the diversity in the types of clinical establishments and the large variation in standards, in our country. However, the Clinical Establishments Act and Rules as developed by the different states, the establishment of minimum standards, and the overall regulatory framework, which includes the categorisation of clinical establishments, have not taken cognisance of the complexity of the health system, especially in some of the backward districts of rural India. Currently, a number of small to medium healthcare institutions (operated by NSPs) provide much of the services in these districts. However, if the minimum standards are unrealistic, it will challenge the existence of these institutions which are mitigating morbidity and mortality, especially among the economically vulnerable population. It would be beneficial if prior to the establishment of the standards, the present available infrastructure is mapped, and the implications of the regulation be studied. Unfortunately, the categories of institutions are not inclusive and some of the draft standards especially in terms of human resources would make it difficult for these institutions to continue their services. It is unfortunate that even though the NSPs are a significant group in the health system, their role in the formulation of policy or even their inclusion in key fora and consultations is very limited.

Public-Private Partnership (PPP)

Both the HLEG Report and the Steering Committee on Health for the Twelfth Five Year Plan recommend leveraging NSPs in the universal health schemes in a PPP framework. The Steering Committee recommends 'Viability Gap Funding' in infrastructure development. Often the small NSPs and sub-district-level institutions with limited operations keep away from PPPs as they find the contracting process cumbersome.

Government Schemes

Various government schemes like the Rashtriya Swasthya Bima Yojana (RSBY), Janani Suraksha Yojana (JSY), and the Central Government Health Scheme (CGHS) that have been rolled out with NSPs in order to tap their potential are very good initiatives towards UHC. However, there are several challenges like

complicated contracting process, delayed payments, lack of transparency regarding the categorisation of facilities and so on. Moreover, the mechanisms for grievance redressal also are a huge challenge.

Human Resources

Many of the NSPs that currently run healthcare institutions are not immune to shortages in personnel, especially specialist doctors and well-qualified nurses or allied health staff. In order to keep the costs of care low, many of these hospitals currently pay relatively low salaries and so face challenges in recruiting medical personnel to work in remote rural settings. So far, these institutions have survived by 'multi-tasking' and 'task-shifting' measures. Many of these institutions have tried to provide additional benefits and perks like providing financial support for children's education, sponsoring staff children for professional courses, leave travel allowance, etc. to attract and retain staff.

Infrastructure

Over nearly a century, Christian healthcare networks have made huge investments in buildings, furniture and medical equipment all across the country. These were usually financed through donations and external grants and do not feature when the contributions of the NSPs to the total health expenditure is estimated. Unfortunately, many of these institutions are not in a position to make major renovations and constructions or invest in high-end medical technology. It is unlikely that the required investments necessary to expand the present infrastructure or even remodelling of institutions to meet prescribed standards will be met from the revenues and so the viability gap funding from the government becomes important.

CONCLUSION

A healthy population would be an important factor in ensuring sustainable economic development in the country. This chapter has outlined some of the contributions of the Christian healthcare networks. It also seeks to chronicle some of the major challenges that NSPs face due to present health policy environment and the way the health system is currently structured.

At present, it appears that many of the present policies are substantially influenced by the corporate-private-for-profit sector, which may not be that keen to

expand healthcare to a vast majority of the economically poor and the vulnerable section of the population. Some of the policy directives and interventions by the courts in the recent years though well-intended unfortunately appear to be partially informed about the real challenges faced at the grassroots level due to the harsh realities of healthcare provision in the remote areas. For example, in the case of *Common Causes vs Union of India and Ors. Writ Petition (civil) 91 of 1992*, the Supreme Court in its judgment directed the government to modernise the blood banking system by implementing an immediate plan, a short- and a long-term plan for their regulation. These measures could well be implemented in the urban areas. However, in the hard-to-reach areas, these measures would take a number of years before the prescribed standards could be achieved. The government, in order to comply with the Supreme Court's directive, amended the Drugs and Cosmetics Act, 1942, which has effectively made the practise of UDBT illegal. This practise was used extensively in the hard-to-reach areas in the country where a number of faith-based hospitals have been operating, some for over 50 years. With blood being available legally only in licensed blood banks, family members of the patients have to now travel at times anything between 50 and 150 km to the closest licensed blood bank. It can take two to five hours travel to get blood from a licenced blood bank to the patient in the hard-to-reach areas. This has raised the price of blood for the resource poor people in these areas. Apart from this, there are times when the storage and transportation of the blood from the licensed blood banks may not be properly handled, thereby rendering the blood unusable for the patient who needs it, eventually leading to the death of the patient. Further, the area of health policy development, especially the regulation of the private sector, many a times, rather than strengthening the health system unfortunately end up as barriers and challenges in the provision of healthcare.

In order to bring together the experience, knowledge, capacity and expertise of providing healthcare to the poor and the marginalised, the three significant and well-known Christian health networks (CHAI, CMAI and EHA) and two renowned medical colleges (CMC, Vellore and Ludhiana) have decided to set up the Christian Coalition for Health (CCH). One of the main objectives of CCH is to engage with policy-makers, government, media and other civil society organisations so as to inform, advocate and implement, just and equitable healthcare initiatives in order to

fulfil its mandate of 'Health for All'. Some of the recommendations of the CCH are as follows:

1. The contribution of the NSPs, especially the faith-based healthcare networks, in providing substantial healthcare in the hard-to-reach and underdeveloped districts of our country needs to be recognised.
2. The untapped potential of the faith-based healthcare networks, in the field of healthcare delivery, medical education, health worker training, research and also healthcare outreach or the delivery of comprehensive primary healthcare, need to be leveraged to provide affordable, equitable and quality healthcare, especially to the vulnerable section of the population of the country, in order to make the achievement of UHC a reality in India. It is important to have further discussion on the modalities of how this can be best done without stifling the growth of the public sector, or the need for suitable regulation among the private sector.
3. Channels of communication and platforms for discussion among the various key players in healthcare need to be clearly defined so that duplication and wastage of limited resources, subtle competition and major gaps in health infrastructure, health expenditure and human resources can be dealt with.
4. Innovations and good practices of the NSPs like 'shared care', home-based care, 'task-shifting' (C-section by medical officers, nurse anaesthetists, nurse practitioners, etc.) could be mainstreamed into the health system in order to increase efficiency and maximise utilisation of limited resources. There are many more areas that need to be explored, studied, documented and mainstreamed.
5. The development of Clinical Establishments Act, Rules, the establishment of minimum standards and the overall regulatory framework, which includes the categorisation of clinical establishments, by different states need to take cognisance of the complexity of the health system, especially in some of the backward
- districts in rural India. Prior to the establishment of standards, the present available infrastructure need to be mapped and the implications of the regulation need to be studied.
6. Since the Christian healthcare networks are a significant group in the health system, their representatives need to be included in the various committees, fora and consultations, for the formulation, implementation and monitoring of the health-related policies.
7. The untapped potential of the faith-based healthcare networks should be leveraged for the universal health schemes, through PPPs involving proper Memoranda of Understandings (MoUs) and less cumbersome contracting processes. There needs to be some kind of uniformity in the contracting mechanisms and the partnership arrangements among the states.
8. Viability gap funding from the government for the NSPs is much needed, especially for infrastructure maintenance, medical equipment, technological support like tele-medicine, Health Management Information Systems (HIMS), and retaining quality human resources.
9. The central government's initiative to start a BSc course in community health to cover the shortfall of health practitioners in rural India needs to be supported and promoted.

In conclusion, it is fair to state that the NSPs have contributed immensely to healthcare in India. The government should involve the NSPs to provide healthcare to a vast majority of people who are economically poor and are hard to reach by engaging with them at the policy-making level as well as in the pilot-testing and implementation stages of various schemes and projects. The unleashed potential of such NSPs and faith-based healthcare networks to work in a fair and equitable partnership with the government would provide the much-needed impetus to make UHC in India a reality.

REFERENCES

- Birla, B., and U. Taneja. 2010. 'Public Private Partnerships for Healthcare Delivery in India.' *The Internet Journal of World Health and Societal Politics* 7 (1), DOI: 10.5580/18c1.
- Brugha R., and A. Zwi. 1998. 'Improving the Quality of Privately Provided Public Healthcare in Low and Middle Income Countries: Challenges and Strategies.' *Health Policy and Planning* 13 (2): 107–20.
- Johnson, Gordon, John F. Richards, C. A. Bayly, and Paul R. Brass. 2000. *The New Cambridge History of India*, vols 3–5. Cambridge: Cambridge University Press, p. 88.
- Krishnan, Ashwathy. 2009. 'Presentation on Scibd, Bombay Hospital School of Nursing' <http://www.scribd.com/doc/17656067/History-of-Development-of-Nursing-Profession-in-India>, accessed on 29 September 2013.

- McPake, Barbara, and Anne Mills. 2008. 'What Can We Learn from International Comparisons of Health Systems and Health System Reform?' *Bull World Health Organ* [online] 78 (6): 811–20. ISSN 0042-9686, <http://dx.doi.org/10.1590/S0042-96862000000600013>.
- MoHFW (Ministry of Health and Family Welfare). 2013. *Rural Health Statistics in India 2012*. Delhi: MoHFW, Government of India.
- Mills, Anne, Ruairi Brugha, Kara Hanson, and Barbara McPake. 2002. 'Making Services Work for the Poor'. *World Development Report* (WDR) 2003/04. Workshop held at Eynsham Hall, Oxfordshire, 4–5 November.
- Planning Commission. 2012. *Report of the Steering Committee on Health for the 12th Five Year Plan*. New Delhi: Planning Commission.
- . 2011. *High Level Expert Group Report on Universal Health Coverage in India*. New Delhi: Planning Commission.
- Silent Waves. 2012. 'Contribution of the Catholic Church to Nation-building', John Chathanatt and Jaya Peter (eds), pp. 137–63. Bangalore: Claretian Publications.

9

COMMUNITY PARTICIPATION IN HEALTHCARE MANAGEMENT IN INDIA: NEED AND POTENTIALS

Abhijit Das

In September 2011, the entire public health system in Maharashtra came to a near standstill when over 3,000 junior doctors went on a strike complaining of lack of security. The immediate cause of their strike was the assault on a junior doctor by a patient's family in Sion Hospital in Mumbai. A 10-month-old girl died after being admitted with respiratory tract infection. Enraged at her death, her family and their friends assaulted the junior doctor and it was followed by a strike which paralysed the entire public health system of the state. This is not a rare instance and represents a sharp confrontation between the community and the hospital. Contrast this with the way the private hospitals cultivate a relationship with the community who they expect will use their services. Large corporate hospitals not only engage with the community through a variety of health awareness campaigns,¹ but have well-developed social media strategies² to develop relationships with the patient. However, the need for community involvement in healthcare management extends beyond the need to develop better client-hospital relations. This chapter will explore different dimensions of community participation in healthcare and review the existing situation in India, and end with some recommendations which are now part of the policy discussions towards a universalised approach to healthcare.

People are at the very heart of healthcare but often only as patients. Healthcare is increasingly becoming a technology-driven field. Investigations, antibiotics, vaccines which are some of the mainstays of modern medicine are of relatively recent origin. Though Edward Jenner had identified the cowpox vaccine in the late eighteenth century and a 100 years later Louis Pasteur talked about the germ theory of disease and Rudolf Virchow discussed the pathology of diseases, it was only around the time of the Second World War (1939–45) that modern medicine as we know today took shape. Surgery had been practised since time immemorial, but with anaesthetics and more importantly antibiotics and blood transfusion, which had been made safer by Landsteiner's discovery of blood groups, was it finally safe. Today, medicine is nearly synonymous with technology with many streams of modern science coming together to fight disease and prolong life. However, this has not always been so. All cultures have had established traditions of home-based care and self-care along with lifestyles and routine daily activities and practices which have been part of the overall package of healthcare which had also included experts. Community-level relationships and support structures contributed to individual well-

¹ See <http://www.fortisfoundation.in/programmes/178-awareness-a-training.html> for a variety of collaborative community awareness activities conducted by Fortis Foundation with the Fortis Hospitals.

² See <http://www.socialsamsa.com/2013/09/social-media-strategy-review-apollo-hospitals/> for some details of social media strategies of Apollo and Fortis hospitals.

being as well to care during illness. This is changing rapidly and while on the one hand the individual is getting isolated from traditional relationships, on the other hand they are also becoming alienated from the domain of healthcare, trusting it to experts and technology.

The World Health Organisation (WHO), through its charter of establishment in 1946, defined health ... as a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity'. It is a positive definition, and that too it is not limited to the body alone. By adding a social dimension to health, the WHO highlighted the fact that the health of any individual is closely related to her relationships with the people and the world around, highlighting the community dimension of healthcare. Healthcare promotion and effective healthcare requires active participation of the community, both in identifying the problem and developing the solution, and this has been shown true for both communicable and non-communicable diseases (NCDs). Unfortunately, the overwhelming and increasing technical obsession of medical care continually undermines this dimension. However, the limitations of this approach also become clear in global programmes like the global polio eradication initiative. The global effort to eradicate polio began in 1988, and today more than 25 years later, the disease still continues to be present in three countries (two in our neighbourhood Pakistan and Afghanistan), and the factors that are delaying or holding up this multi-billion dollar effort from being declared a success are social or community factors rather than technological ones. Today, much healthcare policy-making and programme implementation is stuck in the dilemma between evidence-based, scalable, replicable, technological solutions on the one hand and

managing diversities through community engagement and community ownership on the other.

ALMA ATA DECLARATION AND THE COMMUNITY

The Alma Ata Declaration of the World Health Assembly in 1978 is often held as a key milestone of our understanding of the fundamental principles of healthcare. While the promise of Alma Ata of 'Health for All by 2000' has remained by and large unfulfilled, it has become both an aspiration and a rallying cry which cannot be denied or ignored. It linked health to social and economic development and recognised that the inequality in health among people across and within countries was unacceptable. While recognising the importance of the scientific and technical aspects of healthcare, the declaration also emphasised the role of individual and community self-reliance and participation in the process of health-related planning and implementation. The Alma Ata Declaration was limited to primary healthcare, but no health system can function effectively without this foundational building block. The declaration went a step ahead and asserted, '(P)primary healthcare is the key to attaining this target ("health for all") as part of development in the spirit of social justice' (Article 5).

COMMUNITY ENGAGEMENT: BEFORE AND AFTER ALMA ATA

The importance that was placed on community participation within the Alma Ata process was partly due to some very positive experiences across the world on the benefit of engaging community health workers. China was one of the most celebrated stories with its

BOX 9.1 Jamkhed Model

The Comprehensive Rural Health Project (CRHP) was started in 1970 by Drs Raj and Mabelle Arole to provide healthcare to rural communities, keeping in mind the realities of rural India. CRHP is located at Jamkhed, in the district of Aurangabad, 350 km east of Mumbai in the state of Maharashtra. The CRHP involves the community in addressing its health problems, in preventing and treating the majority of the conditions with simple techniques, and dealing with the root causes, such as poverty, women's status and the caste system. Female village health workers (VHWs) and community-level groups are crucial components of the Jamkhed model. The VHW is a woman who is chosen by the villagers to be trained as their village health worker. These persons are the animators and change agents in the village. VHWs, working as volunteers, are expected to share their knowledge and skills with the community groups. Health and development issues for each village are addressed by the VHW in conjunction with these organised groups, who provide support in all her activities.

Source: See www.jamkhed.org.

'barefoot doctors'. These doctors were called 'barefoot doctors' because they often travelled barefoot through paddy fields. They lived in the community, focused on preventive care and used a mix of traditional and modern medicine. Dr Liu Yuzhong who provided basic healthcare to his community for 43 years has been quoted in an article in the WHO bulletin (Cui Weiyuan 2008). He says, '(T)here are great advantages to having a barefoot doctor in the village. The patients are all my neighbours. I know each family's situation, lifestyle and habits. Since I see my patients very often, even if I cannot diagnose precisely the first time, I can follow up closely and give a better diagnosis the next time. There were similar experiences in other parts of the world as well' (Prasad and Muraleedharan 2007). In Latin America, Nicaragua had the *Brigadista Popular en Salud*, a community health volunteer who worked with the health system, integrating health education with medical management (Leonardo and Mori 1989). In Africa, there were village health worker programmes in many countries like Ghana, Nigeria, Tanzania and Kenya. In Iran, the *Behvarz* (female frontline health worker) managed simple cases at the household-level and referred difficult cases to the hospitals or doctors. In most cases, these community-level health workers were full-time workers who were drawn from among the educated in the community and trained and supported by the government and sometimes the community. India was actually the place with the greatest diversity of experiences, mostly in the voluntary sector. The most celebrated among these was probably the Jamkhed model started in 1970 by Drs Raj and Mabelle Arole who later won the Magsaysay Award for Community Leadership in 1979, and which continues to this day.

The Government of India started the Community Health Worker Scheme around the same time

as Alma Ata. The programme renamed as the Community Health Volunteer Scheme in 1980 and the Village Health Guide in 1981. An early evaluation (Maru 1983) showed clear benefits, but the central government discontinued support to the programme in 2002. However, the concept of 'primary healthcare approach' started facing challenges soon after the Alma Ata conference. First, the idea was considered too idealistic and not pragmatic enough, so 'selective' primary healthcare was adopted by many international agencies and the financial strictures applied by the World Bank and International Monetary Fund (IMF) meant that the approach had to be slowly abandoned. Instead, all over the world, issues of efficiency in healthcare financing were now the key considerations, and health sector reform measures moved into the 'user fees' model where communities were now expected to participate through paying for services. The Bamako Initiative (1987) formalised the process in Africa, one of the poorest regions of the world. Two key assumptions of this approach were that communities have faith in modern medicine and that they have the money to pay. However, later experiences showed that the 'user fees' approach discriminated against the poorest, reducing access for those who need it the most (Lagunju and Papart 2013).

UNDERSTANDING COMMUNITY REALITY OF MULTIPLE SYSTEMS OF MEDICINE IN INDIA

We are now in the age of privatisation on the one hand and Millennium Development Goals (MDGs) on the other. The private sector in health in India, has become comparable to the best in the world, and attracts patients

BOX 9.2 Primary Healthcare Comes Full Circle: An Interview with Dr Halfdan Mahler

Q: Selective primary healthcare, i.e. focusing on single issues or single disease programmes, is the opposite of the Alma Ata primary healthcare consensus that called for health for all. Why did primary healthcare lose its way?

A: The 1970s was a warm decade for social justice. That's why after Alma-Ata in 1978, everything seemed possible. Then came an abrupt reversal, when the International Monetary Fund (IMF) promoted the Structural Adjustment Program with all kinds of privatization, and that drew scepticism towards the Alma-Ata consensus and weakened commitment to the primary health care strategy. WHO regions kept on fighting in countries, but there was no support from the World Bank and the IMF. And the biggest disappointment was when some United Nations agencies switched to a 'selective' approach to primary healthcare. That brought us right back to square one

—Bulletin of the World Health Organisation 86 (10), October 2008

not only from the poorer countries of Africa and South Asia but from Europe and North America as well. While this is true, it is also a fact that a large section of the population of the country cannot even aspire to achieve the MDGs. The MDGs were a set of eight common indicators reducing which would be the common goal of development interventions in the period 2000–15. The benchmark was the indicator for 1995, the period of effort was put to 20 years, and now the MDG deadline is not far away. However, India is among those countries where it is certain that the MDG goals on maternal and infant mortality will not be met. And this will not be so much due to lack of effort but due to lack of effective governance mechanisms and more importantly lack of adequate understanding and promoting of community's own engagement around health.

India is one of the few countries with the greatest diversity of health systems which are currently being practised. When we think of healthcare, we usually think of the modern, Western, allopathic system. But not many years ago, homoeopathy was the modern Western system, and today the practise of homoeopathy has died out in Germany, but is robust in India. Then we have our Indian classical system of Ayurveda, also called *kabiraji* in Bengal. There is also Siddha, a closely allied system in the southern states of India. Yoga is also a separate system of healthcare. Unani, a system of medicine with Greek-Arabic roots, also enjoys popularity in the country with a large number of followers, practitioners and medical colleges. In addition to these classical systems, there is the horopathy system of the tribals from Jharkhand and the neighbouring states (Prasad 2003). In addition to these medical systems, each region of the country, each community and probably each family has their own belief systems around health, healing and healthcare. Many of these are dismissed as superstitions but there is rarely a family in India where the elderly matriarch (in most cases) does not have useful words of advice when someone is sick.

The choice between different systems of medicines is unfortunately not like the choice of different medicines to take for the same problem as happens in many cases. Thus, if someone has a cough, the choice could be 'ginger' (a home remedy), codeine (an allopathic cough suppressant) or *yashthimadhu* (an ayurvedic medicine for respiratory disorders), and many of us may have often gone through this dilemma of making the right choice. However, this operational dilemma hides different ways of thinking about how illness is caused and how the body heals itself. Thus, while one way of

thinking is based on disease agents, immune responses, bactericidal and bacteriostatic effects of certain chemical, another system thinks of humoral imbalance in the body and ways of regaining equilibrium. Many a times, the advice we receive relate to diet, rest or restrictions, which are often very useful, may have its roots in the classical Indian systems. However, physicians trained in modern medicine often do not have appropriate answers to these queries relating to complementary care because technologically-driven modern medicine does not often depend upon the self-healing properties of the human body.

Community-level health workers can often function as bridges between the different systems, the different practices, putting to rest doubts and dilemma of the person requiring treatment and their families. Many practitioners in India, including the author have worked with community health workers within this overall approach. However, this assumes that the local systems have been understood, and respected. In India, despite the plethora of health systems, we have not paid adequate academic or policy attention to understanding these different approaches and finding ways of integrating these. We have a department of AYUSH (Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy) within the Ministry of Health and Family Welfare (MoHFW) and a whole cadre of AYUSH practitioners. We seem to treat all of AYUSH as one entity and then see them as possible replacements for the missing MBBS doctors. Another area where local traditions and practices appear to have been ignored is in the domain of childbirth. Drawing from international wisdom, India adopted for an institutional delivery only approach for reducing maternal and neonatal mortality in 2005 by adopting the Janani Suraksha Yojana (JSY). This approach has been adopted uniformly all over the country, including the *char* (floodplain) areas of Assam or for the primitive *Pahariya* tribes of Jharkhand. The traditional birth attendant (TBA) often called the *dai* in many local languages has been completely ignored and de-legitimised, rather than integrated into the planning and service delivery process. Thus, despite huge efforts through different schemes and incentives, the home delivery rates in many places continue to be very high. It is also not surprising that in many places maternal and infant mortality rival sub-Saharan Africa, and even when these places are hidden in the law of averages, India will still miss the MDGs on these counts.

HOUSEHOLD PRODUCTION OF HEALTH: AN ALTERNATIVE ECONOMIC FRAMEWORK

The same issue that perplexes public health experts on why health status of communities continues to be poor in many parts of the developing world also engaged the interest of micro-economists some time ago. While macro-economic theorists have pointed to the need for examining health expenditure as proportion of gross domestic product (GDP), microeconomic theorists draw attention to the household production of health (DaVanzo and Gertler 1990). At the aggregate level, there is an emerging consensus that for middle to high income countries, a minimum of 5 per cent of the GDP is necessary for health-related expenditure, whereas for lower income countries it needs to be 15 per cent. Microeconomic theorists point to the fact that investments alone is not enough, and one needs to understand how families take health-related decisions to seek healthcare or engage in health affecting activities. They believe that economics provides a useful framework to understand people's motives or determinants of health-related behaviours. This model of analysis assumes that people value their own health and take decisions which they believe will lead to healthier outcomes. Thus, in addition to pure income and cost function, there are many other considerations like time, personal choices, cultural and social norms which determine healthcare behaviours and service utilisation. Decision-making is often at the family level and these may be discriminatory for some members of the household. What this model does is put factors which influence behaviours, including prices, availability and income information along with socio-cultural reasons into an equation along with health-related behaviours to derive health outcomes. This kind of analysis allows managers and policy-makers to estimate the role of household factors in health outcomes and design programmes which address these in an appropriate manner. In other terms, this model allows for the socio-cultural factors which have already been discussed earlier to be put into an economic model which is perhaps more popular and persuasive with those holding the purse strings of policy-making.

SOCIAL DETERMINANTS OF HEALTH

The reader by now must have become clear that health is not just the result of making rational choices in a

perfect field of health-related options. It is not just that the field of healthcare choices are diverse, but the ability to make choices is also constrained by different social and economic factors. In October 2011, WHO had convened the World Conference on Social Determinants in Rio de Janeiro where the idea of equity within an 'all for equity' and 'health for all' was re-affirmed. The Rio Political Declaration on Social Determinants recognised, '*(H)ealth inequities arise from the societal conditions in which people are born, grow, live, work and age, referred to as social determinants of health. These include early years' experiences, education, economic status, employment and decent work, housing and environment, and effective systems of preventing and treating ill health.*' In the run up to this conference, the WHO had constituted the Commission on Social Determinants of Health to understand and explain the different factors which influence health outcomes among different people. The report *Closing the Gap in a Generation* (WHO 2008) states in its opening section that the '... unequal distribution of health-damaging experiences is not in any sense a "natural" phenomenon but is the result of a toxic combination of poor social policies and programmes, unfair economic arrangements, and bad politics.' The report underpins its recommendation on three pillars—the need to improve the daily living conditions, the need to address inequitable distribution of resources, and the need to measure or assess the problem and impact of action. It recognises social power and prestige as evident through divisions of gender, ethnicity or social class as key determinants of health and recommends that empowerment at the household, community and political level is a necessary condition for the better health of the marginalised communities. While action from the state or government is necessary for the health rights of these marginalised communities to be recognised, the report also gives an important role for civil society organisations and activists for setting the agenda. It sees empowerment and equity as a crucial component of social well-being and recommends that mobilised communities must participate in health planning and review process and monitor performance of the health sector on a continuous basis. Recognising the importance of the private sector, the report encourages its contribution to health and well-being of the people. However, it also recommends effective regulatory and accountability frameworks which include community engagement. The report's emphasis on social solidarity and need to engage with communities in the processes of health planning and review re-emphasises the role of

engaging communities as a vital role of communities in the overall health systems functioning.

CHANGING UNDERSTANDING OF THE ROLE OF THE COMMUNITY: COMMUNITY RESPONSE TO HIV AND AIDS

Between 1978, when the Alma Ata Conference was organised, and 2011 when the Rio Conference was held, the notion of community engagement or participation has undergone vast changes. Different authors have used interesting phrases like 'moving from users and choosers to makers and shapers' (Cornwall and Gaventa 2000), or changing from beneficiary to citizen (Gaventa and Valderrama 1999) to describe the changing nature of community engagement. Arnstein (1969) has described a ladder of participation where the role of the community engagement changes from being tokenistic to assuming control or participating in all decisions relating to the issue at hand. The idea of community participation in health has also changed over time with the original 'barefoot doctor' drawing participation from having a member of the community provide expert functions. In the Bamako model, the community participates financially through user-fees. The idea of control by the community is best understood by examining the role of the 'affected' communities in shaping the response to the HIV/AIDS epidemic.

Not so long ago, the HIV and AIDS epidemic was seen to be the most significant health issue facing the globe. However, the sense of panic has reduced considerably as the treatment is not only available but is accessible to the millions of HIV-infected persons across the world. This dramatic shift in perception and response to the epidemic was not possible just because of the availability of drugs, but due to the widespread political action by People Living With HIV and AIDS (PLWHA), which included some of the most marginalised, stigmatised and criminalised persons in the form of gay men, sex workers and IV drug users standing together on a common platform and challenging the might of large pharmaceutical corporations, international organisations and governments of the world. ACT UP (AIDS Coalition to Unleash Power) was the first organisation of gay men in the US which demanded treatment for AIDS in 1987 with what were then experimental drugs. They later demanded and demonstrated to get the price of these drugs reduced

and focused on the need for public funds for HIV and AIDS-related treatment in the US.

In the continent of Africa, a similar role was played by Treatment Action Campaign (TAC) in South Africa. Formed in 1998, this group has played a tremendous role in universalising HIV/AIDS-related services in South Africa. The then South African president Thabo Mbeki had initially denied that HIV and AIDS were related even though the country had the largest number of HIV+ persons. However, TAC was not only able to overcome this denial through its campaigns, but was also able to compel the government through a celebrated case in the Constitutional Court of South Africa to universalise this treatment. Today, TAC continues to actively monitor the implementation of HIV/AIDS programme in South Africa. In India too, community-level groups have been at the forefront of the fight against HIV/AIDS. Indian Network for People (INP+) living with HIV/AIDS has been working closely with the National AIDS Control Organisation (NACO) for the rights of the HIV-affected persons. In 1992, the Durbar Mahila Samanway Committee (DMSC) was started in Sonagachi, a red-light area in Kolkata. Today, it is a forum for over 65,000 sex workers of West Bengal, and in addition to highlighting the issues related to HIV and AIDS, this Committee has been working towards guaranteeing the rights of the sex workers, which also includes those related to simple civic entitlements like voter ID cards, health insurance. The importance of community involvement in addressing the HIV epidemic is underscored with the GIPA (Greater Involvement of People living with HIV and AIDS) approach being a core component of all HIV/AIDS intervention programmes. Today, no global AIDS conference or policy platform is complete without the full participation of the affected community.

HEALTHCARE INDUSTRY, PATIENT AND THE STATE

To many readers, it may by now seem that the validity of community engagement lies primarily within the two domains of either infectious diseases or for rural community health. It is true that most of the examples have been drawn from those situations, but community participation or engagement is equally important in other situations as well. We all recognise that healthcare is getting increasingly expensive and technical. But what is also happening at the same time is that it is also

consolidating as an industry. The independent doctor or pharmacy with a compounder preparing mixtures and powders is a relic of history. The pharmaceuticals industry represents one of the most powerful business industries, while doctors have become subordinate cogs in the management processes of large corporate hospitals. In countries like the US and also increasingly in India, the health insurance companies are a third business interest in health. The patient is faced with a huge asymmetry of knowledge and the ability to make rational choices because of the technical nature of healthcare, and at the same time has to contend with the rapacious business interests of the healthcare industry. Michael Moore has highlighted the nature of this dilemma in his film *Sicko*, while the recent film *Fire in the Blood* shows the cynical nature of the drug industry in deciding the prices of drugs.

The state is supposed to act as a bulwark against such powerful forces and protect the citizen, through a system of regulation. However, the system of regulation of the healthcare industry is extremely weak in India. There are very few regulations around the practice of doctors or hospitals or even drug companies. The few that are there are not vigorously implemented leaving the individual patient extremely vulnerable. There has been a recent law relating to clinical establishments, but it has yet to be uniformly implemented across the country. The Medical Council of India (MCI), the key regulator of allopathic medical practice of doctors was itself in a bind when the Director was caught red-handed accepting a bribe to regularise a private hospital.³ Drug pricing in this country is extremely variable with the same medicine costing many times when produced by a different manufacturer. While the price of every medicine like all products in the country is published, the cost of healthcare services remains opaque. It is not surprising that healthcare is one of the leading causes of impoverishment in India. However, we have a very weak consumer movement in health. While healthcare falls in the domain of consumer protection act, there are a few cases or consumer groups addressing health-related practice, even though unethical practice is rampant. A recent incident which highlighted the need for communities to come together around healthcare issues is the Novartis case in where a Cancer Patients Aid Association and Lawyers Collective were two civil

society organisations which were part of the legal protests against granting a patent to Novartis for its anti-cancer drug Glivec. First, the Madras High Court and then the Supreme Court have rejected Novartis plea,⁴ but there is a need for constant vigilance and quick advocacy action to protect the interests of the community.

COMMUNITY SUPPORT GROUPS

India is a society in transition where traditional community formulations are disintegrating as people move from one place to another in search of livelihood, and joint families break down under new economic imperatives. This transition also makes the concept of 'community', which is defined as people sharing common cultural symbols, meanings and practices and living in common geographies, irrelevant. However, it does raise alternate possibilities for people sharing similar health or healthcare-related experiences through the community support groups. Support groups for patients suffering from long-term or extremely debilitating conditions like cancer survivors groups, depression or mental health support groups and those for care-givers of long-term or chronic patients like Parkinson's disease or Alzheimer's disease are fairly common in the developing countries. These groups provide excellent opportunities to address stress as well as the confusion and isolation faced by the person and their family and care-givers when faced with such health conditions. However, such groups are also not very common in India and perhaps it is time that such groups be organised in different cities.

COMMUNITY PARTICIPATION IN CONTEMPORARY HEALTH POLICY IN INDIA

Public policy in healthcare service delivery is mostly addressed to the rural poor. The National Rural Health Mission (NRHM) was till late the common policy vehicle for delivering services through the public health system. The Planning Commission has proposed an integrated National Health Mission (NHM), which integrates an urban component to the NRHM, which the cabinet has approved. Community engagement or communitisation was a key component of NRHM, and

³ MCI Director Ketan Desai was caught taking bribe by the Central Bureau of Investigation (CBI) on 22 April 2010.

⁴ The Supreme Court of India dismissed an appeal by the Swiss drugmaker Novartis to extend its patent for the updated form of an older drug imatinib (Glivec) in India in April 2013.

community involvement, decentralisation, continues to remain key objective in the NHM, though it remains to be seen how exactly it will be implemented. Within the NRHM, the core elements of community participation were the selection and training of a community health volunteer or ASHA; the constitution of committees (Village Health and Sanitation Committees and the Rogi Kalyan Samiti) at the village and facility levels to facilitate community participation, supporting community planning processes through the provision of untied funds and strengthening accountability through community monitoring processes. Unfortunately, other than the ASHA programme, the other initiatives have not yet been rigorously implemented within the NRHM. A pilot project on community monitoring which was implemented by the Advisory Group on Community Action across nine states has shown that community engagement leads to a number of positive changes at the local level starting from drawing attention to informal fees and prescription medicines as well as improving range and patient's perception of quality of care of services.⁵ However, this component has not yet been scaled up because many states are either hesitant or unclear on how to proceed.

While the NHM is being rolled out, the current policy aspiration is Universal Health Coverage or UHC. The UHC approach envisages a situation where all citizens and inhabitants of a state are assured quality healthcare services for a range of healthcare conditions, irrespective of their ability to pay. The costs related to healthcare are promised by the government and raised through different financing mechanisms including taxes as well as individual provider contributions. The UPA II government appointed a High Level Expert Group (HLEG) to look into the possibility and modalities of UHC for India. The report of the HLEG (Planning Commission 2011) was released in October 2011 and was expected to be a key input for the Twelfth Five Year Plan (2012–17). The idea of UHC has been incorporated into the Twelfth Five Year Plan, even though many recommendations have not been explicitly included.⁶ Community participation and citizen

engagement has been seen as an essential component of this approach. The report draws attention to large-scale community involvement approaches which have been the cornerstone of successful UHC interventions in countries like Thailand and Brazil. In Thailand, large public assemblies (Treerutkuarkul 2009) have been the platform to identify community-level problems and solutions, while in Brazil, health councils (Schattan and Coelho 2007) have been the forum for public health planning. The HLEG Report recommends a similar approach for India.

CONCLUSION

Both Indian society and health systems in India are going through a radical restructuring. On the one hand, traditional beliefs and practices are giving way to new technologies of medical care. On the other hand, community structures are changing and families are getting fragmented, urbanised and isolated. Health encounters are becoming increasingly individual, between the client and the provider on the one end and between the client and the financing mechanism on the other. These changes which are leading to individual encounters with a techno-managerial machinery are counter-productive to greater community involvement. Rapid economic growth is also bringing other distortions into the domain of healthcare where a small population is able to afford the most costly healthcare, while a large majority remains completely isolated from basic care. The private high cost care model is also becoming an aspiration for the poor. State governments are adopting health insurance models which allow the poor to benefit from such high cost care for tertiary care like the Aarogyashri and similar schemes. As old community structures are changing, there are no new collective social formulations which define new collective aspirations.

Within the rubric of these social and political changes, there is an increasing understanding that the community experience is an essential component of a new healthcare paradigm. In order that the benefits of

⁵ For details of the pilot phase of Community Monitoring within NRHM, see <http://www.nrhmcommunityaction.org/projectarea.html>.

⁶ The overall tenor of the Twelfth Five Year Plan on the HLEG recommendations for UHC is tentative and indecisive. In paragraph 20.42, it deliberates on a set of questions—a task which had been given to the HLEG. Paragraph 20.48 starts with 'States may be encouraged ...' This clearly denotes a hesitation of the Planning Commission to accept the HLEG report. A key recommendation of the HLEG was to avoid the insurance route for financing, but the Twelfth Five Year Plan, without prescribing any specific mechanism, prefers the Rashtriya Swasthya Bima Yojana (RSBY) a limited insurance scheme which does not provide any support for ambulatory care, a major component of OOP expenditure.

health reach the most marginalised, it is essential that they are included from the planning process onwards through participatory planning and needs assessment processes, provisions for which exist through the mechanism of the Village Health Plan, Village Health Sanitation and Nutrition Committees, and the Rogi Kalyan Samitis. No accountability mechanism can be complete without the participation of those who are expected to be the beneficiaries. The private sector and even public sector providers need regulatory standards and procedures, and these regulatory procedures need

client or beneficiary participation of the client or the beneficiary for purposes of fairness and justice. Public policy articulations are including such provisions within the policy paradigm and civil society organisations are pushing for such provisions to not only be articulated but become acted upon as well. These are indeed challenging times and time alone will tell whether the community, i.e. both citizens and individuals, can come together to claim their rightful place in the healthcare table or relinquish their lives to the paradigm of privatised and individualised care.

REFERENCES

- Arnstein, Sherry R. 1969. 'A Ladder of Citizen Participation'. *JAIP* 35 (4): 216–24, July 1969.
- Cornwall, Andrea, and John Gaventa. 2000. 'From Users and Choosers to Makers and Shapers Repositioning Participation in Social Policy'. *IDS Bulletin* 31 (4): 50–62. Sussex: Institute of Development Studies.
- CSDH. 2008. *Closing the Gap in a Generation: Health Equity through Action on the Social Determinants of Health. Final Report of the Commission on Social Determinants of Health*. Geneva: World Health Organisation.
- DaVanzo, Julie, and Paul Gertler. 1990. *Household Production of Health: A Microeconomic Perspective of Health Transitions*. Rand Corporation, CA.
- Gaventa, J., and C. Valderrama. 1999. 'Participation, Citizenship and Local Governance', Background Note for Workshop: 'Strengthening Participation in Local Governance'. Sussex: Institute of Development Studies 21–24, June.
- Lagunju, Abimbola, and Jean Pierre Papart. 2013. *Nigeria: Unpacking the Bamako Initiative*, Premium Times, 16 April 2013, <http://allafrica.com/stories/201304160141.html>, accessed on 20 November 2013.
- Leonardi, L., and M. Mori. 1989. [Health Education and People's Participation in Health in Nicaragua: Research on the Profile, Role and Function of the "Brigadistas Populares" in Health] (In Italian). Ann Ig. 1989 May–Aug 1 (3–4): 717–27. <http://www.ncbi.nlm.nih.gov/pubmed/2483643#>, accessed on 20 November 2013.
- Maru, R. M. 1983. *The Community Health Volunteer Scheme in India: An Evaluation*. Soc Sci Med. 17 (19): 1477–83.
- Planning Commission. 2011. *High Level Expert Group Report on Universal Health Coverage in India*. New Delhi: Planning Commission.
- Prasad, B. M., and V. R. Muraleedharan. 2007. *Community Health Workers: A Review of Concepts, Practice and Policy Concerns*. International Consortium for Research on Equitable Health Systems (CREHS), UK, http://r4d.dfid.gov.uk/PDF/Outputs/Equitable_RPC/CHW_Prasad_Muraleedharan.pdf, accessed on 20 November 2013.
- Prasad, U. N. 2003. *Survey Report on Availability and Resources of Medicinal Plants in the Tribal and Other Areas of North and South Chotanagpur Divisions As Well as Tribal Areas of Dumka and Other Areas of Gaya, Aurangabad, Nawada and Monghyr, District Forest, Department Jharkhand*.
- Schattan, Vera, and P. Coelho. 2007. 'Brazilian Health Councils: Including the Excluded?', in Andrea Cornwall and Vera Schattan P. Coelho (eds), *Spaces for Change? The Politics of Citizen Participation in New Democratic Arenas*. London: Zed Books.
- Treerutkuarkul, Apiradee. 2009. 'Thai Public Invited to Share Health Policies'. *Bulletin of the World Health Organisation* 87 (2): 89–90.
- Weiyuan, Cui. 2008. 'China's Village Doctors Take Great Strides'. *Bulletin of The World Health Organization* 86 (12): 914. www.who.int/bulletin/volumes/86/12/08-021208/en/, accessed on 20 November 2013.

10

RASHTRIYA SWASTHYA BIMA YOJANA: A STEP TOWARDS UNIVERSAL HEALTH COVERAGE IN INDIA

Nishant Jain

Post-Independence India adopted the model of providing free healthcare through a chain of government-owned healthcare facilities, which exists from the block level right up to the national level. Though this approach has been adopted from the British model, there are marked differences in operations of the Indian system with respect to the British model.

Despite the existence of government-owned free healthcare facilities in the country, evidence from the field shows that this approach is not working as was envisaged at the time of its inception. Repeated studies (NSSO 2006, MoHFW 2009), have shown that people continue to spend a lot from their pockets when they access healthcare. As expected, the cost of healthcare is quite high in the private sector. But even in the public sector hospitals, they have to spend a lot to get themselves treated. The result of this is that out-of-pocket (OOP) expenditure on health in India is one of the highest in the world (see Table 10.1).

On top of this, the expenditure by the government on healthcare is one of the lowest in the world and therefore rest of the money is paid for by the private sector. Even at the time of Independence, the government in India was spending approximately 0.9 per cent of gross domestic product (GDP) on health and even after more than 65 years, this ratio has gone up only to a little more than 1 per cent of GDP. In comparison to this, other countries that have better health indicators are spending much higher percentage of GDP on health from the

TABLE 10.1 Cross-country Comparison of Health Expenditure, 2010

Country	Public health expenditure as a percentage of total health expenditure	Private health expenditure as a percentage of total health expenditure	Out-of-pocket expenditure as a percent of total health expenditure
Brazil	47.0	53.0	30.6
China	54.3	45.7	35.3
Ghana	58.2	41.8	27.9
India	28.2	71.8	61.7
Indonesia	36.1	63.9	48.4
Thailand	75.0	25.0	14.0
United Kingdom	83.2	16.8	8.9
United States	48.2	51.8	11.8

Source: WHO (2013).

government side. Table 10.2 shows data from India in comparison with other countries.

Since government expenditure on healthcare is quite less, there are other sources of funds available in this sector as well. Healthcare in India is financed through various sources other than central and state government tax revenues, and these include individual OOP payments at the time of taking the healthcare, external aid, and aid from private companies. National Health Accounts data of 2004–05 shows that central, state and local governments taken together account for only about

TABLE 10.2 Cross-country Comparison of Health Expenditure as a Percentage of GDP, 2010

Country	Total health expenditure as a percentage of GDP	Public health expenditure as a percentage of GDP	Private health expenditure as a percentage of GDP
Brazil	9.0	4.2	4.8
China	5.0	2.7	2.3
Ghana	5.2	3.0	2.2
India	3.7	1.0	2.7
Indonesia	2.8	1.0	1.8
Thailand	3.9	2.9	1.0
United Kingdom	9.6	8.0	1.6
United States	17.6	8.5	9.1

Source: WHO (2013).

20 per cent of the total health expenditure in India. More than 78 per cent of the health expenditure comprised OOP expenditure, which is one of the highest in the world. In contrast to many African countries, external aid to the health sector accounted for a negligible 2 per cent of the total health expenditure.

The high growth rate (averaging around 8 per cent per annum in the last decade) provided fiscal space to the Government of India to undertake various social protection initiatives for its population. The Government of India recognised inequities in its health delivery and financing infrastructure and introduced various measures to overcome it. One important measure was to increase the budgetary allocations for the healthcare sector. The National Rural Health Mission (NRHM) was launched by the Government of India in 2005 to provide accessible, affordable and quality healthcare to the rural population, especially the vulnerable groups. The thrust of the mission is on establishing a fully functional, community-owned, decentralised health delivery system with inter-sectoral convergence at all levels, to ensure simultaneous action on a wide range of determinants of health such as water, sanitation, education, nutrition, social and gender equality.¹ The NRHM has resulted in additional expenditure for the government on health.

For financing the Twelfth Five Year Plan, the projections envisage increasing total public funding on core health from 1.04 per cent of GDP in 2011–12 to 1.87 per cent of GDP in 2016–17 (Planning

Commission 2013). While on the one hand, based on the past record of increase in health expenditure coupled with fall in growth rates will make it very difficult for the government to reach this objective, on the other hand, just increasing the budget for health is not a solution in itself. There are indeed limitations in the absorptive capacity of the public healthcare system, resulting in inefficient utilisation of funds.

Realising the limitations of financing healthcare only through the supply side, both the central and state governments have introduced various demand-side financing measures through health insurance schemes whereby the government has put money in the hands of the people and they can choose healthcare services through a network of public and private healthcare providers.

WHY HEALTH INSURANCE SCHEMES?

Countries across the world are introducing demand-side health financing mechanisms. The main feature of these initiatives is that money follows the demand and that it is not linked to the supply side of healthcare. In simple terms, hospitals earn money based on the demand, which is raised by the population and not by getting a fixed amount from the government. For example, in Thailand, once a person is enrolled in one of the three main schemes of the country, then he/she can visit any network health facility to get free treatment. Similar mechanisms exist in many other developing countries such as Philippines, Indonesia, Ghana, etc. The income of the health facility depends on the number of persons choosing that facility for treatment.

Recognising the limitations of focusing only on the supply-side model, in the last few years, the Government of India has introduced various demand-side financing mechanisms to provide financial security for the vulnerable segments of the society. One of the first initiatives in this direction was a health insurance called Universal Health Insurance Scheme (UHIS) launched by the Ministry of Finance in 2003. This scheme provided coverage to beneficiaries with a limit and was implemented by the public sector insurance companies.

Another set of schemes was launched by the different state governments. These initiatives were novel and the intention was to provide health insurance to the vulnerable sections of the population of the state. However, most of these initial set of schemes were not able to achieve the

¹ See <http://nrhm.gov.in/nhm/nrhm.html>, accessed on 2 October 2013.

desired objectives and were closed after operations of one or two years. State-level health insurance schemes launched by the states of Punjab, Kerala, Assam, etc. during 2005–07 are some of the examples.

Though the intention to provide health insurance by these schemes was laudable and much needed, these schemes were not successful in reaching the desired objectives due to many reasons. The basic model of these schemes was to hire an insurance company and provide that insurance company with money based on the estimated number of families to be covered. Subsequently, it was the responsibility of the selected insurance companies to carry out each step of the implementation. Since all of these schemes had no enrolment process, i.e. the beneficiary families were automatically enrolled in the scheme if they had below poverty line (BPL) card/ration card, etc. awareness generation was a critical element and most often people were not even aware that they are now covered by an insurance scheme. In addition to this, there was no institution within the government that was responsible for full-time management of these schemes. The premium was paid in lump-sum, based on the targeted population to the insurance companies. Even the benefit package was not always most useful. For example in the benefit package of one of the states, high-end diseases like Alzheimer's and Parkinson's were included, but simple diseases that are more frequent were not covered. In this scenario, there was no incentive for the insurance companies to inform the beneficiaries about the schemes and inform them about using it. Therefore, most of these schemes were closed by the respective state governments after one or two years of being in operation.

In 2007, the Government of Andhra Pradesh launched a health insurance scheme called Rajiv Aarogyasri that focused on providing coverage to mostly tertiary care. The argument of the state government in introducing a tertiary care health insurance scheme was that the government facilities provided for good quality, free of cost secondary care. But access to quality tertiary care was lacking in the state and, therefore, it was being provided through this health insurance scheme. Even though the decision to provide only tertiary care is controversial and a revised definition of BPL for this scheme covered more than 80 per cent of the population of the state, this scheme for the first time went about designing and implementation in a very methodical manner. A separate institution called Aarogyasri Trust was set up for the implementation of the scheme. This scheme used Information Technology (IT) very

effectively whereby electronic claims were transferred from hospitals to the insurance company on a regular basis. A very close co-operation was developed between the Aarogyasri Trust and the implementing insurance company. This resulted in successful implementation of the scheme. Critics argue that though this scheme has achieved success, the priorities of the state government are misplaced, where a disproportionately large percentage of the health budget is being spent on a scheme providing only tertiary care. The scheme has revised its benefit package so as to even include some of the secondary care diseases, but it continues to face challenges like moral hazards, appropriate targeting and increasing costs. Aarogyasri inspired a few other state governments, e.g. Karnataka, Tamil Nadu, Maharashtra and Gujarat, to initiate similar tertiary care schemes.

The main feature of most of these health insurance schemes was Public-Private Partnership (PPP) model where schemes were funded by the government in the sense that the premium on behalf of the beneficiaries was paid by the government to the insurance companies which were responsible for the implementation of the scheme. In some of the states, e.g. Karnataka's Vajpayee Arogyasri Scheme, the state government decided to park the funds with a government-owned trust instead of an insurance company. The Trust implemented the scheme directly, which included informing the beneficiaries and entering into arrangements with hospitals for claim payments. In terms of provision of healthcare, also a mixed approach was adopted whereby a beneficiary could access both public and private healthcare facilities for treatment.

WHY RASHTRIYA SWASTHYA BIMA YOJANA (RSBY)?

One of the main limitations of these state-level health insurance schemes is that the benefits were mostly limited to tertiary care, and simple secondary care was not covered. Hospitalisation related to simple medical needs, like fever, diarrhoea, minor surgeries, etc. especially of the poor and the vulnerable sections of the population, were also not covered. In addition to that, another limitation was the absence of health insurance cover outside the state. Since a lot of workers in India are migrants, this is a very important issue. A person covered by a state scheme could only get the benefit within the state and remains vulnerable outside the state.

Recognising these points, the Government of India felt that there was a need for a national-level health insurance

scheme in the country for providing financial security to the vulnerable sections of the society. Learning from the experiences of other major government and non-government health insurance schemes in India, it was decided to launch a national health insurance scheme. The BPL population was considered the first target of this scheme. Subsequently, many more categories of unorganised workers have been added to this scheme, and the ultimate goal is to cover all the unorganised workers of India. This is a huge goal as more than 93 per cent of the workers in India are informal workers. The objectives of this scheme are to reduce OOP expenditure on hospitalisation, and at the same time increase access to quality healthcare.

While evolving the conceptual framework, it was found imperative to comprehend the characteristics of the target group. At the outset, a few aspects were very clear about the target segment. As the targeted beneficiaries were poor, they could not be expected to pay cash up-front and take reimbursement later. Therefore, the scheme had to be cashless in nature. Secondly, the beneficiaries were largely illiterate. Hence, they were not in a position to undertake documentation related to insurance. To make the scheme easily accessible to them, the scheme, therefore, needed to be paperless. Thirdly, a large segment of the target population keeps moving from one place to another for employment or other reasons. However, almost all the government schemes, e.g. Public Distribution System (PDS) and Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), etc. are not easily available to the people if they move out of their city/state. Since health needs can arise anytime and anywhere, ideally a scheme was needed which can be available anywhere and is able to provide benefits anywhere in India. Therefore, in a nutshell, the scheme needed to be cashless, paperless and portable across India. The Rashtriya Swasthya Bima Yojana (RSBY) was designed keeping all these critical elements in mind.

WHAT IS RSBY?

RSBY, which literally translates into National Health Insurance Scheme, was launched on 1 April 2008 by the central Ministry of Labour and Employment (MoLE), Government of India. The objectives of RSBY are to provide financial security to the poor and identified categories of unorganised workers and their families for hospitalisation-related expenses and thereby reduce OOP expenditure on health. Another objective is to

improve access to quality healthcare by providing an opportunity to access private hospitals in addition to public healthcare services.

RSBY aims to cover the entire BPL population, and the defined categories of unorganised workers, estimated to be approximately 70 million families comprising 350 million persons, by 2017. Initially, the scheme was introduced only for the BPL families. In India, the BPL families are estimated through a household survey and the final BPL list is prepared by the respective state governments. The Government of India has also added many other unorganised workers like street vendors, domestic workers, beedi workers, rag-pickers, building and other construction workers, taxi/autorickshaw drivers, sanitation workers, mine workers, etc. as eligible beneficiaries of RSBY. The MGNREGS workers who have worked for 15 days or more in the last financial year are also eligible for RSBY. Bringing all these categories under RSBY will help in targeting the poor and the vulnerable as BPL lists are not the most reliable lists to identify the poor. But workers in these vulnerable categories will be able to get the benefits and therefore could be targeted effectively even if they do not fall in the BPL category.

The RSBY provides hospitalisation coverage up to Rs 30,000 per annum for a family of five on a floater basis. Transportation charges are also covered up to a maximum of Rs 1,000 per year with a limit of Rs 100 per hospitalisation. In addition to these, RSBY covers costs up to a day prior to hospitalisation (e.g. diagnostic tests done at the hospital), and up to 5 days from the date of discharge from the hospital (e.g. medicines).

Another special feature of the scheme is that unlike normal health insurance schemes where pre-existing diseases are excluded, in RSBY all pre-existing diseases are covered from day one. In addition to this, there is no discrimination against the elderly in the scheme and there is no age limit either.

Though the percentage of persons who have to spend out of pocket for out-patient expenses is much higher than those who have to spend for in-patient expenses, the Government of India decided that the RSBY will cover only hospitalisation expenses. Apparently, one of the main reasons for this decision was that the NSSO 60th Round data showed that the percentage of people who get indebted due to healthcare-related events is much higher for in-patient-related expenses than out-patient expenses.

The RSBY works on a public-private co-operation model whereby the government hires insurance companies to implement the scheme. Once an insurance

company is selected, it has the responsibility to implement the scheme, and role of the state government through a dedicated agency for RSBY called the State Nodal Agency (SNA), is to provide support and overall supervision.

Innovative use of technology is one of the biggest strengths of RSBY. Different technologies are used for different purposes. RSBY uses smart card technology to enrol the beneficiaries. A biometric smart card is issued to each beneficiary family which entitles them to the benefits under the scheme. A beneficiary enrolled under RSBY can visit any hospital, which is a part of the network of healthcare providers and get cashless treatment.

Healthcare providers are empanelled by the insurance companies, based on prescribed criteria by the government. A healthcare provider empanelled by any of the insurers in RSBY gets automatically empanelled by all the other insurers and thereby portability of benefits across the country is ensured. Each empanelled hospital is connected with the server of the insurance company and the government, and they have to transfer transaction data to these servers on a daily basis.

PROCESS FLOW IN RSBY

One of the strengths of RSBY is its well-defined processes including clearly earmarked roles. This section provides an outline of the most important processes of the scheme. It is important to note here that many a times a stakeholder can be outsourced for more than one of its functions.

The broad process flow for RSBY is as follows:

a. Setting up of SNA

- i. Once the decision to implement RSBY is taken by a state government, an independent body called the 'State Nodal Agency' or SNA is set up.
- ii. The agency is staffed with government employees and professionals. It generates its revenue through a registration fee of Rs 30 per year per family paid by the beneficiaries.

b. Preparation of Beneficiary Data

- i. An SNA collects/prepares beneficiary data in the specified RSBY format.
- ii. Data for different categories is collected from different sources and merged generally into one dataset.

c. Validation of Beneficiary Data and Generation of Unique Relationship Number (URN)

- i. Beneficiary data is sent by SNA to MoLE. The team at MoLE validates that this data is in the specified format.

- ii. URN, which is unique across the country, is generated for each beneficiary family, and the data is encrypted so that only an appointed agency can decrypt it.

- iii. This data is then uploaded on the RSBY website by the MoLE.

d. Selection of Insurance Company

- i. An insurance company is selected by an SNA through an open-bidding process.
- ii. An insurance company can be selected for one or more districts, however, for one district only one insurance company can be selected.

e. Empanelment of Healthcare Providers

- i. Based on the list of healthcare providers given by the SNA/district administration, the insurance company empanels the healthcare providers who fulfill the empanelment criteria.
- ii. Necessary hardware and software are installed in the hospitals so as to facilitate transaction at the hospital electronically. Private hospitals have to pay for the hardware cost, while for public hospitals the cost is paid by the insurance companies.
- iii. Hospital representatives are trained by the insurance companies to use the software and hardware.

f. Enrolment of Beneficiaries

- i. An electronic list of eligible beneficiary families is provided to insurers by the SNA through the RSBY website.
- ii. An enrolment schedule for each village, along with dates, is prepared by the insurance company with the help of district and block officials. An insurance company is provided a maximum of four months to enrol beneficiary families in each district.
- iii. Insurance companies hire intermediaries to reach out to the beneficiaries before the enrolment. In addition, the beneficiary list is posted in each village at the enrolment station and prominent places prior to the enrolment camp. The date/location of the enrolment camp are also publicised in advance.
- iv. Moving enrolment stations are established at local centres (e.g., panchayat office) at each village at least once a year. These stations are equipped by the insurer with the hardware to collect fingerprints and photographs of the members of the families covered and a printer to print smart cards with photo.
- v. A local government official (field key-officer or FKO) is mandated to be present at the enrolment centres and he/she inserts his/her own government-issued smart card and provide

- his/her fingerprint to verify the legitimacy of the enrolment for each family. Data of each beneficiary family verified by the FKOs is also stored in the card of the FKOs. This way, each enrolee can be tracked to a particular official.
- vi. The smart card, along with an information packet describing benefits, hospitals in network, etc. is provided to all enrolees once they have paid the Rs 30 registration fees. The process normally takes less than 10 minutes.
 - vii. At the end of the enrolment camp, details of all the enrolled households is sent to the district authority and the SNA by the insurer. The list of enrolled households is maintained centrally.

g. Payment of Premium

- i. Based on the number of families enrolled, the insurance company is paid a premium. This number is calculated based on the data downloaded from the FKO card and encrypted data generated by the software.
- ii. This premium is shared between the state and the central government. After the payment is made by the state, the central government releases its share.

h. Utilisation of Services

- i. A beneficiary, after receiving the smart card and after the commencement of the insurance policy, can visit any empanelled hospitals across the country to receive cashless treatment.
- ii. The process of getting the benefits at the hospital is a paperless one and no documents need to be shown to get the benefit. The fingerprint of the beneficiary is matched with the fingerprint stored in the smart card, and once it matches the beneficiary receives the treatment at the hospital.
- iii. The hospitals send online data at each stage of admission of the beneficiary to the government and the insurance company. After the patient is discharged, the hospital sends the claims data to the insurance company and the state and central governments. After due diligence, the insurance company settles the claims of the hospitals, which is done online. Hospitals also need not provide any paper for the claim process.

USE OF TECHNOLOGY IN RSBY

The use of technology in RSBY is one of the highlights of the scheme. It is perhaps one of the few schemes in the developing world where technology has been leveraged at this scale for delivering social sector benefits.

RSBY uses different types of technologies at various stages. Each type of technology is there for a different purpose. The following technologies are being used in the scheme:

1. **Smart Card Technology**—A smart card is given to each beneficiary family at the time of enrolment in the scheme. The smart card, which contains fingerprint and photograph, is prepared and printed on the spot in the village by the insurer and handed over to the beneficiary.
2. **Biometric Technology**—Fingerprints of all the beneficiaries are collected on the spot. A thumb impression of each of the beneficiary is stored in the smart card. This fingerprint is used to verify the identity of the beneficiaries at the hospitals. Biometric verification is also done by a government officer to authenticate the identity of the beneficiary for enrolment in the scheme.
3. **Key Management System**—The key management system helps in higher security, reduces frauds, and at the same time improves accountability. The FKO needs to be present at the enrolment station and his/her role is to verify each beneficiary family using his/her own smart card and fingerprints. This ensures that a correct beneficiary is issued the card by the insurer. Similarly, this type of security smart card is provided at the empanelled hospitals and the district kiosk (lost or damaged card can be issued and modifications in the card can be done at the district kiosk). The only persons who have authorised security smart cards can access the chip of the beneficiary smart card for any transaction/modification.
4. **Web-based Data Transfer**—RSBY has been able to position itself as a paperless scheme with the help of technology. Claims are submitted online by the hospitals and similarly insurer can make online payments to the hospitals. In addition to this, a robust back-end data management system has been developed for RSBY which ensures smooth flow of real time data from across India to the state and the central governments.
5. **Web Portal Services**—The web portal of RSBY has multiple roles. It not only provides the details of RSBY with the outside world, but also acts as the portal for data transfer, data sharing, and a monitoring tool for the internal stakeholders of the scheme.

The aim of the scheme is to use technology not only for control of fraud and monitoring, but also to find innovative solutions. For example, the enrolment software has been designed in a way that if the spouse is part of the BPL list, then the software makes it compulsory to insure her as well.

The smart card has huge potential to deliver other social security schemes through the same IT platform to the same set of beneficiaries. This can bring down the cost and improve transparency. Especially schemes that are targeted at the same set of beneficiaries can be delivered through the same smart card platform in an efficient way.

FUNDING OF RSBY

RSBY is a fully subsidised government scheme where the premium is paid through a tax-funded mechanism for specific categories of beneficiaries. This means that no extra amount or earmarked tax is collected for this purpose, and from the general tax pool the cost of the scheme is borne by the government. The insurance premium is jointly borne by the central and the state governments, where 75 per cent (90 per cent in case of Jammu & Kashmir and the North-eastern states) of the premium is contributed by the central government and the remaining 25 per cent (10 per cent in case of Jammu & Kashmir and the North-eastern states) is contributed by the state governments. The insurance premium is determined at the state-level based on an open tender process. Registered insurers participate through competitive bidding.

An important decision was taken by the government that the beneficiary will also pay Rs 30 per family per year as a registration fee for enrolment into RSBY. Most of the government programmes in India do not take any money from the poor, but in this case it was decided to take this nominal amount. The reason for this decision was that if they pay they will have better ownership of the programme and will demand services. In a way it is also an evaluation of the scheme because if people are not happy with the scheme, they will not pay Rs 30 the next year to renew their enrolment.

This amount is aggregated at the state level and is used for administrative cost of the SNA. Therefore, the functioning of the SNA becomes self-sustainable.

STAKEHOLDER ROLES

RSBY is a complex scheme and a host of actors are involved in its design and implementation. It is very important, therefore, to clearly define the roles and responsibilities of each of the stakeholders.

In addition to the beneficiaries, there are six primary stakeholders in the scheme. These include the central government, state governments, SNAs,

TABLE 10.3 Roles of Different Stakeholders

	Central Govt	State Govt	State Nodal Agency	Insurer/TPA	CSOs	Healthcare providers
Oversight of scheme	X			X		
Setting up of nodal agency			X			
Financing scheme	X		X			
Setting parameters (benefits package, empanelment criteria, BPL criteria, etc.)	X		X			
Hardware specifications (e.g. systems, smart card, etc.)		X				
Contract management with insurer				X		
Accreditation/empanelment of providers					X	
Collecting registration fees					X	
Enrolment				X	X	X
Financial management/planning	X		X			
Actuarial analysis					X	
Setting rate schedules for services/reimbursement rates	X		X			
Claims processing and payment					X	
Outreach, marketing to beneficiaries				X	X	X
Service delivery						X
Developing clinical information system for monitoring/evaluation	X		X			
Monitoring state-level utilisation and other patient information	X		X	X		
Monitoring national RSBY information	X					
Customer service					X	X
Training	X		X	X		

Source: Author's own compilation based on publicly available information.

insurance companies/third party administrators (TPAs) hospitals, and civil society organisations (CSOs). The roles of each of these stakeholders are clearly defined in the scheme and are given in Table 10.3.

CURRENT STATUS FROM DATA

In the last five years of operation, RSBY has been able to expand from two states at the beginning of 2008 to 28 states and union territories in 2013. In terms of the number of beneficiaries covered, it is now one of the largest schemes in the world. Not only has the scheme expanded in terms of its geographical coverage, it has also expanded in terms of categories of beneficiaries and benefit package.

The highlights of the performance of the scheme by end of November 2013 are given in Table 10.4.

IMPACT OF THE SCHEME

Evidence from Data

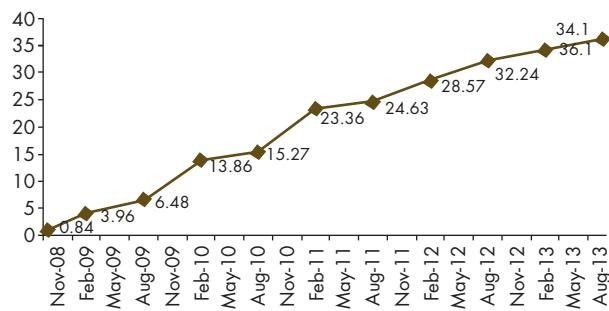
RSBY has been in operation for a little over five years now, and there is data available to see its impact. The following trends have been observed based on the data analysis of RSBY.

A. Increase in Coverage—Though RSBY is a voluntary scheme and families need to come and enrol/renew themselves every year, data shows that enrolment is increasing each year. This increase may be attributed to two reasons. Firstly,

more and more states are joining the scheme. Secondly, even in those states where the scheme has been operational, additional families are enrolling each year. Data from surveys have shown that on an average more than 90 per cent families are enrolling again. Figure 10.1 shows the pattern of enrolment over the years.

B. Decrease in Premium—Health insurance premium generally increases over time, but data from RSBY shows a steady decline. The average premium for the districts which started in 2008 was approximately Rs 600 per family per year, but for the same set of districts it came down to less than Rs 400 in the following years. Furthermore, for the districts that started for the first time in

FIGURE 10.1 Number of Families Enrolled in RSBY



Sources: Author's own compilation based on data at www.rsbyp.gov.in, accessed on 11 August 2013, and data available from MoLE, Government of India.

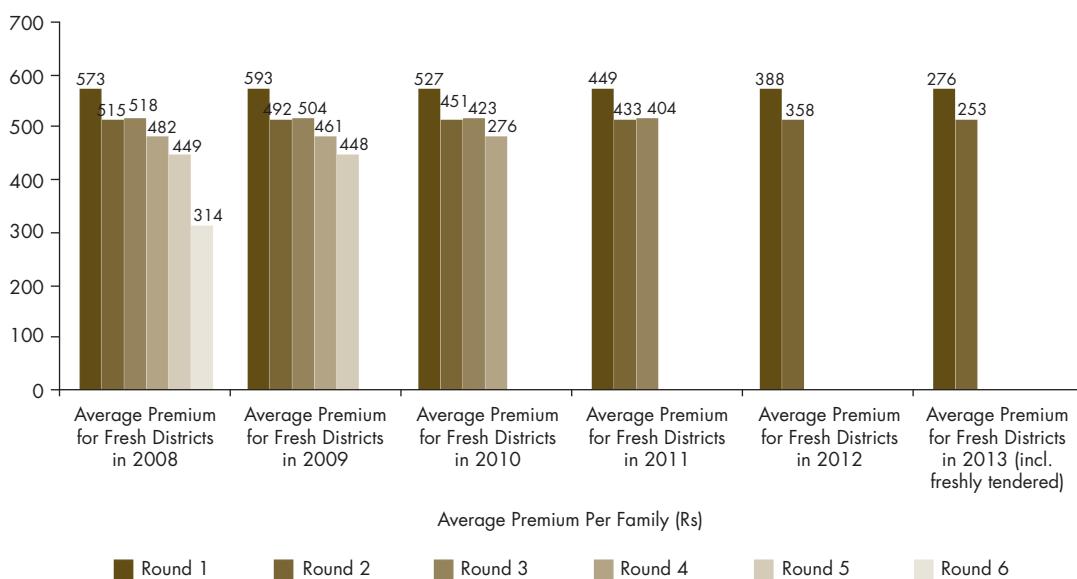
TABLE 10.4 RSBY Data

Number of families enrolled at present	Approx. 37.5 million
Persons enrolled at present	Approx. 112 million
Number of states and UTs where RSBY is being implemented	28
'% of states and UTs which have started RSBY implementation	95%
Number of hospitals empanelled	11,000
Number of hospitalisation cases till now	6.3 million
Average hospitalisation rate for 364 Round 1 district	1.9%
Average hospitalisation rate for 298 Round 2 districts	2.2%
Average hospitalisation rate for 121 Round 3 districts	5.0%
Average burnout ratio for 364 Round 1 district of insurance companies	76%
Average burnout ratio for 298 Round 2 districts of insurance companies	101%
Average burnout ratio for 121 Round 3 districts of insurance companies	104%
Total expenditure on premium subsidy of RSBY in 2012–13 by the Government of India	Rs 1,057 cr
Total expenditure on premium subsidy of RSBY in 2011–12 by the Government of India	Rs 923 cr
Total expenditure on premium subsidy of RSBY in 2010–11 by the Government of India	Rs 509 cr

Note: Round means number of years completed by the scheme in districts.

Sources: Author's own compilation based on data at www.rsbyp.gov.in, accessed on 11 August 2013, and data available from MoLE, Government of India.

FIGURE 10.2 Average Health Insurance Premium



Sources: Author's own compilation based on data at www.rsbysite.gov.in, accessed on 11 August 2013, and data available from MoLE, Government of India.

2013 it has come down to less than Rs 300 per family per year.

Reduction in the premium can be attributed to many factors such as correction in price (as initially premium was quoted without any verifiable data), competition, economies of scale, reduction in cost of IT, etc. Not so strong monitoring system of RSBY can also be one of the reasons for this.

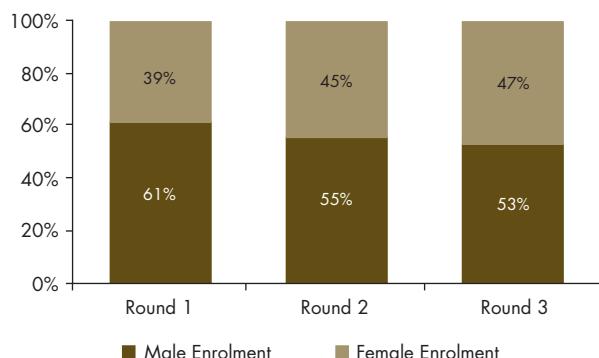
Though the decrease in premium is good for the government in financial terms, the premium should be at a level at which it can be sustained in the long run by the insurance companies so that they can provide benefits. If the government puts in place a strong monitoring system and has stronger control on the performance of the insurance companies, it may lead to a more realistic premium trends.

C. Improvement in Access to Healthcare—Access to healthcare for the targeted segment of RSBY has improved considerably in the past five years. MoLE data from the scheme shows that the rate of hospitalisation in the RSBY districts is increasing continuously. For the districts which have completed only one round, the rate of hospitalisation is 2.0 per cent which has increased to 5.04 per cent for the districts which have completed three rounds. If we compare these

rates with the National Sample Survey (NSS) data of 60th Round (2006) in India, where the rate of hospitalisation for the poorest 40 per cent of the population was found to be only 1.75 per cent there. This shows almost three times increase in the rate of hospitalisation for the RSBY beneficiaries. However, if we delve deeper into the data on hospitalisation, then there is a huge disparity between the states and, therefore, there is a lot of scope for further improvement.

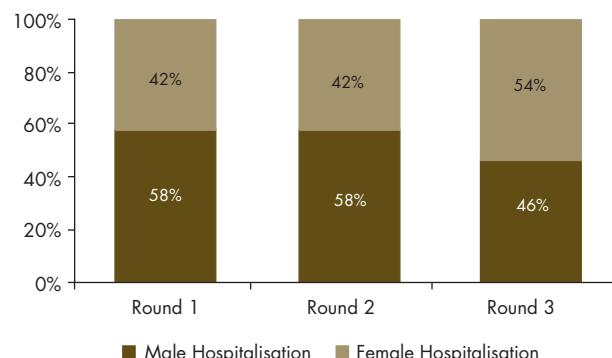
- D. **Gender Equity**—Data from past years has shown an incremental increase in the number of women enrolling as well as using hospitalisation services. At the national level, women have outnumbered men with 54 per cent availing benefits under the scheme.
- E. **Setting up of Health Infrastructure in Rural Areas**—One big challenge that RSBY faces is lack of health infrastructure, especially in the rural areas. However, evidence shows that the private sector is finding value in setting up health-related infrastructure in regions which were hitherto not serviced. In states like West Bengal, Bihar, Uttar Pradesh, Jharkhand, etc. new hospitals are being set up by the private sector. However, at the moment, these examples are more anecdotal, and there is no data available to show that new hospitals are being set up due to RSBY.

FIGURE 10.3 Nation-wide Gender-wise Enrolment Rate



Sources: Author's own compilation based on data at www.rsbys.gov.in, accessed on 11 August 2013, and data available from MoLE, Government of India.

FIGURE 10.4 Nation-wide Gender-wise Hospitalisation Rate



Sources: Author's own compilation based on data at www.rsbys.gov.in, accessed on 11 August 2013, and data available from MoLE, Government of India.

Evidence from Household Evaluations

A lot of third party evaluations of RSBY have been undertaken at state and national levels. The scheme document itself encourages the state governments to get third party evaluations done. In addition to these, the central government and other independent agencies have undertaken these evaluations. Some of the key findings from the above-mentioned evaluations are given below:

- A. **Processes for Enrolment**—Evaluations showed that most of the processes for enrolment of beneficiaries are being followed in the field. For example, more than 70 per cent of the families had to travel less than 5 km to get their smart cards. In most of the cases, the smart cards were delivered on the same day. However, a few studies report smart cards not being delivered on the spot. Another issue that emerged from these evaluations is that in a large number of cases, no document was provided along with the smart card to the beneficiaries. This results in lack of awareness amongst the beneficiaries about the benefits of the scheme.
- B. **Low Awareness**—Findings from evaluation studies also showed that though people were aware in general about the scheme, their awareness about the details of the scheme was not always complete. The process of availing benefits under the scheme was also not clear to the beneficiaries. As per an evaluation undertaken in the selected districts of the states of Karnataka, Uttarakhand and Bihar (GIZ 2012), it was found that more than 70 per cent of the beneficiaries were not aware of the fact

that the costs of medicines and diagnostic tests are covered under this scheme.

- C. **Non-payment of Transport Allowance**—Various evaluations show that at the time of discharge beneficiaries have often been denied the transport allowance of Rs 100. As per the evaluation study conducted in Karnataka, Uttarakhand and Bihar (*ibid.*), 51 per cent of the beneficiaries who had used RSBY services did not receive transport allowance.
- D. **Reduction in OOP Expenditure on Health**—The main objective of RSBY was to reduce the OOP expenditure on health by the poor population. The survey (carried out in 2012) on RSBY in the three states of Uttarakhand, Karnataka and Bihar shows that while 90 per cent of the RSBY enrolled patients did not incur any expense at the hospital for treatment in comparison to the eligible non-enrolled patients who spent Rs 17,000 on an average per year on hospitalisation.
- E. **High Level of Satisfaction**—Evaluation in the states of Kerala, Gujarat, Haryana, Bihar, Uttarakhand, Uttar Pradesh and Karnataka have shown that more than 90 per cent of the beneficiaries who have taken treatment under RSBY are satisfied with the services provided by the hospitals. However, it is important to understand the reason behind this level of satisfaction—earlier, these beneficiaries were not availing any benefit, but now they are being covered under RSBY. Therefore, it needs to be seen whether this satisfaction level continues to be as high or not.

F. High Renewal Rate—A key challenge in voluntary health insurance schemes is low renewal rate. But, RSBY has demonstrated that beneficiaries are satisfied and are willing to renew the scheme. A most recent survey in three states of Bihar, Uttarakhand and Karnataka shows that even amongst the beneficiaries of RSBY who have not used its services, 90 per cent of them still want to enrol in the subsequent years (*ibid.*).

CHALLENGES FACED

RSBY has achieved some degree of success, especially with respect to enrolling beneficiaries and improving access to healthcare. However, like any other health insurance scheme across the world, RSBY also faces many challenges. The main challenges are as follows:

- A. Buy-in of the Stakeholders**—Since the launch of the scheme, a major challenge for the government is to get the buy-in of stakeholders, including other ministries at the central and state level, insurance companies, smart card providers and private healthcare providers. With the changes in the scheme and its evolution, this challenge continues.
- B. Improving Enrolment**—Printing and issuance of smart cards in the village is one of the most challenging aspects of RSBY. The smart cards are to be issued on the spot and in difficult terrains. Once the smart cards are issued, another challenge is to improve the awareness of the beneficiaries about the usage of the smart cards. It has been observed that there are huge variations between the states with respect to enrolment conversion rate (percentage of targeted families enrolled). The national average for enrolment conversion ratio is still less than 60 per cent, which indicates that there is a lot of scope for improvement. One of the reasons for this is also the quality of data available. The governments will need to get better quality of data with duplications removed across various categories to get the correct figure. Improving the number of family members enrolled is another major challenge and the incentives and disincentives need to be designed in such a way that insurance companies enrol up to five members in each family.
- C. Improving Hospitalisation**—Enrolment of beneficiaries is only the first step. Beneficiaries need to utilise the scheme when required. Though

hospitalisation rates have increased over the years at the national level, yet there is a lot of scope for further improvement. The government needs to adopt a segmented approach and identify those districts where hospitalisation is low. There is a need to identify reasons for low hospitalisation based on which specific actions need to be taken to address the same. Focused awareness activities, empanelment of more hospitals, incentivising ASHA (Accredited Social Health Activist) workers, etc. are some of the steps that can be taken up by the government to improve hospitalisation.

- D. Availability of Health Infrastructure**—Ensuring availability of quality healthcare is always a major challenge. Convincing hospitals to empanel has been a major challenge during the initial years of the scheme. But five years since its implementation, the challenge to convince hospitals to remain empanelled has reduced. However, to ensure that the hospitals remain interested in the scheme, package rates offered need to be regularly updated and claims need to be settled on time. Inclusion of all eligible public healthcare providers is also very critical as in many areas there are no private hospitals available.
- E. Lack of Capacities at Different Levels**—Building capacities at each level to implement a complex scheme like RSBY has been a challenge. In many states, there is no full-fledged SNA to implement the scheme. The Government of India should issue clear guidelines regarding staffing of the SNAs for the states to adopt. RSBY is a complex scheme; it needs specialised people in each state to implement it effectively.
- F. Fraud and Abuse**—Tackling fraud and abuse are challenges in health insurance schemes across the world. RSBY is also faced with these challenges. Availability of data ensures that RSBY is better positioned to tackle this. Data as provided by MoLE through RSBY website shows that till now more than 250 hospitals have been de-empanelled from the scheme due to fraud-related activities. However, more structured systems need to be developed to tackle fraud and abuses. IT can be effectively used for this.
- G. Weak Monitoring System**—Though a lot of data has been generated under RSBY, use of such exhaustive data does not happen effectively. A much stronger monitoring system could be developed by the government to effectively monitor

the performance of the insurance companies and hospitals and at the same time measure the extent to which scheme is able to reach its objectives.

SUCCESS FACTORS

RSBY is one of the fastest growing health insurance schemes and has become one of the largest health insurance schemes across the world. Factors that are responsible for the success of this scheme are as follows:

- A. **Partnership Approach**—Right from the designing of the scheme, attempts were being made by the government to take the stakeholders into confidence. A partnership approach was adopted with all the stakeholders where roles and responsibilities were clearly defined.
- B. **Standardisation**—A national scheme like RSBY requires a high degree of standardisation, especially in the context of technology that was being used to ensure uniformity in working across India. This included standardisation of not only the key documents, but also the software and the hardware used. Clear guidelines were issued regarding their preparation, usage and certification.
- C. **Flexible Approach**—RSBY has evolved continuously since its inception. Various provisions and processes have been revised in response to the ground realities. For example, the definition of family was revised twice so as to allow inclusion of additional family members in the scheme.
- D. **Empowerment of Beneficiaries**—The beneficiaries, in this context, the poorest of the poor, are empowered as they were now being given a choice of hospitals, public and private, across the country.
- E. **Business Model**—This was perhaps the first business model at this scale for a social sector scheme with insurance companies and hospitals finding ‘fortune at the bottom of the pyramid’.

USE OF RSBY TECHNOLOGY PLATFORM TO DELIVER OTHER SOCIAL SECURITY SCHEMES

RSBY provides a smart card-based technology platform that has the potential to deliver for many other social security schemes. Many social security schemes are being run for the same target segment by the various ministries of the government, and at present separate efforts are being made to reach the same beneficiary

for these schemes. RSBY provides an opportunity to deliver various schemes to the same beneficiary at the same time.

The Government of Chhattisgarh took a decision to use RSBY smart card for delivering food subsidy through PDS. Entitlement of PDS is loaded in the RSBY smart card, and the beneficiaries can visit any empanelled fair price shop for their entitled foodgrains, kerosene, etc. after biometric verification. Data regarding purchase flow daily to the government server and government can track this on a daily basis. Experience from this experiment has resulted in substantial savings for the state government and also at the same time it has empowered the beneficiaries.

The Government of Punjab has experimented by delivering the life and disability insurance scheme called the Aam Aadmi Bima Yojana (AABY) through the RSBY smart card platform in one district. A beneficiary is enrolled at the same time for both RSBY and AABY. This makes not only the process of enrolling in these schemes easier, but also reduces distribution cost.

Such experiments show the potential of RSBY card that it can be used for delivering many social security benefits to the same beneficiary families.

OVERCOMING CHALLENGES

The scale RSBY has been able to reach within such a short period of time is something rarely seen in the health insurance sector across the world. It has not only been able to reach almost all the states of the country, but has also benefitted millions of people on the ground.

However, there are many challenges which need to be overcome if the scheme has to be sustainable and effective in the long run. In terms of reach, the scheme should aim to cover all the intended beneficiaries who are to be subsidised by the government. To achieve this, the first priority is the preparation of a quality beneficiary data. Though the task of preparing this list lies with the other departments of the government and not with RSBY, the endeavour should be to improve the list over time, and ensure that all those who are in the list are enrolled in the scheme. Since lists of different categories are prepared by different departments/agencies, it is critical that the de-duplication process is done on the combined list, though in the absence of common linkages between these lists it is not an easy process. Partnerships with field-based entities, which have direct access to the beneficiaries is very important and, therefore, CSOs and field-level functionaries can

play a very important role in improving the lists and removing the duplicates.

Similarly, once families are enrolled, it is necessary to ensure that they are not only aware of the different provisions of the scheme, but are also supported to take the benefits of the scheme through treatment at healthcare facilities. Field-level functionaries like ASHA workers, and also CSOs can play a very important role in both enrolment and hospitalisation. There have been examples in the field where organisations like the Poorest Area Civil Society (PACS) have been able to effectively reach the beneficiaries through the partner NGOs. However, this has happened only in a few states with limited number of districts. There is an urgent need to expand these initiatives to more states and districts and new partnerships needs to be formed. To leverage the existing structures at the field within the government system is also very important. Since many field-level functionaries of different departments like Auxiliary Nurse Midwives (ANMs) and ASHAs from department of health, Anganwadi workers, and village Rozgar Sevaks from rural development department are available in the field, they can be very useful in taking the message to the beneficiaries. Some states have started incentivising ASHA workers for bringing the beneficiaries to the hospitals, but much needs to be done in this regard so as to ensure that all the beneficiaries who need hospitalisation utilise the scheme.

Availability of healthcare facilities, especially in the rural and remote areas is another important area which needs to be tackled. Government health facilities like community health centres (CHCs) and district hospitals are providing services, and in many states they have been able to improve their service provisions by using the RSBY claims money, yet more public health facilities need to be empanelled in all the states. In terms of private healthcare providers, though they cannot be created overnight, but the business model of RSBY is encouraging new hospitals to be set up in the remote areas. However, to sustain the interest of the private hospitals in the scheme, it is imperative that their claims are paid on time, and that there is a robust grievance redressal mechanism that is available to the hospitals in case of issues regarding empanelment or claim settlement.

The state governments have set up SNAs as dedicated units to implement RSBY. From the past experience, it has been observed that the performance of the states in RSBY is dependent a lot on the strength of SNA and its capacity to implement the scheme effectively. Therefore, it is important for RSBY to build the capacities of the

SNAs to effectively implement and monitor the scheme. A sum of Rs 30 that is paid by the beneficiaries as a registration fee is used to take care of the administrative costs of the SNA. This money can be used to not only hire qualified staff for SNA, but to also carry out activities such as awareness generation, audits, etc. which help in better attainment of the scheme's objectives. Looking at the variations across states in the staffing structure of SNAs, it is important that the Government of India issues clear guidelines regarding this indicating the number and type of people required for the SNAs.

One of the biggest limitations of RSBY is that it covers only in-patient treatment, while more percentage of people needs out-patient services. Almost 70 per cent of OOP expenditure on health is on out-patient and therefore, if RSBY has to achieve its objective of substantially reducing OOP expenditure on health, then it needs to include out-patient department (OPD) in its benefit package. A few experiments were initiated by the government in partnership with the private sector to provide OPD benefits to RSBY beneficiaries. Results from these experiments have shown that there is some effect on the health-seeking behaviour, and in-patient instances have come down in the districts where OPD is covered. These experiments have also demonstrated that similar technology as that of RSBY can be used to deliver OPD benefits effectively. There is a need to develop a model of providing primary care based on these experiments and experiences across the world with RSBY. If a model can be developed to link primary care, then the scheme can be much more useful in reducing OOP expenditure on health.

The benefit package of RSBY is Rs 30,000 per year for a family of five. The data of the scheme shows that only 2 per cent of the families have used this Rs 30,000 out of all the families who have benefitted from the scheme. However, this can also be because the beneficiaries have not availed this scheme for costly treatment at all. Since the limit of Rs 30,000 was set more than five years back, the government should re-look at the coverage limit. Similarly, the limit of five members may discourage enrolment of families that have more than five members. The government should increase this limit from the current five to seven members per family. Since the average enrolled family size in RSBY continues to be less than five, increasing the limit will not have much impact financially on the premium, but it will benefit such families that have more than five members.

The quality of healthcare services is very important to ensure that correct treatment by qualified people is provided to the beneficiary in the time of need. However, for a large number of hospitals in India, improving the quality of care is not a priority. In the absence of any strong regulation or legal framework for ensuring quality of care, this issue becomes more complex. Experiences from other countries have shown that the quality of healthcare can be influenced through a demand-side approach. The government as a purchaser of healthcare services can influence healthcare quality strongly in the empanelled hospitals. An appropriate set of incentives and dis-incentives can be provided to the hospitals to improve their quality. Quality of care should be the priority for RSBY now, and a graded system for hospitals can be adopted for the same. Instead of creating a parallel system, efforts should be made to link it with the existing institutions like National Accreditation Board of Health (NABH) that are working on this.

Issues of fraud and abuse are the most problematic areas for the insurance industry worldwide, and the RSBY too is facing this challenge. The strength of RSBY in tackling these issues lies with its data. Since data flows every day from each hospital to the government and insurance company, it can be analysed for identifying trends and patterns. There is a need to develop more scientific and robust approach to this issue. The strength in terms of availability of data can be leveraged much more than what is happening at present. The capacities of the stakeholders handling data and engaging in preventing and identifying fraud and abuse needs to be further developed.

CONCLUSION

From the above discussion we can see that there are many areas under the scheme which has a scope for

improvement. Although the scheme has progressed a lot in such a short time, it is just the beginning and the scheme needs to further build on the strong foundations. Areas like quality management, controlling fraud and abuse, targeting, improving awareness, etc. need greater attention, and active efforts on the part of the government and implementing agencies. From the current system of every year enrolment process, the government may consider giving the smart card for a longer period of three to five years. This will save a lot of cost and efforts. This enrolment effort can be replaced by more awareness activities.

At the policy level, increasing the benefit package, adding out-patient benefits and expanding the scheme to all the unorganised workers are areas on which the government can focus. The benefit package can be expanded from a current Rs 30,000 to may be Rs 50,000. In addition to this, a top-up for critical care package by up to Rs 100,000–150,000 can be added and a single premium can be paid to the insurance companies for both the packages together by the government for the vulnerable population. This makes the package more wholesome from the hospitalisation perspective.

Using RSBY smart card to deliver other social security schemes can be another area where it can be beneficial to both beneficiaries and the government. After learning from the ongoing experiments in the field, a decision can be taken to scale up these experiments to a larger level. Schemes like AABY and the Indira Gandhi National Old Age Pension Scheme (IGNOAPS) can certainly be delivered to the same set of beneficiaries through the RSBY smart card.

RSBY has shown that a government scheme, if designed properly and implemented with right partnership approach, can be successful. However, now the responsibility lies with the government to build on this and move on to the next level.

REFERENCES

- GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit)—Indo German Social Security Program, Prognosis. 2012. *Evaluation of Implementation Process of Rashtriya Swasthya Bima Yojana in Select Districts of Bihar, Uttarakhand and Karnataka*.
- MoHFW (Ministry of Health of Family Welfare). 2009. *National Health Accounts, India, 2004–05*. New Delhi: MoHFW, Government of India.
- MoLE (Ministry of Labour and Employment). 2011. *Final Report on Pilot Post-enrolment Survey of the RSBY Programme in Haryana*. Mott MacDonald.
- MoLE (Ministry of Labour and Employment). 2011. *Final Report on Pilot Post-enrolment Survey of the RSBY Programme in Gujarat*. Mott MacDonald.
- National Sample Survey Organisation (NSSO). 2006. 'Morbidity, Health care and Conditions of the Aged'. Delhi: NSSO.

RSBY (Rashtriya Swasthya Bima Yojana). 2009. 'Tender Document' Template for Use by State Governments, www.rsbypv.in, accessed on 22 September 2013.

WHO (World Health Organisation). 2013. *World Health Statistics 2013*, http://www.who.int/gho/publications/world_health_statistics/EN_WHS2013_Full.pdf, accessed on 11 February 2014.

FURTHER READINGS

- Aiyar, A. 2013. 'Strengthening Institutions to Improve Public Expenditure Accountability: Rashtriya Swasthya Bima Yojana (A Study in Karnataka)'. Centre for Policy Studies, March.
- Amicus Advisory Pvt. Ltd., *Evaluation Study of Rashtriya Swasthya Bima Yojana in Shimla & Kangra Districts in Himachal Pradesh*.
- Amicus Advisory Pvt. Ltd., *Rashtriya Swasthya Bima Yojna: Studying Jaunpur (Uttar Pradesh)*.
- CTRD (Council for Tribal and Rural Development), May 2012, *Evaluation of 'Rashtriya Swasthya Bima Yojana Scheme' in Chhattisgarh*.
- Das, Jishnu. 2011. *India's Health Insurance Scheme for the Poor: Evidence from the Early Experience of RSBY*. New Delhi: Centre for Policy Research.
- Fan, Victoria. 2013. *The Early Success of India's Health Insurance for the Poor, RSBY*. Centre for Global Development, June 2013.
- Gill, H. S., and A. K. Shahi. 2012. 'Rashtriya Swasthya Bima Yojana in India—Implementation and Impact'. Zenith, *International Journal of Multi-Disciplinary Research* 2 (5), May 2012.
- GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit)—Indo-German Social Security Program, November 2013, *Assessment of Implementation Process of Rashtriya Swasthya Bima Yojana (RSBY) in Mizoram*.
- GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit)—Indo-German Social Security Program, November 2013, *Assessment of Implementation Process of Rashtriya Swasthya Bima Yojana (RSBY) in Meghalaya*.
- GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit)—Indo-German Social Security Program, November 2013, *Assessment of Implementation Process of Rashtriya Swasthya Bima Yojana (RSBY) in Manipur*.
- GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit)—Indo-German Social Security Program, November 2013, *Assessment of Implementation Process of Rashtriya Swasthya Bima Yojana (RSBY) in Nagaland*.
- Jain, N. 2010. '56 Million Steps Towards Universal Coverage: RSBY Health Insurance for the Poor in India, GTZ', Frankfurt, Germany.
- Kumar A. K., L. C. Chen, M. Choudhury, S. Ganju, V. Mahajan, and A. Sinha, et al. 2011. 'Financing Health Care For All: Challenges and Opportunities'. *Lancet* 377: 668–79.
- Narayana, D. 'Review of the Rashtriya Swasthya Bima Yojana'. *Economic and Political Weekly* 45 (29), 17 July.
- Palacios, R. 2010. 'A New Approach to Providing Health Insurance to the Poor in India: The Early Experience of Rashtriya Swasthya Bima Yojana', Working Paper No. 1, forthcoming, www.rsbypv.in.
- Prinja, S. 2012. 'Universal Health Insurance in India: Ensuring Equity, Efficiency & Quality'. *Indian Journal of Community Medicine* 37 (3), July–September.
- Rajasekhar, D. 2011. *Implementing Health Insurance for the Poor: The Roll Out of RSBY in Karnataka*. London School of Economics & Political Science, EOPP/2011/25.
- Research Institute Rajagiri College of Social Sciences, The, November 2009, *RSBY—CHIS Evaluation Survey: Facility Level Survey to Assess Quality of Hospitals in RSBY Network & Post Utilization Survey of RSBY Patient Experience at Empanelled Hospitals in Kerala*.
- Swarup A., and N. Jain. 2010. 'RSBY—A Case Study from India', Ministry of Labour and Employment, Government of India, New Delhi, www.rsbypv.in.
- Westat India Social Sciences, December 2010, *RSBY Beneficiary Experience Survey—Summary of Findings from the Feasibility Study*.

11

SIMPLIFYING THE HEALTHCARE ECOSYSTEM THE TPA WAY

Vikram Jit Singh Chhatwal

The Indian healthcare industry is growing at a phenomenal pace; so is the cost of healthcare. There is also a significant change in the perception of healthcare. Indian consumers are increasingly looking for healthcare beyond in-patient hospitalisation. With changing lifestyles, increasing awareness about holistic well-being, and the growing affluence of the middle class, the Indian consumer of healthcare is today demanding access to a whole continuum of services from a range of service providers—hospitals, wellness centres, diagnostic laboratories, pharmacies, and so on. These consumers of healthcare are also acutely aware of the rising cost of healthcare and are increasingly looking at health insurance as a means to hedge themselves against the risk of high out-of-pocket (OOP) expenses.

On the other hand, the Government of India is taking keen interest in the Universal Health Coverage (UHC) initiative proposed by the World Health Assembly. Public healthcare initiatives such as UHC are likely to result in a steep increase in the number of health insurance policies that need to be managed and administered at very low cost.

This augurs well for the health insurance industry. However, cost is the key to the sustenance of this industry. Consumers of healthcare will purchase health insurance only if it allows them to achieve their twin objective of lower cost of care and better access to a range of healthcare services. Third Party Administrators (TPAs) can give insurers just what they need to service the expectations of their customers—the benefit of

quick and hassle-free health benefits administration at lower costs.

While many insurance companies have already tied up with TPAs to reduce their administration costs and refocus on their core competency of undertaking risk through a range of innovative products, a few others are yet to realise the benefits of collaborating with TPAs, both to reduce their own cost of operations, and also the overall cost of healthcare in the ecosystem. TPAs, particularly those that equip themselves to address the evolving needs of the industry, are poised to play an important role in industry—and insurers have much to gain by collaborating with TPAs.

TPAs are today an integral part of the healthcare ecosystem; and going by the observable trends in the Indian healthcare industry, their role is only going to increase in the years to come, particularly in their ability to make quality care available at lower cost through superior provider contracting. TPAs, as aggregators of healthcare service providers, can provide consumers with single-window access to a wide range of healthcare services. More importantly, TPAs can leverage their position in the healthcare ecosystem to drive down the overall cost of care, thus making high quality care affordable to the masses.

In fact, TPAs have a very special role to play in the backdrop of the UHC initiative. In an enabling and collaborative environment, TPAs can make healthcare accessible to a vast majority of rural Indians at very affordable costs.

THE INDIAN HEALTHCARE INDUSTRY LANDSCAPE

The healthcare industry in India is witnessing rapid growth. According to the India Brand Equity Foundation (IBEF), *India Healthcare Industry Analysis Report 2013*, healthcare revenues in India are expected to touch \$ 280 billion by 2020. As a corollary, healthcare expenditure is also steadily on the rise. The IBEF report also indicates that healthcare expenditure is likely to grow at a compound annual growth rate (CAGR) of 12 per cent over the period 2012–15. Trends indicate that the per capita spend on healthcare is likely to grow at a CAGR of 10.3 per cent and reach \$ 88.70 by the year 2015.

This tremendous growth in healthcare in recent years can be attributed to the following:

- Rising income levels, both in urban and rural India; Tier II and Tier III cities today contribute significantly to the growth of the industry,
- Increase in lifestyle diseases,
- Easier access to healthcare facilities across the country. The emergence of tele-medicine has made healthcare accessible to the masses in even the remotest of locations in the country,
- Growing awareness about preventive healthcare,
- The dramatically expanding wellness industry,
- Proposed initiatives such as the UHC,
- The increasing penetration of medical insurance.

THE CHALLENGES

The growth opportunities notwithstanding, the spiralling cost of medical care is a cause for national concern. The FICCI (Federation of Indian Chambers of Commerce and Industry) and EY (Ernst & Young) (2012) study in the context of UHC reveals some hard-hitting statistics:

- Public expenditure on health is a mere 1 per cent of gross domestic product (GDP),
- Almost 80 per cent of urban households and 90 per cent of rural households estimate their average cost of in-patient treatment to be equivalent to almost half of their annual household expenditure; a hospitalisation in the family can, therefore, result in a high degree of financial hardship,
- About 3 per cent of India's population slips below the poverty line each year because of health-related expenses,
- Nearly 12–15 per cent of reported ailments remain untreated due to unaffordable costs.

This underlines the urgent need to reduce the overall cost of healthcare.

HEALTHCARE INSURANCE AS A DRIVER OF GROWTH

Medical insurance is an important contributor to the expansion of the healthcare industry. The segment, including both individual and group policies, is poised to become the largest of the general insurance businesses in the near future. Currently pegged at a mere 2 per cent, the IBEF (2013) study on healthcare expects the share of population covered by medical insurance to rise to 20 per cent by 2015.

Medical insurance makes better healthcare facilities accessible to people, often at lower overall cost. In fact, health insurance is today seen as an important mechanism to finance the healthcare needs of the people. With a number of companies offering health insurance cover to their employees, more and more employees are opting for a range of medical benefits. Many individuals are also opting for personal health insurance to hedge against the rising cost of medical care.

Cashless hospitalisation services in particular have been a primary driver for the increasing penetration of health insurance in India. Realising the importance and growth potential of the health insurance sector, the Insurance Regulatory and Development Authority (IRDA) has planned to provide various means to control and standardise the industry in order to attain maximum efficiency.

It is also important to note that the growth of health insurance must go hand-in-hand with healthcare delivery. Healthcare delivery, by the World Health Organisation (WHO) standards, is already grossly under-developed and requires massive building of capacities. TPAs are an integral part of this healthcare delivery ecosystem.

TPAs: NAVIGATING THE COMPLEX WEB OF HEALTHCARE

TPAs were introduced through the notification on TPA Health Services Regulations, 2001, by the IRDA. Their basic role is to function as an intermediary between the insurer and the insured and facilitate the cashless service of insurance. For this health benefit administration service, TPAs are paid a fixed percentage of the insurance premium as service fee by the insurance companies. TPAs focus on the processing and administration of

health benefits related to health insurance plans, but do not carry any insurance risk. TPAs are, therefore, the bridge between insurance companies and their customers, facilitating seamless access to cashless health insurance benefits.

Unique Position in the Healthcare Ecosystem

What puts TPAs in a unique position in the healthcare industry is their 'third-party' outlook. Insurance companies are the underwriters of risk. It is, therefore naturally, in their interest to minimise their risk and keep insurance-related outgo strictly under check. It is important to note here that the IRDA does not directly regulate the captive (in-house) claims administration arm of insurers. This approach does not always align with the perspective of insurance holders who are looking to reduce their personal spend by utilising the benefits extended under their insurance policy to their best. The result of this conflict of interest is rejected claims, longer claim settlement cycles, unhappy customers, and in some cases, fraudulent /inflated claims.

TPAs, as the agnostic party in the healthcare ecosystem, are able to balance the interests of both the insurance companies and the insured customer. With no conflicting interests, TPAs are able to take a dispassionate look at each claim and settle them to the mutual satisfaction of both the insurer and the insured. Also, unlike in the case of captive (in-house) claims administration arm of insurers, TPAs must operate within the framework laid out by IRDA. This further increases visibility into the claims settlement process.

Reducing Overall Cost of Healthcare

TPAs are also able to reduce health benefit administration costs drastically. In the USA, for example, 30 cents to a dollar are being spent on policy administration; this is extremely prohibitive. In a price-sensitive country like India, it is even more important to keep benefit administration costs under check. Reducing administration costs can go a long way in making healthcare more accessible to the masses.

From an insurer's perspective, benefits administration is an expensive non-core activity that increases its overall cost of operations; this, in turn, leads to higher cost of insurance in the industry. By taking away the cost of benefit administration from the hands of insurers for the payment of a fixed fee, not only are TPAs reducing the overall cost of insurance, but they are also empowering

insurers to concentrate on their core business of risk underwriting. Also, as a business focused on benefits administration, TPAs are in a position to build scale by putting together a large operations team that can handle benefits administration across insurers; this further reduces the overall cost of healthcare for the insured.

TPA as an Aggregator

TPAs also play the unique role of an aggregator in the industry. As the common link between various stakeholders in the healthcare ecosystem, TPAs are able to aggregate the diverse services offered by them all under a single roof. TPAs bring insurance companies, hospitals, ambulatory healthcare service providers, pharmacies, corporates and individuals together; and as the single point of contact for all of them, TPAs manage a wide web of interactions seamlessly.

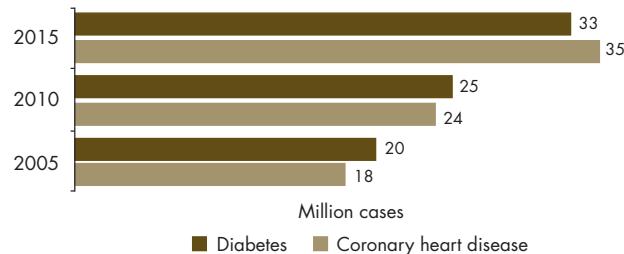
DRIVING THE HEALTHCARE ECOSYSTEM OF THE FUTURE

TPAs are particularly well-placed to cater to the healthcare requirements of the future. Consider the following trends in the industry:

Increase in Lifestyle Diseases

Chronic lifestyle diseases such as diabetes are steadily on the rise (see Figure 11.1). These diseases require life-long medication and constant monitoring. Regular access to preventive health check-up and timely availability of prescription medication are critical requirements for these patients. Cost of medication is also a crucial aspect for persons looking at life-long medication. TPAs can leverage their position in the market as aggregators of service providers to cater to these patients' need for timely availability and affordability of prescription

FIGURE 11.1 Lifestyle Diseases in Urban India



Source: FICCI and PwC (2011).

drugs. Based on the coverage offered under their insurance policy, TPAs can arrange for these patients to access medical check-ups and pharma benefits at lower costs.

The Growing Wellness Market

According to the FICCI and PwC (2011) study, the overall wellness market in India is estimated at Rs 490 billion. This includes wellness offerings that can be segmented as hygiene needs, curative needs, and enhancement needs (see Figure 11.2). Close proximity and access to reputed experts/doctors are crucial requirements for customers of the wellness segment. Here again, TPAs are in a position to influence the decisions of consumers. As the bridge between consumers and service providers, TPAs can match specific consumer requirements with the most appropriate service provider in their network, thus creating a win-win situation for both the parties involved. With several leading hospitals now moving into the wellness space, and the insurance industry also taking keen interest in the wellness sector, TPAs

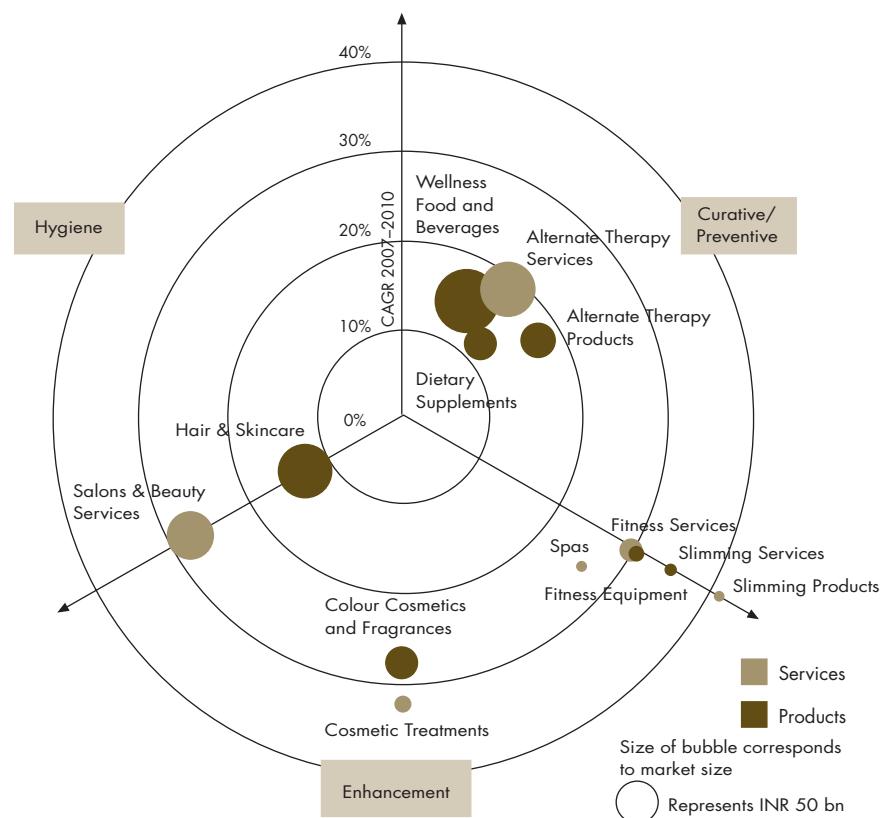
are poised to extend the benefits of cashless wellness to consumers in the near future.

The Proposal for UHC

In 2005, the World Health Assembly urged its member-states to work towards UHC after considering the particular macro-economic, socio-cultural and political context of each country. The Government of India is committed to rolling out UHC, where all citizens have equitable access to key promotive, preventive, curative and rehabilitative health interventions at affordable costs.

One of the recommendations of the FICCI-EY study related to the adoption of UHC is to extend coverage of health insurance to 50 per cent of the population of India. This would translate into an enormous number of private- and publicly-financed health insurance policies being purchased. The benefit administrator cost will, therefore, be critical to the success of such a social-economic programme. TPAs are in a position to contribute to this nation-building activity by managing large-scale health benefits administration at low cost, thus making low cost health insurance a reality in the country.

FIGURE 11.2 The Wellness Market in India



Source: FICCI and PwC (2011).

In a little known fact, TPAs are already making a significant contribution to public healthcare schemes that are akin to UHC, albeit indirectly. As per IRDA regulations, TPAs can service only those claims where the risk is underwritten by an insurance company. However, TPA group companies are regularly invited by the central and state governments to administer health benefits under several public programmes such as the Vajpayee Arogyashree Scheme in Karnataka, Mukhyamantri Amrutum Yojana in Gujarat, and the Rajiv Arogyasri scheme in Andhra Pradesh, to name a few. Although technically outside the preview of TPAs, since the risk under these schemes is underwritten by the government and not an insurance company, the government leverages the expertise of TPAs for administration of benefits under their schemes at low cost; only they do this by inviting the TPA group companies since, as per regulations, they cannot directly work with TPAs in the absence of an insurance agency.

In the case of Rashtriya Swasthya Bima Yojana (RSBY), a health insurance scheme for the below poverty line (BPL) families run by the central government in partnership with the state governments, TPAs are involved in end-to-end administration of the scheme at the grassroot level. TPAs are responsible for setting up enrolment camps in the remotest of villages to enrol BPL families. These camps involve putting together the infrastructure required to capture biometric information of the beneficiaries and issuing biometric cards that entitle the beneficiary families to cashless hospitalisation/medication covering a range of ailments. TPAs are today handling the claims adjudication and settlement process for these needy families for as low as Rs 3–5 per life; their ability to administer claims at such low margins is crucial to the overall success of the scheme.

THE FOUR PILLARS OF GROWTH FOR THE TPA INDUSTRY

The TPA industry itself is at crossroads today. A highly fragmented market in India, the TPA industry is experiencing consolidation at both the national and regional level. The renewed emphasis on cost and competition in the market has led to further shrinking of the already thin margins in this people-intensive industry. The rising cost of hiring, training and retention of personnel puts further pressure on the business.

Scale of operations apart, there is an urgent need for

TPAs to streamline their operations and work smarter in order to remain competitive and profitable in the market. The industry of the future belongs to TPAs that are lean, have the advantage of scale and, importantly, are professionally managed. The future of TPAs lies in their ability to leverage the following four pillars of sustainable growth, which are:

Technology

Despite the spate of advancements made in the field of technology and medicine, the insurance and the TPA industries continue to be largely people-intensive. Most of the industry hinges on manual processes that are time consuming, and are often fraught with inaccuracies and duplication of work. Claim settlement cycles tend to be as long as seven days.

Technology will be a major differentiator for TPAs in the years to come particularly in the wake of a growing demand from customers for speedy settlement and the increasing need for low cost claims administration to sustain social schemes such as the UHC. Replacing repetitive and manual processes with automatic workflows and applications will allow TPAs to reduce cost of operations and also crunch claims approval cycles to as less as just one day. The use of technology to manage claims administration will also significantly increase the level of transparency in the manner in which claims are validated and settled.

Managed Care

People opting for insurance today are not necessarily patients; they are consumers of healthcare purchasing a range of services—preventive care, in-patient hospitalisation, out-patient consultation, and wellness. Currently, TPAs primarily focus on the in-patient category of consumers. The success of TPAs in the future hinges on their ability to offer an entire continuum of services to these consumers, from prevention through recuperation, and maintenance.

TPAs that can aggregate a wide spectrum of service providers—hospitals, pharmacies, diagnostic centres, clinics, wellness centres, etc.—will be in a position to attract many more consumers of healthcare who are looking beyond just hospitalisation benefits. Service providers will be more willing to partner with TPAs that have a wide customer-base in a bid to reach out to a larger segment of the market. Insurance companies, too, will prefer to work with TPAs that have proven experience, validated processes, and better provider contracting that gives their customers access to better

packages and benefits at superior rates across a wide array of healthcare delivery channels.

Fraud and Abuse Management

One of the biggest challenges for the insurance companies, particularly in a manual process-driven environment, is the detection and prevention of fraud. With papers being faxed, copies of the originals being circulated from desk-to-desk, and originals being submitted with a lag of a few days, the entire process lends itself to abuse and fraud. Business intelligence and predictive analysis applications will be able to spot and flag off irregular/suspect transactions that may otherwise not be evident to customer-service representatives filing and recording claims into the system. TPAs that are able to leverage technology to address the critical requirement of fraud and abuse management will be able to differentiate themselves in the market effectively.

From the consumers' perspective as well, TPAs that are able to ethically leverage medical intelligence to offer personalised services and offerings, will be able to attract a loyal customer-base that chooses to be serviced by the TPA irrespective of the insurance provider underwriting the risk on their behalf. IRDA has allowed senior citizens to choose a TPA independent of the insurer. This is a precursor to where the industry is headed. TPAs that are able to differentiate themselves in the market for their reach, scale, service and reliability will dominate the market where every insured individual can independently choose a TPA of their choice.

Fraud and abuse management is particularly important in the context of public health initiatives such as UHC. With claims coming in from all quarters of the country, at very high frequency given the number of lives covered, and often from remote locations, technology can play a significant role in increasing accountability and reducing possibility of corruption while handling public monies.

TPAs beyond TPAs

As per IRDA regulations, TPAs can only administer benefits on behalf of an insurance company. A large segment of the market, however, does not approach insurance companies to underwrite their risk. Many corporates, for example, have self-funded insurance programmes for their employees, where the company itself underwrites the underlying risk. This large

segment of the market can benefit immensely from the services of TPAs.

As risk-agnostic players in the healthcare ecosystem, TPAs can extend their healthcare benefits administration services to any customer irrespective of who is underwriting the risk in the transaction—be it a regulated insurance agency or a self-funded corporate. This segment of self-funded insurers can gain further momentum if an enabling policy framework is put in place by the IRDA and the government. The cost advantage derived from such a move can be significant. The cost of self-administering health benefits can be channelled back into the system to cover many more lives that currently remain unserved.

Again, in the context of UHC, an enabling framework, that allows the government to directly engage with TPAs can be beneficial for the entire ecosystem of low cost healthcare. TPAs, if formally allowed to engage directly in benefits administration in the absence of insurance companies, can play a major role in the successful roll-out of government health schemes, both within and outside the purview of UHC.

MAKING THE RIGHT CHOICE

There is little doubt that TPAs serve a very crucial role in simplifying the healthcare industry in the country. A few insurance companies continue to rely on their captive (in-house) set-up for claims administration. A few others, have recently come together to explore the viability of setting up an insurer-led TPA. Such insurer-sponsored TPAs are, however, counter-intuitive and sub-optimal. Here are some reasons why:

Why Reinvent the Wheel?

TPAs in the market have spent several years building and perfecting the benefits administration service delivery model. It does not make sense for insurers to recreate the entire structure from scratch. At the rapid pace at which the TPA industry is evolving, these insurer-led TPAs are likely to spend a good amount of their time and resources catching up with the existing TPAs in terms of technology and scale of operations. This cost is well avoidable.

Why Increase Costs?

TPAs are today able to service health benefits at very competitive rates. Competition within the industry

keeps TPAs on their toes. This keeps the overall cost of insurance lower as well. However, insurer-sponsored TPAs will only be adding their cost of administration back into the insurance policy; and their cost of administration is bound to be higher than that supported by the existing TPAs. Insurer-sponsored TPAs are, therefore, only going to further jack up the cost of health insurance in the industry.

Why Lose Focus on Account of Non-core Activities?

The real business of insurance agencies is underwriting risk. Rather than delve into non-core activities such as benefits administration, insurers would benefit from channelling their resources towards new business and innovative product development.

Why Create a Conflict of Interest?

This brings us back to the beginning of our discussion. TPAs exist as trusted members of the healthcare ecosystem because they solve the crucial and ethical conflict of interest. An insurer-backed TPA cannot claim to be an agnostic third-party. This would put them on a back-foot in the healthcare ecosystem; and customers are quite likely to be wary of them.

Why Choose Competition over Collaboration?

Inordinately high claims ratios are already taking a toll on the health insurance sector. Foraying into another capital-intensive and highly competitive space like benefits administration may not be the most prudent option for insurers. Leaders in the TPA industry are already demonstrating the advantages of collaboration; they are creating an ecosystem of diverse service providers to administer healthcare services that go beyond hospitalisation, at no additional cost to them. Such collaboration will undoubtedly be beneficial to the entire ecosystem, the insurers included.

REFOCUS ON SERVING THE NEEDS OF CUSTOMERS

The debate is not so much about the efficacy of TPAs. The debate is about choosing who must handle this crucial service delivery activity. Should

insurers reinvent the wheel, spending a lot of time and resources in the process? Or should they instead invest just some of their time to identify the right TPA partner who can manage healthcare benefits administration process end-to-end more efficiently at a more competitive cost? Should, for that matter, the IRDA continue to link the services of TPAs with insurance companies?

The answer is evident. Collaborating with the right TPA partner can be the defining decision for insurance companies that are readying themselves for the future. Not only will this allow them to concentrate on their core business activity, but will also go a long way in empowering them to partake in socially relevant public initiatives such as UHC.

The emphasis here is on collaborating with the right TPA—a partner who can work alongside them to achieve their overall goal of higher customer satisfaction, greater profitability, and making health insurance and, therefore, quality healthcare truly accessible to the masses at low cost.

TPAs on their part need to quickly adapt to the changing requirements of consumers and customers, and equip themselves for a future where hopefully every Indian citizen will be insured for health benefits and will be looking to enjoy affordable, cashless and seamless access across a continuum of medical care.

CONCLUSION

As India readies itself for far-reaching programmes such as UHC, TPAs can play a very important role in the healthcare ecosystem. TPAs, through their group companies, have already proven their ability to roll out and service low-cost public health insurance programmes end-to-end. An enabling policy framework that allows TPAs to directly engage with undertakers of risk—be they insurance companies, self-funded organisations or the government—will bring down the overall cost of health insurance.

With each entity in the ecosystem leveraging its unique strength—the hospitals and health centres providing healthcare, insurers making healthcare more accessible, and TPAs making healthcare both more accessible and affordable, India can realise the true intent of the UHC—giving every Indian the promise of healthy living at an affordable cost.

REFERENCES

- FICCI and EY. 2012. *Universal Health Cover for India: Demystifying Financing Needs*, Federation of Indian Chambers of Commerce and Industry and Ernst & Young, [http://ey.com/Publication/vwLUAssets/Universal_health_cover_for_India/\\$File/FICCI-EY_Report_2012.pdf](http://ey.com/Publication/vwLUAssets/Universal_health_cover_for_India/$File/FICCI-EY_Report_2012.pdf), accessed on 30 January 2014.
- FICCI and PwC. 2011. *Riding the Growth Wave: Wellness*, Federation of Indian Chambers of Commerce and Industry and PricewaterhouseCooper, http://www.pwc.in/en_IN/in/assets/pdfs/publications-2011/wellness-report-15-sept.pdf, accessed on 30 January 2014.
- IBEF. 2013. 'Healthcare', India Brand Equity Foundation, <http://www.ibef.org/download/Healthcare-March-220313.pdf>, accessed on 28 January 2014.

FURTHER READINGS

- CII. 2013. Moving Towards Universal Health Coverage in India, Report of the Sub-Group on UHC, Confederation of Indian Industries, New Delhi:
- Northbridge Capital. 2010. 'India Insurance Research', April.

12

ACCESS TO MEDICINES, MEDICAL DEVICES AND VACCINES IN INDIA

Sakthivel Selvaraj and Aashna Mehta

Today, India is known world over for supplying affordable, life-saving, quality generic medicines to not only developing countries but also to the developed world. The country produces medicines worth over Rs 100,000 crores, 40 per cent of which are supplied to patients outside the country. Further, India boasts of having over 350 drug-producing units that are endorsed by the European Union (EU) as Good Manufacturing Practices (GMP)-compliant and the maximum number of US-FDA (United States Food and Drug Authority) approved manufacturing facilities outside the United States (Selvaraj and Nabar 2010).

It is ironic that in a country that is referred to as the 'pharmacy of the global south' and has now emerged as the 'pharmacy of the globe', 50 to 65 per cent of the people do not have regular access to essential medicines (WHO 2004). Similarly, India, a leading producer of vaccines in the world, is paradoxically also a country with the maximum number of child deaths. Recently, medical devices too have emerged as an indispensable part of our health system. But in the absence of effective financial risk protection, the access to medical devices has increased, but only for certain sections of the society.

Availability and accessibility of medicines, vaccines and medical devices are critical for a robust healthcare system. Today, the discourse on public health needs to focus not just on access, but also on affordable and equitable access to medicines, vaccines and medical devices for all. There are, however, several barriers to

access to medicines, vaccines and medical devices, viz. inadequate public expenditure, insufficient financial risk protection, ineffective regulation and so on. This chapter comprehensively discusses these barriers, and proposes viable policy options to deal with the problem at hand.

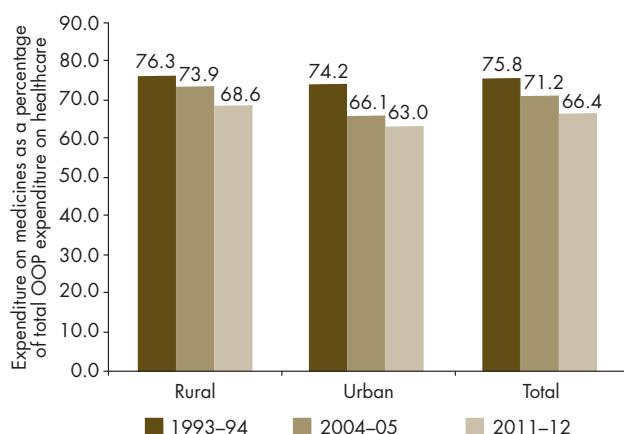
FINANCING MEDICINES IN INDIA

A majority of the expenditure on healthcare in India is out of pocket, of which a substantial proportion (66.4 per cent) was on medicines alone in 2011–12 (see Figure 12.1). The share of medicines in the total out-of-pocket (OOP) expenditure was higher in the rural areas (69 per cent) than in the urban areas (63 per cent). Although the share of expenditure on medicines has declined over the last two decades, it continues to be a significant proportion of the total OOP on healthcare.

In a country with widespread poverty and deprivation, people have to frequently forgo treatment in the face of financial constraints. And those who undergo some kind of treatment, in the absence of effective public sector health provisioning, often end up incurring debts or selling their household assets in order to finance these OOP payments. Millions of people in India are pushed below the poverty line or impoverished every year due to OOP expenditure on healthcare.

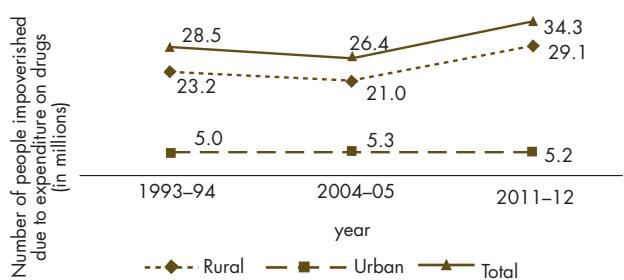
Figure 12.2 shows that the number of people impoverished due to expenditure on medicines increased from 26.4 million in 2004–05 to 34.3 million in 2011–

Figure 12.1 Share of Medicines in Total OOP on Healthcare



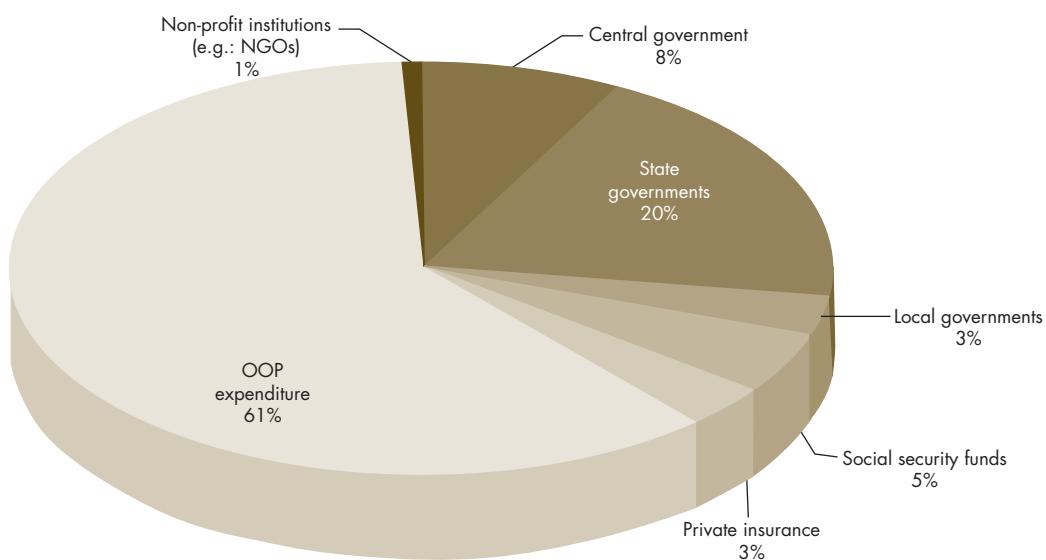
Source: Authors' estimates based on data from NSSO, CES 68th Round.

FIGURE 12.2 Impoverishment due to Expenditure on Drugs in India



Source: Authors' calculations based on data from NSSO, CES 68th Round.

FIGURE 12.3 Sources of Funds for Healthcare Expenditure in India (2012)



Source: WHO NHA database (2012).

12. Although impoverishment due to expenditure on medicines marginally decreased in the urban areas for the same period, it increased considerably in the rural areas indicating that the rural population is disproportionately burdened.

India on the one hand has a poorly funded public health system, while on the other, a poorly regulated but widespread private healthcare system. It spent only about 4.13 per cent of its gross domestic product (GDP) on healthcare in 2008–09, of which government spending accounted for a measly 1.1 per cent (National Health Accounts India 2004–05).

Figure 12.3 indicates that private expenditure by households, which includes OOP expenditure, private health insurance and not-for-profit institutions serving the households, accounted for 65 per cent of the total expenditure on health in 2012. Evidently, OOP expenditure constituted a major share of the pie at 61 per cent. While the central government accounted for 8 per cent of the total expenditure, the state governments spent 20 per cent, and the municipal governments spent another 3 per cent. Finally, social security funds constitute 5 per cent of the expenditure.

The per capita OOP expenditure on medicines in India was Rs 73.9 in 2011–12. This accounted for 66.4 per cent of the OOP expenditure on healthcare. But these figures mask the widespread disparities in spending across states. The per capita OOP household expenditure ranged from a paltry Rs 34.4 in Jharkhand to Rs 156.5 in Kerala. Similarly, the share of medicines

TABLE 12.1 Interstate Comparison of Household OOP Expenditure on Medicines (INR): 2011–12

State	Per capita OOP expenditure on medicines (Rs)	Share of medicines in OOP expenditure (Percentage)
Jammu & Kashmir	65.6	76.5
Himachal Pradesh	95.1	81.3
Punjab	145.4	75.5
Uttarakhand	53.6	73.8
Haryana	79.6	73.9
Delhi	67.0	56.2
Rajasthan	71.6	75.2
Uttar Pradesh	81.8	73.5
Bihar	41.6	75.2
Arunachal Pradesh	38.9	60.8
Tripura	50.7	77.6
Assam	26.2	75.6
West Bengal	78.5	62.6
Jharkhand	34.4	67.1
Odisha	54.4	78
Chhattisgarh	40.6	70.1
Madhya Pradesh	50.5	68.7
Gujarat	61.6	60.6
Maharashtra	93.1	58.2
Andhra Pradesh	92.8	66.6
Karnataka	69.1	60.9
Goa	90.5	67.8
Kerala	156.5	62.3
Tamil Nadu	79.8	56.6
All-India	73.9	66.4

Source: NSSO, CES 68th Round.

in OOP expenditure ranged from 81.3 per cent in Himachal Pradesh to 56.2 per cent in Delhi.

The government (both central and state) allocated a meagre 13 per cent of its total healthcare expenditure on the procurement of medicines in 2010–11, a marginal increase from 9.6 per cent in 2001–02. Again, the allocation of government expenditure on medicines varies widely across states. In 2010–11, it varied from just 1 per cent in Punjab to 12.2 per cent in Tamil Nadu. The central government was spending 15 per cent of its health expenditure on medicines in 2010–11 (see Table 12.2).

Given the abysmally low coverage of social health insurance, the situation is rather grim. The reimbursement of the expenditure on medicines is

TABLE 12.2 State-wise Government Spending on Healthcare and on Medicines (INR): 2010–11

Name of states	Overall expenditure on healthcare 2010–11 (Rs Lakh)	Drug expenditure as % of healthcare expenditure
Assam	8,635	5.0
Bihar	13,350	7.0
Gujarat	15,431	7.6
Haryana	6,090	5.5
Kerala	24,861	12.5
Maharashtra	20,882	5.2
Madhya Pradesh	12,213	9.3
Punjab	1,545	1.0
Rajasthan	3,854	1.5
Uttar Pradesh	31,481	5.3
Jharkhand	2,716	3.4
West Bengal	21,403	6.8
Andhra Pradesh	23,458	10.0
Karnataka	14,831	6.3
Tamil Nadu	43,657	12.2
Himachal Pradesh	1,122	1.9
Jammu & Kashmir	4,550	4.3
Central Government	253,368	15.0
Total	503,447	13.0

Notes: Estimates for the year 2010–11 are budget estimates. Only 17 states are reported.

Sources: Budget document, respective states and central government.

hardly ever a part of benefit packages with the exception of Employees' State Insurance Scheme (ESIS) and the Central Government Health Scheme (CGHS).

There is an inevitable need for scaling up public spending on medicines so as to reduce the household OOP expenditure and provide them with the much-needed financial risk protection. However, the solution does not lie in increasing budget allocations alone. In the face of weak institutions and poor governance, it is crucial to ensure efficient utilisation of funds, and this requires a concomitant, reliable and effective supply-chain management system, a lack of which could result in acute shortages and chronic stock-outs of medicines.

PROCUREMENT AND SUPPLY-CHAIN MANAGEMENT

A reliable supply-chain consists of a system of procurement and logistics. It is important that essential

medicines are procured in sufficient quantities at the lowest possible prices to secure maximum therapeutic value to the largest number of beneficiaries, given the resources at hand.

An efficient procurement system involves: (i) preparation of an essential medicines list, that will form the basis of the medicines to be procured; (ii) assessment of the quantity of medicines to be procured or demand forecasting; (iii) quality assessment; (iv) procurement of medicines; (v) supply-chain management; and (vi) prompt payment to the suppliers. An efficient procurement model is established on the principle of transparency in each of these processes. Failing to perform any of these activities with utmost efficiency can lead to suboptimal procurement resulting in shortages and uncompetitive behaviour of the suppliers, leading to a hike in prices.

Different procurement mechanisms are being followed in different states in India. While Tamil Nadu and Rajasthan follow the centralised procurement and decentralised distribution system, Chhattisgarh follows the decentralised procurement system. The Bihar model is a combination of these two systems.

Set up in 1994, the Tamil Nadu Medical Services Corporation (TNMSC) is a pioneer of the pooled procurement system in India. The TNMSC model is that of centralised procurement and decentralised distribution of medicines free of cost at the public health facilities supported by computerised management. Warehouses have been set up in all the district headquarters, from where supplies are sourced to the public health facilities. A passbook with monetary entitlements is provided to all public health institutions that can obtain medicines in the approved list from the available funds. Under TNMSC's Drug Distribution Management System (DDMS), each district warehouse is linked to the central computer at the head office and the issue and receipt of medicines is computerised resulting in prompt adjustment in the stock position. This facilitates a need-based transfer of medicines from one warehouse to another, thus avoiding stock-outs.

The Rajasthan Medical Services Corporation (RMSC) was set up in 2011 and was modelled on similar lines as the TNMSC. Both Rajasthan and Tamil Nadu have a procurement agency as well as a well-defined process, and in order to meet contingencies, a certain amount of the procurement budget is under the control of the individual facilities. The rate contract is awarded by opening the financial bids in front of all successful technical bidders, which has led to increased confidence in the procurement

system. Most importantly, these models are able to utilise economies of scale.

On the other hand, the Chhattisgarh model of decentralised procurement at district level fails to tap the economies of scale. The Bihar model too lacks clarity and adequate documentation which results in subjective interpretations of whatever information is available and a general lack of confidence amongst the suppliers. The problem is compounded by the absence of a clear process for identifying the required medicines and in most cases a top-down approach rather than a need-based approach is followed. Moreover, the absence of dedicated warehouses and an efficient supply-chain system has adversely impacted the storage as well as the delivery of medicines.

A survey of the availability and stock-outs of essential medicines in the various districts of Tamil Nadu and Bihar for the year 2011 showed that the mean availability of medicines in Bihar on the day of the survey was about 43 per cent as against 88 per cent, or double that in Tamil Nadu. Whereas Bihar's health facilities registered average stock-outs of about 41 per cent, the proportion of stock-out for Tamil Nadu was less than half of that, at around 16 per cent. While the average duration of stock-outs was 105 days in Bihar, it was roughly 50 days in Tamil Nadu. It is also evident from Table 12.3 that the availability and stock-out position varies from district to district in both these states.

Further, a comparison of RMSC procurement rates with the prices in the private retail market for a common basket of anti-infectives showed that the market prices were way above the procurement rates in 2012. In fact, market prices were higher by anywhere between 30 per cent and 1,174 per cent for almost all medicines (see Table 12.4). It is evident from the analysis that an effective centralised procurement model leads to significant cost savings.

The system of centralised procurement and decentralised distribution of medicines as followed in Rajasthan and Tamil Nadu is clearly the most efficient model of procurement as well as supply-chain management and should without a doubt be systematically replicated in other states of the country.

DRUG MANUFACTURING IN INDIA

Pharmaceutical production has registered remarkable surge in India over the years as a result of growing demand. India has a total of 10,563 manufacturers spread across various states of which 8,174 produce

TABLE 12.3 Availability and Stock-outs of Essential Medicines in the Districts of Bihar and Tamil Nadu, 2011

Bihar Districts	Bihar			Tamil Nadu			
	% essential medicines available (survey day)	% of essential medicine stock-outs (in the last 6 months)	Average duration of stock-out (days)	Tamil Nadu Districts	% essential medicines available (survey day)	% of essential medicines stock-out (6 month)	Avg. duration of stock-out (days)
Begusarai	52.27	38.63	114.08	Coimbatore	90.91	13.64	25.0
Darbangha	0	100.0	180	Cuddalore	81.81	21.21	44.52
East Champaran	31.82	54.54	126.2	Trivillur	81.82	18.18	49.17
Gopalgunj	45.45	38.63	87.7	Erode	90.9	18.18	60.56
Jehanabad	38.63	47.72	82.2	Kanyakumari	90.9	6.82	6.67
Lakhesarai	59.09	31.82	87.86	Nagapattam	77.27	18.18	103.75
Madhubani	40.9	34.09	78.7	Namakkal	100	9.09	40.0
Muzaffarpur	27.27	100.0	180.0	Nilgiri	86.36	13.64	73.33
Nalanda	45.45	22.73	102.0	Perambur	90.91	18.18	75.0
Patna	25.75	43.9	74.9	Salem	86.36	13.64	35.0
Purnea	60.60	45.45	70.3	Shivganga	90.91	27.27	30.17
Samastipur	36.36	36.36	91.25	Tanjavore	95.45	29.54	48.25
Saran	50.0	33.33	87.5	Thiruvnamallai	81.82	13.64	75.0
Siwan	61.36	27.27	131.85	Tirunelveli	81.81	12.12	56.25
Vaishali	63.64	31.82	58.57	Tuticorm	77.27	27.27	72.0
Bhojpur	31.8	18.18	121.2	Villupuram	90.9	22.72	41.25
Katihar	36.36	31.82	111.43	Virudnagar	90.9	2.27	25.0
				Vellore	93.18	9.09	42.5
Overall for state	42.64	41.35	105.0	Total	87.76	16.37	50.19

Source: Selvaraj et al. (2011).

TABLE 12.4 A Comparison of RMSC Procurement Rates with the Market Prices for Anti-infectives in 2012

Name of drug	RMSC rate (Rs)	units	Volume weighted mean market price (Rs)	Percentage greater than RMSC (Rs)
Ceftazidime Inj.—1g	18.00	vial	229.34	1,174
Meropenem Inj.—500mg	92.20	vial	806.68	775
Amikacin Inj.—500mg	5.59	2ml vial	38.07	581
Cephalexin Cap.—250mg	0.97	tablet	6.20	539
Cephalexin Cap.—500mg	1.89	tablet	11.67	519
Oflloxacin Tab.—200mg	0.61	tablet	3.55	483
Ceftriaxone Inj.—500mg	6.03	vial	34.14	467
Piperacillin and Tazobactum Inj.—4gm + 500mg	48.64	vial	273.50	462
Amoxycillin Cap.—500mg	1.15	tablet	6.03	426
Ceftriaxone Inj.—1g	10.12	1g vial	50.86	403
Cephalexin Oral Susp.—125mg/5ml	5.80	30ml	27.92	381
Amoxycillin Cap.—250mg	0.65	tablet	2.97	355
Azithromycin Tab.—100mg	1.13	tablet	4.98	341

(contd...)

(Table 12.4 contd...)

Name of drug	RMSC rate (Rs)	units	Volume weighted mean market price (Rs)	Percentage greater than RMSC (Rs)
Ciprofloxacin Tab.—250mg	0.61	tablet	2.69	341
Ciprofloxacin Tab.—500mg	1.16	tablet	5.01	330
Azithromycin Tab.—250mg	2.35	tablet	9.28	295
Cefixime Tab.—100mg	1.18	tablet	4.62	293
Amoxycillin and Potassium Clavulanate Tab.—500mg+125mg	4.19	tablet	16.01	282
Cefixime Tab.—200mg	2.19	tablet	8.12	271
Norfloxacin Tab.—400mg	0.88	tablet	2.53	189
Cefotaxime Inj.—1g	9.09	vial	24.33	168
Doxycycline Cap.—100mg	0.53	tablet	1.17	121
Erythromycin Estolate Oral Susp.—125mg/5ml	8.15	30ml	17.87	119
Amoxycillin and Cloxacillin Cap.—250mg+250mg	1.25	tablet	2.46	96
Metronidazole Tab.—400mg	0.35	tablet	0.54	54
Human Anti-D Immunoglobulin Inj.—300 mcg	1684.00	PFS vial	2234.82	33
Co-trimoxazole Oral Susp.—40mg+200mg/5ml	6.08	50ml	7.92	30
Co-trimoxazole Tab.—80mg+400mg	0.51	tablet	0.47	-6
Snake Venum Anti Serum (Polyvalent)	351.00	10ml vial	274.85	-22

Source: Authors' calculations based on RMSC rate contract documents for 2012–13 and 2012 market data from IMS Health.¹

TABLE 12.5 Geographic Distribution of Pharmaceutical Companies (2012)

States	Number of manufacturers		
	Formulations	Bulk drugs	Total
Maharashtra	1,928	1,211	3,139
Gujarat	1,129	397	1,526
West Bengal	694	62	756
Andhra Pradesh	528	199	727
Tamil Nadu	472	98	570
Others	3,423	422	3,845
Total	8,174	2,389	10,563

Source: Government of India (2012).

formulations² and 2,389 produce bulk drugs or active pharmaceutical ingredients (APIs)³ (see Table 12.5). The manufacturing units are largely concentrated in Maharashtra (3,139 units) followed by Gujarat (1,526 units).

Both imports as well as exports of pharmaceuticals have been increasing in absolute terms over the period

2006–07 to 2010–11. The share of both imports and exports of pharmaceuticals in national trade has only witnessed minor fluctuations for the same period. As such India is a net exporter of pharmaceuticals and it is almost self-sufficient in the production of most pharmaceuticals. Thus, the share of imports of pharmaceuticals in total national imports is minuscule. Lately, however, a number of manufacturers have been importing APIs mainly from China partly due to cost considerations. The Indian industry caters not only to the domestic market, but also to the international market. It exported output worth Rs 47,551 crore in 2010–11 (see Table 12.6).

The pharmaceutical industry in India is one of the most profitable industries of the country. Figure 12.4 demonstrates the profit after tax as a percentage of net sales for six industries for the period ranging between 1995 and 2012. It also reiterates the point that the pharmaceutical industry has been one of the most profitable industries since 1995.

The pharmaceutical industry that grew at the rate of 9.38 per cent, which included both domestic market as

¹ IMS Health is a global company that provides information, services and technology for the healthcare industry across more than a 100 countries. The IMS pharmaceutical market data provides estimates of annual market sales.

² 'Formulation' means a medicine processed out of or containing one or more drugs with or without use of any pharmaceutical aids, for internal or external use for or in the diagnosis, treatment, mitigation or prevention of disease (DPCO 2013).

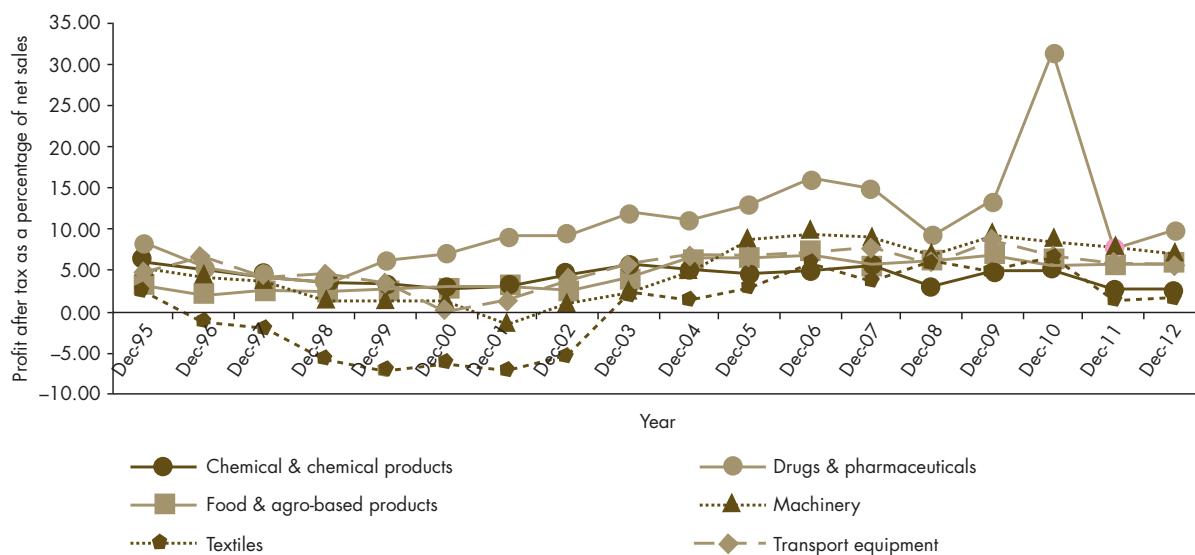
³ 'Active pharmaceutical ingredients or bulk drug' means any pharmaceutical, chemical, biological or plant product, including its salts, esters, isomers, analogues and derivatives, conforming to standards specified in the Drugs and Cosmetics Act, 1940 (23 of 1940) and which is used as such or as an ingredient in any formulation (DPCO 2013).

TABLE 12.6 Share of Pharmaceuticals in National Trade

Items/Years	<i>In Rupees Crore</i>				
	2006–07	2007–08	2008–09	2009–10	2010–11
Total national exports	571,779	655,864	840,755	845,534	1,142,649
(a) drugs pharmaceuticals and fine chemicals	25,666	29,354	39,821	42,456	47,551
Share in total exports (%)	4.5	4.5	4.7	5.0	4.2
Total national imports	840,506	1,012,312	1,374,436	1,363,736	1,683,467
(b) medicines and pharmaceutical products	5,866	6,734	8,649	9,959	10,937
Share in total imports (%)	0.7	0.7	0.6	0.7	0.6
Trade balance (a) – (b)	19,800	22,620	31,172	32,497	36,614

Source: Government of India (2012).

FIGURE 12.4 Sector-wise Profitability (profit after tax as a percentage of net sales)



Source: Profit after tax and net sales were extracted from CMIE Prowess database.

well as exports, stood at Rs 104,209 crores in March 2010, and is projected to grow at the rate of 19 per cent in 2019–20 with a total value of a whopping Rs 481,000 crores.

COMPETITION OR CONCENTRATION: THE PRIVATE MARKET⁴

The domestic pharmaceutical market in India was worth a staggering Rs 71,246 crores in the year 2012 with over 62,000 brands being marketed in the private sector⁵ (IMS Health 2012). Does this mean that the pharmaceutical market is largely competitive? The answer to this is 'no'. The pharmaceutical market displays certain

peculiarities. The most prominent of these is the fact that the pharmaceutical market is comprised of a number of individual sub-markets. This is because medicines used for the treatment of one medical condition, say diabetes cannot be substituted with medicines used for the treatment of another condition, say hypertension. Table 12.7 lists all the broad therapeutic categories in the Indian pharmaceutical market.

In 2012, anti-infectives had the highest market share based on value and accounted for 16.6 per cent of the total market. This was followed by the medicines used in cardiac conditions (11.6 per cent market share) and gastro-intestinal medicines (10.42 per cent market share).

⁴ The private market refers to the private pharmacies/chemists.

⁵ The private sector refers to the open market. This includes sales made through the stockists to the private retailers (pharmacies), hospitals and doctors as detailed by IMS Health database.

Medicines used in the treatment of lifestyle disorders such as cardiac conditions, diabetes, etc. have a considerable share in the pharmaceutical market. In fact, anti-diabetics market, witnessed a significant growth of 21 per cent in 2012 over the previous year, not surprisingly as India is the diabetes capital of the world. On the other hand, despite the significant burden of tuberculosis (TB) and HIV in the country, the share of anti-TB medicines as well as anti-retrovirals in the private market is a meagre 0.55 per cent and 0.43 per cent respectively. This can be attributed to the presence of large-scale government-run treatment programmes for these diseases.

Again, a glance at the number of brands in each of the therapeutic categories may misleadingly suggest that there is considerable competition in each of these individual markets. There are over 10,000 brands of anti-infectives in the Indian pharmaceutical market,

6,471 brands of gastro-intestinal medicines, 6,430 brands of analgesics and so on (see Table 12.7).

The first step in studying competition is to determine the level at which competition should be studied. Even within these broad therapeutic categories, there are further sub-markets. For instance, within the therapeutic category of anti-diabetics, oral anti-diabetics cannot be substituted with insulin and so on. Therefore, competition should be studied individually for each of these sub-markets within which medicines can be substituted with each other.

Competition was studied at the sub-therapeutic group level, i.e. at the level at which medicines are substitutable using a widely accepted indicator of market concentration, viz. the four firm concentration ratio.

The four firm concentration ratio (CR4) is the combined market share (in terms of sales value) of

TABLE 12.7 Broad Therapeutic Segments in the Indian Pharmaceutical Market in 2012

<i>Therapeutic categories</i>	<i>Market value (Rs crore)</i>	<i>Market share (%)</i>	<i>Growth in the market value over the previous year (%)</i>	<i>Number of brands in the market (2012)</i>
Anti-infectives	11,823.67	16.60	9.01	10,088
Cardiac	8,267.98	11.60	13.56	5,478
Gastro-intestinal	7,426.83	10.42	12.99	6,471
Pain/analgesics	5,821.46	8.17	9.39	6,430
Respiratory	5,608.72	7.87	5.40	4,929
Vitamins/minerals/ nutrients	5,350.82	7.51	12.40	4,522
Anti-diabetic	4,802.25	6.74	20.76	2,133
Gynaec.	4,736.55	6.65	9.14	3,561
Neuro/CNS	4,227.76	5.93	13.20	4,893
Derma	3,911.03	5.49	13.23	4,581
Vaccines	1,358.79	1.91	23.38	273
Others	1,295.05	1.82	5.84	1,496
Hormones	1,254.47	1.76	12.75	809
Ophthal/otologicals	1,230.85	1.73	12.26	1,659
Sex stimulants/rejuvenators	903.29	1.27	5.21	1,326
Hepatoprotectives	711.55	1.00	14.24	557
Anti-malarials	543.91	0.76	2.13	507
Anti-TB	388.30	0.55	1.30	460
Stomatologicals	378.34	0.53	11.63	462
Blood-related	325.06	0.46	14.60	434
Anti-parasitic	314.11	0.44	4.17	634
HIV	307.60	0.43	17.84	323
Parenteral	257.60	0.36	4.25	319
Grand Total	71,246.01	100.00	11.37	62,345

Note: Market values based on December 2012 Moving Annual Total (MAT).

Source: Authors' calculation based on data from IMS Health (2012).

TABLE 12.8 Total Number of Sub-therapeutic Groups and Annual Market Value against Different Degrees of Concentration (CR4 Index) in 2012

Degree of concentration as per CR4 index	Number of Sub-therapeutic segments	Cumulative market value in 2012 (Rs crore)
High (80% or above)	1,150	30,687
Medium (50%–79%)	276	28,452
Low (less than 50%)	42	12,107
Total	1,468	71,246

Source: Authors' calculations based on data from IMS Health (2012).

the top four firms (having the highest market share) in the market. 1150 (~78 per cent) out of a total of 1,468 sub-therapeutic categories studied displayed high concentration, i.e. the combined market share of the top four firms was 80 per cent or more. Another 276 sub-therapeutic categories demonstrated medium concentration, i.e. the four firm ratio was more than 50 per cent, but less than 80 per cent (see Table 12.8).

It is apparent from the CR4 that most therapeutic segments in the pharmaceutical market are characterised by high concentration, which means that a majority of the market share (by value) is commanded by a few firms in the market.

Further, the demand for medicines is essentially supplier induced owing to information asymmetry in the market. This means that the pharmaceutical companies are able to push the highly priced brands of medicines through doctors and pharmacist, thanks to their extensive branding and promotional activities, and the unsuspecting patient ends up paying large amounts of money for buying a highly priced brand of a medicine that could have been bought at a much lower price. In fact, competition in the pharmaceutical market is based on market dominance which is reflected by the fact that the market leader often also charges the highest price.

DRUG PRICE CONTROL

A substantial share of the Indian population is dependent on the private market for access to medicines, thanks to the inadequate allocation of public funds and an unreliable and inefficient supply-chain management system in the public sector. It is, therefore, critical to have in place an effective system of price regulation to ensure affordable access to medicines for all. Price control over medicines was introduced for the first time in India in 1963. Recent trend, however, has been to gradually

dismantle the regulation in the face of liberalisation. A substantial portion of the pharmaceutical market was under control in the 1970s with 347 bulk drugs and their formulation under control. This was reduced to 142 bulk drugs and their formulation in 1986, and subsequently to only 74 bulk drugs and their formulation in 1995.

The advantage of Drug Price Control Order (DPCO), 1995, was that it introduced for the first time, the mechanism of Cost-plus Based Pricing (CBP) for fixing the ceiling prices of formulations by taking into account the raw material cost, conversion cost, packaging material cost and the packing charges. The Maximum Allowable Post Manufacturing Expenses (MAPE), were allowed over and above these costs, to the extent of 100 per cent. Later, the draft pharmaceutical policy, 2002, that sought to further reduce the number of drugs under control to 35 was challenged in the Karnataka High Court that issued a stay order on the policy. Thereafter, the Supreme Court of India directed the government to formulate appropriate criteria for ensuring that essential and life-saving drugs come under price control.

The National Pharmaceutical Pricing Policy (NPPP), 2012, laid down three criteria: (i) regulation of prices based on 'essentiality of drugs' (i.e. formulations as listed under the National List of Essential Medicines [NLEM] notified by the Ministry of Health and Family Welfare [MoHFW] in 2011), (ii) control of formulation prices only, and (iii) Market-based Pricing (Government of India 2011). The ceiling prices of 432 formulations were notified in 2013 under the Drug Price Control Order (DPCO), 2013 (see Box 12.1).

An independent evaluation of the DPCO, 2013, by Selvaraj et al. (2014a), suggests that the new pricing policy, which is based on the literal interpretation of the NLEM, covers only 17 per cent (Rs 11,798 crores) of the pharmaceutical market. As depicted in Figure 12.5, only 5 per cent of the market for respiratory drugs, 23 per cent of cardiac drugs, 15 per cent of anti-diabetics and 35 per cent of anti-infectives fall under the ambit of price control.

Though a substantial proportion of the Indian pharmaceutical market is comprised of fixed dose combinations (FDCs), the prices of most FDCs would remain outside the scope of this control. FDCs outside the NLEM, and hence outside the scope of price control, form 45 per cent of the total pharmaceutical market (*ibid.*). Further, formulations that are therapeutically equivalent to, or have the same therapeutic effect as the formulation in the NLEM, would also remain outside price control.

BOX 12.1 Calculation of Ceiling Price Using Market-based Pricing (MBP) Formula

The ceiling prices were computed using the Market-based Pricing (MBP) formula as under:

First the Average Price to Retailer, $P(s)$ was computed as under:

$P(s) = (\text{Sum of prices to retailer of all the brands and generic versions of the medicine having market share more than or equal to one per cent of the total market turnover on the basis of moving the annual turnover of that medicine}) / (\text{total number of such brands and generic versions of the medicine having market share more than or equal to 1 per cent of total market turnover on the basis of moving annual turnover for that medicine.})$

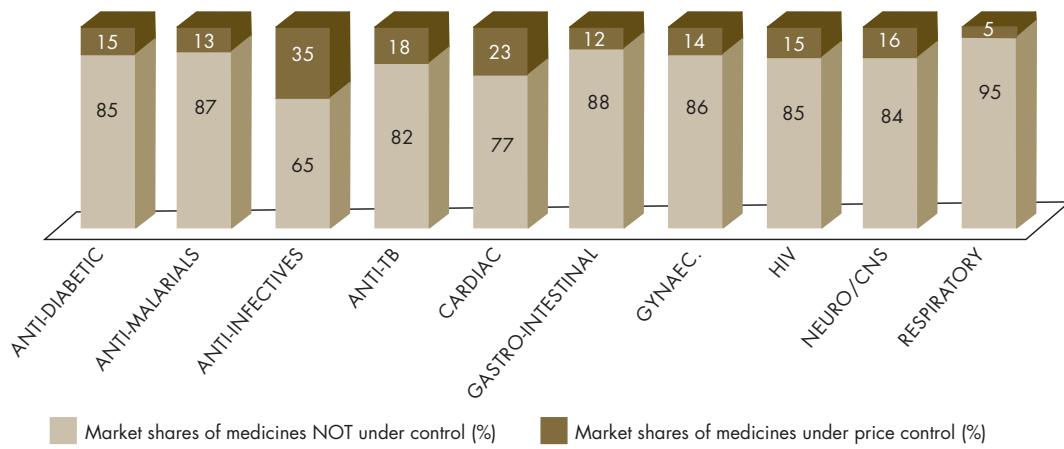
Then the ceiling price was obtained by adding the retailer's margin of 16 per cent.

$P(c) = P(s).(1+M/100)$, where

$P(s)$ = Average Price to retailer for the same strength and dosage of the medicine as calculated in step 1 above.

M = % Margin to retailer and its value = 16

FIGURE 12.5 Market under Control in Selected Therapeutic Categories



Source: Authors' calculation based on data from IMS Health (2012).

These provisions provide an easy escape route to the manufacturers as they can easily switch production to strengths and dosages outside the NLEM, or start producing combinations of plain NLEM formulations with non-NLEM formulations. Although the policy asserts that it would not allow discontinuation of production of NLEM formulations or migration to unscheduled formulations by companies, yet their safeguards are unimpressive.

The new pricing policy appears to be focused on reducing the prices of the highest priced brands of the formulations in the NLEM, and it is able to achieve this objective to a certain extent. But when we look at the reduction in the price of the sales leader (by value) for 419 formulation for which ceiling prices were notified, a more robust indicator for evaluating price reductions, we observe that for 177 formulations, there will be little or no reduction (*ibid.*).

Market-based pricing (MBP) that has been adopted for 'ensuring the availability of essential medicines at reasonable prices while at the same time supporting the growth of the pharmaceutical industry' is based on the assumption that the pharmaceutical market is competitive and that this competition would successfully drive down the prices. But we have established in the earlier sections that the pharmaceutical market in India is far from competitive. It is in fact characterised by high market concentration.

One of the provisions of NPPP, 2012, is that the firms pricing their products below the ceiling price would not be allowed to increase their prices. This, in effect, means that there are going to be multiple price ceilings and those manufacturers whose prices would be frozen below the ceiling price would not be allowed to increase the price even if the cost of raw materials, etc. increases. Thus, the policy would disproportionately burden the small- and

medium-scale enterprises that usually do not enjoy the market power of the larger enterprises and often price their products lower. Besides, an annual price increase proportional to the Wholesale Price Index (WPI) is allowed for all formulations. This will allow a greater price increase for higher priced brands as compared to those priced below the ceiling price.

Further, the government has relied heavily on the market data from IMS Health for setting ceiling prices without any reliable means to assess the quality, limitations or biases present in the data. The fact that proprietary data which is outside the public domain has been used in order to implement a national policy, is a matter of grave concern.

It is clear that the scope of the new pricing policy is too narrow and the price reduction of the highest selling brands too small, to provide substantial financial relief to the patients. The interest of the pharmaceutical industry has unfortunately received precedence over the welfare of the patients. Another major drawback of the new pricing policy is that it is silent on one of the most contentious issues for access to medicines today—the issue of the pricing of patented medicines.

PATENT REGIME

The Indian Patents Act, 1970, that allowed only process patenting for pharmaceutical products was instrumental in encouraging the development of the indigenous pharmaceutical industry by allowing it to innovate and produce low-cost generic versions of patented medicines. But in 2005, India signed the TRIPS (Trade Related Intellectual Property Rights) agreement and transitioned to the product patent regime. Under the new patent regime, firms with a new invention are granted patents for 20 years from the date of filling of the patent application. As a result, low-cost generics versions of the patented drugs cannot enter the market for 20 years and the originator can continue to charge exorbitant prices from the patients for the patented medicine.

The Indian Patents Act that was amended in 2005, however, does not encourage frivolous patenting. Section 3 of the Indian Patents Act deals with 'what are not inventions'. Specifically, Section 3 (d) states,

... the mere discovery of a new form of a known substance which does not result in the enhancement of the known efficacy of that substance or the mere discovery of any new property or new use for a known substance or of the mere use of a known process, machine or apparatus unless such

known process results in a new product or employs at least one new reactant.

Explanation.—For the purposes of this clause, salts, esters, ethers, polymorphs, metabolites, pure form, particle size, isomers, mixtures of isomers, complexes, combinations and other derivatives of known substance shall be considered to be the same substance, unless they differ significantly in properties with regard to efficacy.

Multinational pharmaceutical firms are often known for 'evergreening' practices, i.e. they file new patents by modifying existing molecules without enhancing the efficacy so that they appear novel. This is often done so as to keep the generic competition at bay for a longer duration of time. One such attempt was recently made by Novartis for its blockbuster drug Imatinib sold under the brand name Glivec. In a landmark judgment, the Supreme Court of India rejected Novartis' petition challenging the government's decision to reject its application for a secondary patent on the Mesylate salt form of Imatinib, a life-saving drug used for the treatment of Chronic Myeloid Leukemia (CML).

Table 12.9 demonstrates how robust generic competition has successfully driven down the prices of cancer treatment in India. In 2013, Novartis' Glivec (400mg), the originator brand, was priced at Rs 4,115.20 per tablet, while on the other hand generic versions were available at prices as low as Rs 30 per tablet (e.g. Resimat). These low-cost generics reduce the annual cost of treatment significantly. While the annual treatment cost of Glivec is an exorbitant Rs 1,502,048, the annual treatment cost of Resonance's Resimat is far more reasonable at Rs 10,987.

Even under the TRIPS agreement, certain flexibilities in the form of pre-grant and post-grant oppositions, etc. are legally allowed for the developing countries to be used to safeguard their public health needs. One such provision is that of compulsory licensing, which allows governments to authorise production of a medicine by a company other than the originator/patent holder, in the interest of public health. India issued its first compulsory license in March, 2012, to the Indian generic manufacturer Natco for producing German pharmaceutical company Bayer's cancer medicine Sorafenib Tosylate marketed as Nexavar. As a result of this move, the generic version of Sorafenib Tosylate is now available in India at a price which is 97 per cent lower than the price of the originator.

Unfortunately, the presence of a strong pharmaceutical lobby makes it difficult to employ the

TABLE 12.9 Annual Treatment Cost of Imatinib: Originator v/s Generic Versions

Brand	Company	Strength	Tablets	Imatinib		
				Price	Price per tablet	Cost of treatment for a year*
GLIVEC	Novartis	400mg	30	123,456	4,115.2	1,502,048
IMATIB	Cipla	100mg	10	800	80	116,800
		400mg	10	3,000	300	109,500
MESYLONIB	Miraculus	100mg	10	950	95	138,700
		400mg	10	3,000	300	109,500
O-TINIB	Sain Medicaments	100mg	10	970	97	141,620
RESIMAT	Resonance	100mg	10	84	8.4	12,264
		400mg	10	301	30.1	10,987
SHANTINIB	Shantha Biotechnics	100mg	10	990	99	144,540
IMAT	Biochem	100mg	10	300	30	43,800
		400mg	10	1,500	150	54,750
VEENAT	Natco	100mg	10	970	97	141,620
		400mg	10	3,520	352	128,480
IMUTIREL	Reliance	100mg	10	1,200	120	175,200
IMATINATE	Khandelwal	400mg	10	3,550	355	129,575
MATNIB	Getwell	400mg	10	3,900	390	142,350

Note: The cost of treatment for a year is based on a chronic phase CML treatment regime of 400mg per day.

Sources: Prices were collected from pharmaceutical distributors (3 April 2013); *Drug Today* (January–March, 2013).

TRIPS flexibilities. A strong political will along with the continuing existence of a strong generic industry in India are critical for being able to effectively use the provision of compulsory licensing.

VACCINES

Vaccines are an indispensable part of our healthcare delivery system as they help prevent neonatal and child deaths besides preventing diseases. The national immunisation programme was first introduced in India in 1978, and was referred to as the Expanded Programme of Immunisation (EPI). Subsequently, in 1985, it was renamed as Universal Immunisation Programme (UIP). The UIP now meets the requirements of over 26 million child births each year, and an estimated Rs 410 crores was spent on UIP in the year 2011–12 (Selvaraj et al. 2014b). India is a leading producer of vaccines in the world, yet ironically it is also home to the maximum child deaths.

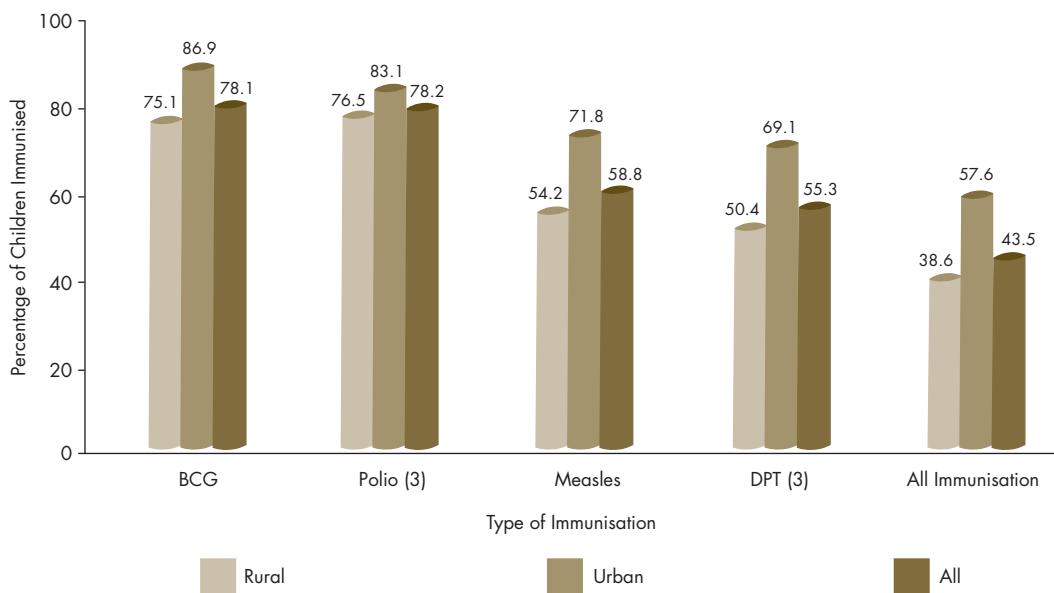
The fourth Millennium Development Goal (MDG) to be achieved by 2015 is to 'reduce child mortality'. India is likely to miss this goal by a significant margin owing partly to inadequate immunisation coverage. As per the latest round of the National Family Health Survey (NFHS-3) conducted in 2005–06, the percentage of fully immunised children (aged 12 to 23 months)

marginally increased from 35.4 per cent during 1992–93 to 43.5 per cent during 2005–06. The maximum coverage was achieved by polio vaccine followed by BCG vaccine. The most disappointing coverage was achieved by the DPT vaccine. However, it is not surprising that the coverage is greater in the urban areas as compared to the rural areas, and this is due to better access to health facilities in the urban areas.

An analysis of the immunisation coverage in 2005–06 also brought forth the rampant inequalities based on gender, regions and socio-economic groups of people. Whereas less than 40 per cent of all children in the rural areas were immunised, the urban coverage rate was 58 per cent. The widespread gender bias in India is also apparent from the inequalities in immunisation rate between boys and girls. While 45.3 per cent of the boys were immunised, only 41.5 per cent girls were immunised.

State-wise analysis too reflected these inequalities. The immunisation rate in Uttar Pradesh was half the national average in 2005–06. The highest immunisation rate was recorded in Tamil Nadu at 81 per cent, followed by Kerala and Himachal Pradesh that stood at 75.3 per cent and 74.2 per cent respectively. One of the reasons for the disappointing performance in states such as Uttar Pradesh, Bihar, Rajasthan, Odisha and Jharkhand is that the last point of the cold chain is at the block level,

FIGURE 12.6 Immunisation Coverage by Regions in India, 2005–06



Note: Children immunised in the age group of 12–23 months.

Source: NFHS-3, 2005–06.

which covers a population of about 200,000 people, unlike in other states where the cold chain reaches the primary health centre (PHC) level, which caters to a population of 30,000.

Not surprisingly, education is an important factor which influenced the rate of immunisation. Children with mothers who completed 12 years or more of education are thrice as likely to be immunised compared to children with mothers who did not receive any formal education. Further, children belonging to the Scheduled Tribes (STs) owing to the socio-economic and geographical disadvantages have an immunisation rate of just 31 per cent as opposed to children belonging to other castes with a rate of about 54 per cent. Evidence from the NFHS-3 also suggests that people belonging to the richest quintile of the population are thrice as likely to have their children immunised as the poorest quintile due to affordability and proximity to public/private health facilities.

Barriers to access to essential vaccines are not very different from the constraints in accessing medicines, viz. inadequate financing, unreliable and inefficient procurement and supply-chain management system, rising prices, production constraints, neglected research and development and a shifting focus to non-UIP vaccines.

The central government's revised estimate for expenditure on immunisation was Rs 410.6 crores in 2011–12, a substantial rise from the actual expenditure

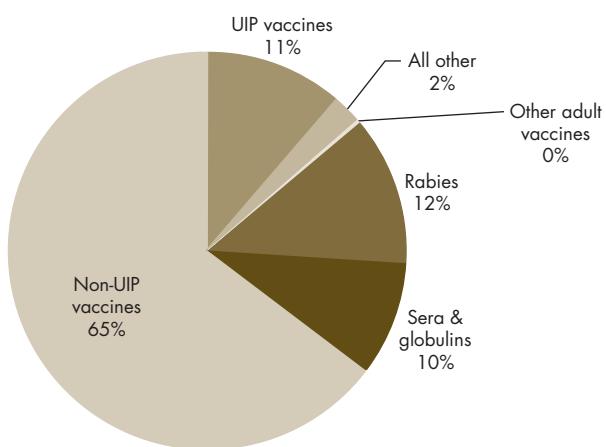
of Rs 162.58 crores in 2005–06 (*ibid.*). There was a sharp decline in expenditure in 2008–09 owing to the suspension of three public sector vaccine manufacturing units. As a result, the government had to procure vaccines from the private market, and this led to a steep rise in the government expenditure which declined in the following year as the public sector units resumed production.

India is a leading producer of primary vaccines not just for domestic use, but also for exports to other countries. This is not because of the contribution of the private sector alone. In fact, the contribution of the public sector units in not just meeting domestic demand, but also continuously supplying to the international organisations such as WHO and UNICEF is commendable.

More recently, the private sector is gradually emerging as a major player mostly in the non-UIP segments. Inessential vaccines are being prescribed and used indiscriminately in the private sector, sometimes even in the absence of reliable evidence on the efficacy or even the disease burden. The private sector vaccine market was worth Rs 1,359 crores in 2012 (IMS Health 2012). While primary vaccines constituted only 11 per cent of the overall market, the non-UIP vaccines made up around 65 per cent of the market. Rabies vaccine and Sera and globulins accounted for 12 per cent and 10 per cent of the overall private market (see Figure 12.7).

Lately, there has been a surge in the combination vaccines being marketed aggressively by the

FIGURE 12.7 Composition of Vaccines in the Private Market in India, during 2012



Source: Estimated from IMS Health (2012).

pharmaceutical companies and being sold at exorbitant prices in the private market. A common practice is to combine UIP vaccines with non-UIP vaccines. It has been observed that the safety and efficacy of these cocktail vaccines are often much lower than the individual vaccines. Some examples of such vaccines are DTP-IPV, DTB-Hib, DTP-Hib-IPV, etc. Such practices are expected to create artificial scarcity of UIP vaccines (Puliyel and Madhavi 2008).

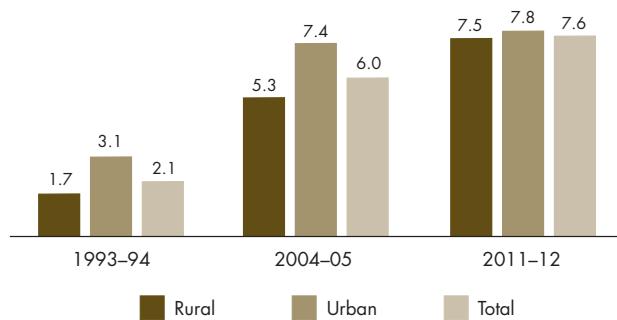
Unfortunately, the pharmaceutical lobby is trying to gain entry into the UIP to suit their commercial interests. Moreover, attempts are being made to push several vaccines in the open market through massive promotional campaigns. As a result, the considerations of necessity based on the disease burden and efficacy are being put on the backburner, and households that are already burdened by high OOP payments are being forced to pay exorbitant amounts of money for the vaccines in the open market.

MEDICAL DEVICES

Medical devices comprise a wide range of devices from Electrocardiogram (ECG) machines to syringes and from dental chairs to sterilisers. The market for medical devices in India which was worth Rs 13,000 crores in 2009–10, is one of the top 20 markets for medical devices in the world (Datta et al. 2013). India stands to gain immensely from the effective use of advanced medical technology, but inefficient and unregulated use of expensive medical devices may lead to the inflating cost of healthcare provisioning and in turn act as a barrier to access to healthcare.

The share of diagnostic tests in the total OOP expenditure on healthcare was only 2.1 per cent in 1993–94, but significantly jumped to 6 per cent in 2004–05, and grew further to 7.6 per cent in 2011–12 (see Figure 12.8). In 1993–94 and 2004–05, the share of diagnostic tests in total OOP expenditure for the rural areas was considerably lower compared to the urban areas. However, in 2011–12, the share was similar for both rural (7.5 per cent) and urban (7.8 per cent) areas.

FIGURE 12.8 Share of Diagnostics in Total OOP Expenditure on Healthcare

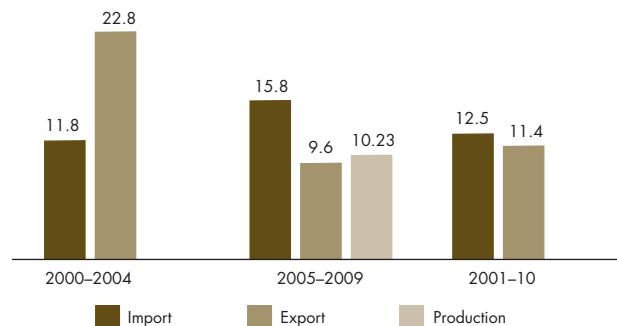


Note: Based on mixed recall period (MRP).

Source: NSSO, CES 68th Round.

Both import and export of medical devices have grown at a rate of over 12.5 per cent and 11.4 per cent respectively, at constant prices during the period 2001–10. Domestic production too grew at the rate of 10.2 per cent per annum at constant prices during 2005–09 (see Figure 12.9). The increase in domestic production as well as trade, coupled with the constantly increasing share of diagnostic tests in the total OOP expenditure on health, indicates without a doubt the increasing reliance of the health sector on medical devices.

FIGURE 12.9 Growth Rates of Production, Export and Import of Medical Devices (Constant Prices)



Sources: India Trades data and ASI unit records for various years.

Mahal and Karan (2009) concluded that the utilisation of X-Ray, ECG and ultrasound has been increasing since the year 1995–96. Survey data from 2004 (the health and morbidity round of NSSO) shows that 57.3 per cent of the people hospitalised in India underwent X-Rays, ECGs and ultrasounds, while it was 8.9 per cent for the out-patients. Although expectedly, the utilisation rates have been higher for the hospitalised urban patients as compared to the rural patients in the last decade, the utilisation of these diagnostic services has risen faster for the rural patients than the urban patients between 1995–96 and 2004. A possible reason could be that as more and more people in the urban areas have been able to access diagnostic tests in the past, the market for such tests is maturing, whereas in the rural areas, due to underutilisation in the past, there is a greater scope for increased utilisation, and hence there has been a higher growth in utilisation even though the utilisation rates have in absolute terms been higher for urban patients in the last decade. Surprisingly, for out-patients, the utilisation rate was higher for the rural patients as compared to the urban patients in 2004.

The increasing proportion of paid use of these diagnostic services given the fact that the use of medical devices in the public sector in India was subsidised for the same period, indicates that the increase in utilisation may have been driven by the private sector. This could be a result of a number of factors such as an increased purchasing power, budget squeezes and quality issues in the public sector, referral practices, increased penetration of health insurance schemes, etc.

Clearly, access to medical devices has increased, but only for a certain section of the Indian population who can afford to pay for these tests. Moreover, an increase in the use of medical devices is likely to have contributed to the medical care expenditure inflation in the country, and hence disproportionately burdening the poor. There is also the widespread problem of inefficient use of medical devices. While in the public sector there is a risk of under-utilisation relative to capacity owing to poor maintenance, lack of trained personnel, etc. in the private sector, there is a risk of over-utilisation relative to need owing to the commission-based referral system or even misuse of medical technology for sex-selective abortions, for instance.

As far as regulation is concerned, the only form of regulation that existed until recently was the differential import tariff rates (life-saving equipment could be imported duty-free, whereas duties ranging from 20 to 40 per cent or more had to be paid for other equipment)

and purchase practices of the public sector units (global tenders were placed and equipment pre-approved by the US-FDA or regulatory authorities in Europe were favoured). These restrictions too, however, weakened in the face of liberalisation in the mid-1990s. Recently attempts have been made to regulate a few medical devices such as cardiac stents, catheters and heart valves that are regulated by the CDSCO and for the same devices requirements such as proof of regulatory approval board, evidence of clinical efficacy, post-market surveillance have been imposed on both sellers as well as importers.

Certain regulations might be in place, but the real challenge lies in the implementation of these regulations. Presently, policy relevant research on medical devices is scarce in the developing countries. Such research should be scaled up. The government needs to establish effective regulatory mechanism along with ensuring better financial risk protection for households so as to ensure efficient, equitable and cost-effective use of medical devices in India.

CONCLUSION

Today, the Indian pharmaceutical industry caters not only to the domestic market, but also to an enormous international market. In order to meet the growing demand for pharmaceuticals, it is undoubtedly necessary to support the growth of this industry. But it is equally important to protect the public health interests of the country. Unfortunately, the balance between the interest of the industry and the public health interest seems to have been lost and our public policy by upholding the interests of the industry is risking the health security in India.

Public investment in healthcare in India is inappreciable. Millions of people are impoverished each year due to OOP expenditure on medicines. It is important to scale up public investment in healthcare so as to reduce the burden of OOP expenditure on healthcare in general and medicines in particular.

The centralised procurement and decentralised distribution of medicines has been successful in achieving low procurement rates and establishing a robust supply-chain management system with regular availability of medicines in the states of Tamil Nadu and Rajasthan, and should be replicated in other states across the country. There is a pressing need to focus attention towards pooled procurement as a vehicle for universal access to medicines.

Until this happens, a large majority of our population would continue to be dependent on the private market

for access to medicines. The pharmaceutical market is characterised by high market concentration, intensive branding and promotional practices. This, coupled with information asymmetry, provides the firms an opportunity to push highly priced brands and in the absence of effective price regulation mechanisms, expenditure on medicines continues to burn a large hole in the pockets of the people.

The National Pharmaceutical Policy, 2012, and Drug (Price Control) Order, 2013, are extremely limited in scope, and the reduction in prices owing to the use of MBP formula would be marginal at best. Therefore, the CBP formula should be reinstated and the NLEM should be revised to include all essential and life-saving medicines.

The problem of affordability in India was compounded when India moved from a process patent regime to a product patent regime in order to become TRIPS compliant. Pharmaceutical firms are charging exorbitant prices for life-saving (patented) medicines at the expense of the peoples' right to health under the pretext of alleged high investments in research and development. Ample evidence is available today to suggest that most of the research and development (R&D) is in fact publicly funded, and neither Indian firms nor multinational corporations (MNCs) are making any significant contribution to new drug development.

India should, therefore, continue to make tactful and strategic use of the safeguards in the Indian Patents Act such as Section 3(d), and the flexibilities allowed under TRIPS such as pre- and post-grant oppositions, compulsory licensing, etc. This requires strong political will and a thriving generics industry.

Building public sector capacity and protecting the capacity of the Indian generic companies in the private sector to produce low cost, quality medicines and vaccines are crucial for ensuring both medicines and vaccines security in the country.

The utilisation of medical devices and diagnostic tests has increased considerably over the last decade. India stands to gain a great deal from efficient use of medical devices. However, policy-relevant research in this field in developing country context is limited, and needs immediate scaling up. Effective regulation of medical devices along with better financial risk protection for households is definitely the need of the hour to ensure efficient, equitable and cost-effective use.

Another important barrier to access to medicines in India is that of irrational use. Several banned, bannable medicines, irrational FDCs and irrational cocktail vaccines are being rampantly marketed, prescribed and used in India in the absence of effective regulatory oversight. This is largely because the pharmaceutical firms are able to push irrational medicines and vaccines through their network of doctors and pharmacists, thanks to their extensive promotional practices. Further, poor prescription practices could also be attributed to poor training of medical practitioners. Stringent regulatory mechanisms should be built in so as to continuously monitor the quality and efficacy of both medicines and vaccines in the market. There is also a pressing need for capacity building of medical professionals for rational prescription practices.

Lastly, the regulation of the pharmaceutical industry in India is highly fragmented. While the Department of Pharmaceuticals under the Ministry of Chemicals and Fertilisers is responsible for controlling prices of pharmaceuticals, CDSCO under the MoHFW is in charge of new drug licensing, etc. and the state drug controllers regulate production and sale of medicines. A consolidation of all regulatory functions under the MoHFW would better align medicine production and pricing policies with the public health priorities in India. But the mere presence of a regulatory framework is not enough, it is imperative to establish a co-ordinated system for effective implementation of these policies.

REFERENCES

- Datta, P., I. Mukhopadhyay, and S. Selvaraj. 2013. 'Medical Devices Manufacturing in India.' India: ISID-PHFI Collaborative Research Programme.
- Department of Pharmaceuticals, 2011. National Pharmaceutical Pricing Policy, Ministry of Chemicals and Fertilizers, Government of India.
- Government of India. 2012. Annual Report. 2011–12. New Delhi: Department of Pharmaceuticals, Ministry of Chemicals and Fertilisers.
- _____. 2009. National Health Accounts India 2004–05. National Health Accounts Cell, Ministry of Health and Family Welfare (in collaboration with WHO-India Country Office.
- Mahal A., and A. K. Karan. 2009. 'Diffusion of Medical Technology: Medical Devices in India' Expert Reviews, pp. 197–205.
- Puliyel, J., and Y. Madhavi. 2008. 'Vaccines: Policy for Public Good or Private Profit?' Editorial, *Indian Journal of Medical Research*, 127, pp. 1–3.

- Selvaraj, S., and V. Nabar. 2010. 'Access to Medicines in India: Issues, Challenges and Response', in *India Health Report*. Delhi: Business Standard Publications.
- Selvaraj S., M. Chokshi, H. Hasan, and P. Kumar. 2011. 'Improving Governance and Accountability', in *India's Medicine Supply System*. India: Public Health Foundation of India.
- Selvaraj S., M. Aisola, A. Mehta, and D. Abrol. 2014a. 'An Independent Evaluation of National Pharmaceutical Pricing Policy, 2012 and Drug Price Control Order, 2013'. India: ISID-PHFI Collaborative Research Programme.
- Selvaraj S., D. Abrol, and K. M. Gopakumar, eds. 2014b. 'Access to Medicines in India'. India: Academic Foundation.
- World Bank. 2014. World Data Bank, World Development Indicators-Health Expenditure, Public, <http://data.worldbank.org/indicator/SH.XPD.PUBL>, accessed on 28 March 2014.
- World Health Organisation (WHO). 2004. 'The World Medicine Situation', <http://apps.who.int/medicinedocs/pdf/s6160e/s6160e.pdf>, accessed on 28 March 2014.

13

VACCINES AND IMMUNISATION: AN INTEGRAL ASPECT OF UNIVERSAL HEALTH COVERAGE

*Giridhara R. Babu, Raveesha R. Mugali
and Vivek V. Singh**

Immunisation and use of vaccines are the most successful health interventions which bring about significant reductions in infectious as well as some non-communicable diseases (NCDs), and improve the quality of life of the population. Immunisation against common childhood diseases has been an essential element of providing health services to mothers and children in India (Lawn et al. 2008). The Government of India launched the Expanded Programme on Immunisation (EPI) in 1978. Over the years, the programme has evolved, and has achieved multiple milestones since then. Although universal coverage with routine immunisation still remains a daunting challenge in the country, the journey of the immunisation programme from the introduction of the EPI in 1978 to a successful polio eradication initiative with the strengthening of routine immunisation and mass immunisation campaigns that led to polio-free certification for India in 2014, has important and useful lessons to guide the future proposition of Universal Health Coverage (UHC) in the country.

This chapter outlines the issues regarding vaccines and immunisation in the country in the context of the UHC framework. The inequities, vaccine delivery and health

systems challenges, contextual barriers and community issues that are determinants of universal immunisation in the country have been discussed. We have concluded the discussion by arguing that vaccination programmes like polio and measles have shown that the UHC's goal of reaching every citizen including the most underserved in some of the most operationally challenging areas with preventive, promotive and curative health services is possible in India. The chapter concludes by suggesting recommendation to ensure UHC with immunisation in areas of governance, programme management, vaccines availability, vaccine preventable disease (VPD), surveillance, and research and advocacy.

IMMUNISATION IN INDIA

Immunisation and use of vaccines are the most successful health interventions which bring about significant reductions in infectious diseases and some NCDs as well, and improve the quality of life of the population. Immunisation against common childhood diseases has been an essential element of providing health services to mothers and children in India (*ibid.*). India has the

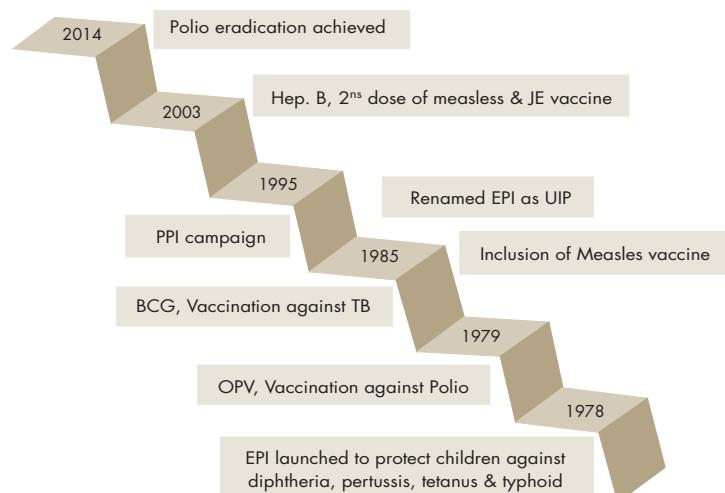
* The authors would like to acknowledge Dr Rajeev Gera, Immunisation Technical Support Unit (ITSU) for the support extended towards the manuscript. ITNU has been set up within the Ministry of Health and Family Welfare (MoHFW) to provide technical support to the Ministry to revitalise and successfully implement the Universal Immunisation Programme (UIP). ITNU provides technical and management expertise and build capacity to design, create, implement and institutionalise a stronger immunisation programme fully lead by the Government of India. The authors would also like to acknowledge Dr Srihari Dutta, Immunisation Specialist, UNICEF India, for his critical inputs based on the health system for immunisation in India. The authors would also like to thank T. S. Ramesh from IIPH-H, Bangalore and Hemant Naik, MSc, Health Informatics candidate from IIPH-Hyderabad for their support in editing the figures and tables.

largest immunisation programme in the world with birth cohort of 27 million and 30 million pregnancies every year (Vashishtha and Kumar 2013). The EPI was launched to protect children against diseases like diphtheria, pertussis, tetanus and typhoid. Vaccination against polio through oral polio vaccine (OPV) was added to the programme in 1979–80, and BCG (Bacillus Calmette-Guerin) vaccination against tuberculosis (TB) was added in 1981–82 (Sharma 2007). The ambit of EPI was increased with the inclusion of measles vaccine, and it was renamed as Universal Immunisation Programme or UIP (Patel and Nowalk 2010). As one of the first ambitious health programmes of India, the aim of India's UIP was to cover all the districts in the country by 1990, in a phased manner and target all infants with primary immunisation. For close to two decades, the programme did not take on board any other vaccine. The scenario, however, changed with the introduction of Hepatitis B in 2002 in 10 pilot districts and was universalised in 2011, and Japanese Encephalitis (JE) vaccines in 2006 in the endemic districts. During the same period, a number of other vaccines have become available for major killers like pneumonia and diarrhea, which are now being used in the immunisation programmes of many developing and developed countries. However, India is yet to expand the immunisation programme with newer vaccines. The goal of the UIP is to fully immunise each child with BCG, three doses of Diphtheria, Pertussis and Tetanus (DPT)-Hepatitis B/Pentavalent, OPV and provide first dose of measles before 1 year of age. The goal is also to offer second opportunity with measles, boosters of DPT and OPV before 2 years of age. This programme

was integrated with the Reproductive and Child Health (RCH) Programme in 1997 (Visaria et al. 1999).

In 1988, the World Health Assembly passed a resolution for the eradication of polio. Subsequently, the Pulse Polio Immunisation Programme was launched in India in 1995. These supplementary immunisation activities (SIAs) have continued till now. The SIAs cover children in the age group of 0–5 years of age, and oral polio vaccine drops are administered during national and sub-national immunisation rounds (in high risk areas) every year. About 172 million children are immunised during each National Immunisation Day (NID). With the able technical guidance of the World Health Organisation's (WHO) National Polio Surveillance Project (NPSP), this is by far the most successful immunisation programme India ever had. As a result, polio eradication was achieved in 2014 with three successful polio-free years with an impeccable combination of surveillance for the Acute Flaccid Paralysis (AFP), providing immunisation through supplementary rounds and intensifying mop-up (as in sweeping the entire area) in the affected areas. There are not that many successful stories in public health and polio eradication has created one higher standard of accomplishment that has made India proud. This was mostly possible due to the formation of a formidable partnership by the Ministry of Health and Family Welfare (MoHFW) with WHO resulting in NPSP. NPSP facilitated the success along with major partners such as United Nations Children's Fund (UNICEF) and Rotary International, including millions of health workers spread across the country. Through the SIAs,

FIGURE 13.1 Polio Eradication—UHC through Immunisation: India, 2014



Source: Authors' illustration.

the country witnessed an unprecedented co-ordination starting from the national level to the most remote, reaching the operationally challenging and underserved population pockets. Although universal coverage with routine immunisation still remains a daunting challenge in India, the journey of the immunisation programme from the introduction of the EPI in 1978 to polio eradication certification in 2014 has important and useful lessons to guide the future proposition of UHC in the country (see Figure 13.1). The success of polio eradication initiative (PEI) involved daunting

processes rattled by lack of political will in some states, unnecessary rumours, protests by anti-vaccine groups and most importantly lack of proper implementation. Yet, despite all these challenges, India's PEI programme was successful due to numerous innovative approaches. For example, the first step in UHC involves enrolling all the eligible subjects (universal enrolment) and the subsequent step involves coverage of all the eligible people (universal coverage) (Vega 2013). PEI achieved universal coverage without necessarily following the universal enrolment.

TABLE 13.1 Indian Academy of Pediatrics (IAP)-recommended Immunisation Schedule for Children Aged 0–18 Years (with range)

Vaccine \ Age	Birth	6 wk	10 wk	14 wk	18 wk	6 mo	9 mo	12 mo	15 mo	18 mo	19–23 mo	2–3 yr	4–6 yr	7–10 yr	11–12 yr	13–18 yr
BCG	BCG															
Hep B	Hep B1	Hep B2														
Polio	OPV 0	IPV 1	IPV 2	IPV 3		OPV 1	OPV 2							OPV 3		
DTP		DTP 1	DTP 2	DTP 3						DTP B1				DTP B2		
Tdap															Tdap	
Hib		Hib 1	Hib 2	Hib 3						Hib Booster						
Pneumococcal		PCV 1	PCV 2	PCV 3					PCV Booster					PCV		
PPSV23														PPSV		
Rotavirus		RV 1	RV 2	RV 3												
Measles							Measles									
MMR									MMR 1				MMR 2			
Varicella									VAR 1				VAR 2			
Hep A									Hep A1 & Hep A2							
Typhoid												Typhoid				
Influenza												Influenza (yearly)				
HPV														HPV 1–3		
Meningococcal														Meningococcal		
Cholera														Cholera 1 & 2		
JE														Japanese Encephalitis		

* This schedule includes recommendations in effect as of November 2013.

- [■] Range of recommended ages of all children
- [■■] Range of recommended ages for certain high-risk groups
- [■■■] Range of recommended ages for catch-up immunization
- [■■■■] Not routinely recommended

TABLE 13.2A IAP Recommended Vaccines for Routine Use (birth–14 weeks)

Age (comPLETED weeks/months/years)	Vaccines	Comments
Birth	BCG OPVO Hep-B 1	Administer these vaccines to all newborns before hospital discharge
6 weeks	DTwP 1 IPV1 Hep-B 2 Hib 1 Rotavirus 1 PCV 1	<p>DTP:</p> <ul style="list-style-type: none"> + DTaP vaccine/combinations should preferably be avoided for the primary series <p>Polio:</p> <ul style="list-style-type: none"> + All doses of IPV may be replaced with OPV if administration of the former is unfeasible + Additional doses of OPV on all supplementary immunisation activities (SIAs) + Two doses of IPV instead of 3 for primary series if started at 8 weeks, and 8 weeks interval between the doses + No child should leave your facility without polio immunisation (IPV or OPV), if indicated by the schedule <p>Rotavirus:</p> <ul style="list-style-type: none"> + 2 doses of RV1 and 3 doses of RV5 + RV1 should be employed in 10 and 14 week schedule, Instead of 6 and 10 week + 10 and 14 week schedule of RV1 is found to be far more immunogenic than existing 6 and 10 week schedule

(contd...)

TABLE 13.2B IAP Recommended Vaccines for Routine Use (6 months to 10–12 years)

Age (comPLETED weeks/months/years)	Vaccines	Comments
6 months	OPV1 Hep-B 3	<p>Hepatitis-B: The final (third or fourth) dose in the HepB vaccine series should be administered no earlier than age 24 weeks and at least 16 weeks after the first dose.</p>
9 months	OPV 2 Measles	Measles vaccine ideally should not be administered before completing 270 days or 9 months of life
12 months	Hep-A 1	<p>Hepatitis A: For both killed and live Hepatitis-A vaccines, 2 doses are recommended as of now</p>
15 months	MMR 1 Varicella 1, PCV Booster	<p>Varicella: The risk of breakthrough varicelloid lower if given 15 months onwards</p>
16 to 18 months	DTwP B1/ DTaP B1 IPVB1 Hib B1	<p>The first booster (4th dose) may be administered as early as age 12 months, provided at least 6 months have elapsed since the third dose.</p> <p>DTP:</p> <ul style="list-style-type: none"> + First and second boosters should preferably be of DTwP + Considering a higher reactogenicity of DTwP, DTaP can be considered for the boosters
18 months	Hep-A 2	<p>Hepatitis A: For both killed and live hepatitis-A vaccines 2 doses are recommended as of now</p>
2 years	Typhoid 1	<p>Typhoid: Typhoid revaccination every 3 years, if Vi-polysaccharide vaccine is used</p>
4 to 6 years	DTwP B2/DTaP B2 OPV 3, MMR 2, Varicella 2, Typhoid 2	<p>MMR: the 2nd dose can be given at anytime 4–8 weeks after the 1st dose.</p> <p>Varicella: the 2nd dose can be given at anytime 3 months after the 1st dose.</p>

(contd...)

(Table 13.2A contd...)

Age (completed weeks/months/years)	Vaccines	Comments
10 weeks	DTwP 2, IPV2 Hib 2, *Rotavirus 2, PCV 2	Rotavirus: If RV1 is chosen, the first dose should be given at 10 weeks
14 weeks	DTwP 3 IPV 3, Hib 3 *Rotavirus 3, PCV 3	Rotavirus: Only 2 doses of RV1 are recommended at present. If RV1 is chosen, the 2nd dose should be given at 14 weeks

IAP recommended vaccines for High-risk* children (Vaccines under special circumstances):

1. Influenza Vaccine,
2. Meningococcal Vaccine,
3. Japanese Encephalitis Vaccine
4. Cholera Vaccine,
5. Rabies Vaccine,
6. Yellow Fever Vaccine,
7. Pneumococcal Polysaccharide vaccine

(Table 13.2B contd...)

Age (completed weeks/months/years)	Vaccines	Comments
10 to 12 years	Tdap/ Td HPV	Tdap: is preferred to Td followed by Td every 10 years. HPV: Only for females, 3 doses at 0, 1–2 (depending on brands) and 6 months.

***High-risk category of children:**

- Congenital or acquired immunodeficiency (including HIV infection)
- Chronic cardiac, pulmonary (including asthma if treated with prolonged high-dose oral corticosteroids), hematologic, renal (including nephrotic syndrome), liver disease and diabetes mellitus
- Children on long term steroids, salicylates, immunosuppressive or radiation therapy
- Diabetes mellitus, Cerebrospinal fluid leak, Cochlear implant, Malignancies,
- Children with functional/anatomic asplenia/hyposplenia
- During disease outbreaks
- Laboratory personnel and healthcare workers
- Travelers

Source: IAP Immunisation Timetable, 2013, <http://www.iapindia.org/IMM%20Schedule.pdf>, accessed on 15 February 2014.

BOX 13.1 IAP-recommended Vaccines for High-risk* Children (vaccines under special circumstances)

1. Influenza Vaccine,
2. Meningococcal Vaccine,
3. JE Vaccine,
4. Cholera Vaccine,
5. Rabies Vaccine,
6. Yellow Fever Vaccine,
7. Pneumococcal Polysaccharide Vaccine (PPSV 23)

*** High-risk category of children:**

- Congenital or acquired immunodeficiency (including HIV infection)
- Chronic cardiac, pulmonary (including asthma if treated with prolonged high-dose oral corticosteroids), hematologic, renal (including nephrotic syndrome), liver disease and diabetes mellitus
- Children on long-term steroids, salicylates, immunosuppressive or radiation therapy

Source: IAP Recommended Immunisation Schedule, 2013, <http://www.iapindia.org/IMM%20Schedule.pdf>, accessed on 15 February 2014.

Current Schedule for Immunisation in India

Currently, the national immunisation schedule mandates the universal coverage of diphtheria, pertussis, tetanus,

polio, measles, TB, Hepatitis B, Haemophilus Influenzae B and JE (in select districts). Oral polio vaccine, BCG and Hepatitis B doses are administered to children at birth. Also, three doses of DPT, OPV and Hepatitis B or pentavalent vaccines (in selected states¹) are

¹ Pentavalent vaccine has been introduced in Tamil Nadu, Kerala, Karnataka, Haryana, Gujarat, Jammu and Kashmir, Puducherry, Goa and Delhi.

TABLE 13.3 National Immunisation Schedule (NIS) for Infants, Children and Pregnant Women*

Vaccine	When to give	Dose	Route	Site
For Pregnant Women				
Tetanus Toxoid (TT)-1	Early in pregnancy	0.5 ml	Intra-muscular	Upper Arm
TT-2	4 weeks after TT-1*	0.5 ml	Intra-muscular	Upper Arm
TT-Booster	If received 2 TT doses in a pregnancy within the last 3 yrs*	0.5 ml	Intra-muscular	Upper Arm
For Infants				
BCG	At birth or as early as possible till one year of age	0.1ml (0.05ml until 1 month age)	Intra-dermal	Left Upper Arm
Hepatitis B- birth dose	At birth or as early as possible within 24 hours	0.5 ml	Intra-muscular	Antero-lateral side of mid-thigh
OPV-0	At birth or as early as possible within the first 15 days	2 drops	Oral	Oral
OPV 1, 2 and 3	At 6 weeks, 10 weeks and 14 weeks (OPV can be given till 5 years of age)	2 drops	Oral	Oral
DPT 1, 2 and 3	At 6 weeks, 10 weeks and 14 weeks (DPT can be given up to 7 yrs of age)	0.5 ml	Intra-muscular	Antero-lateral side of mid thigh
Hepatitis B 1, 2 and 3	At 6 weeks, 10 weeks and 14 weeks (can be given till one year of age)	0.5 ml	Intra-muscular	Antero-lateral side of mid-thigh
Pentavalent**** 1, 2 and 3	At 6 weeks, 10 weeks and 14 weeks (can be given till one year of age)	0.5 ml	Intra-muscular	Antero-lateral side of mid-thigh
Measles-1	9 completed months–12 months. (Measles can be given till 5 years of age)	0.5 ml	Sub-cutaneous	Right Upper Arm
Japanese Encephalitis (JE)-1**	9 completed months–12 months.	0.5 ml	Sub-cutaneous	Left Upper Arm
Vitamin A (1st dose)	At 9 completed months with measles	1 ml (1 lakh IU)	Oral	Oral
For Children				
DPT Booster-1	16–24 months	0.5 ml	Intra-muscular	Antero-lateral side of mid-thigh
Measles 2nd dose	16–24 months	0.5 ml	Sub-cutaneous	Right Upper Arm
OPV Booster	16–24 months	2 drops	Oral	Oral
Japanese Encephalitis**	16–24 months	0.5 ml	Sub-cutaneous	Left Upper Arm
Vitamin A*** (2nd to 9th dose)	16 months. Then, one dose every 6 months up to the age of 5 years.	2 ml (2 lakh IU)	Oral	Oral
DPT Booster-2	5–6 years	0.5 ml.	Intra-muscular	Upper Arm
TT	10 years and 16 years	0.5 ml	Intra-muscular	Upper Arm

Notes: *Give TT-2 or Booster doses before 36 weeks of pregnancy. However, give these even if more than 36 weeks have passed. Give TT to a woman in labour, if she has not previously received TT.

**JE Vaccine has been introduced in select endemic districts after the campaign on targeting children in high risk districts.

*** The 2nd to 9th doses of Vitamin A can be administered to children 1–5 years old during biannual rounds, in collaboration with ICDS.

****Pentavalent vaccine has been introduced in place of DPT and Hepatitis B 1, 2 and 3 in select states.

Source: Immunisation Handbook for Medical Officers, <http://nihfw.org/pdf/NCHRC-Publications/ImmuniHandbook.pdf>, accessed on 15 February 2014.

TABLE 13.4 Current Burden of Vaccine Preventable Diseases

Disease	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Diphtheria	5,472	5,301	4,236	8,465	5,826	2,834	3,812	3,977	3,529	3,434	4,233	2,525
Japanese encephalitis	–	–	–	–	–	–	4,017	427	653	555	1,214	–
Measles	51,780	40,044	47,147	55,443	36,711	64,185	41,144	44,258	56,188	31,458	33,634	18,668
Mumps	–	–	–	–	–	–	–	–	–	–	–	–
Pertussis	34,703	33,289	33,954	32,786	31,122	30,088	46,674	43,697	60,385	40,508	39,091	44,154
Polio	268	1,600	225	134	66	676	874	559	762	43	1	0
Rubella	–	–	–	–	–	–	–	–	–	–	–	1,025
Rubella (CRS)	–	–	–	–	–	–	–	–	–	–	–	–
Tetanus (neonatal)	1,718	1,580	1,720	1,183	821	625	1,076	876	898	521	734	588
Tetanus (total)	5,764	12,197	4,020	3,883	2,981	2,815	7,491	2,959	2,126	1,756	2,843	2,404

Source: WHO (2014).²

given at 6 weeks, 10 weeks and 14 weeks after birth. The Government of India plans to scale up the use of pentavalent vaccine in all districts across the country by 2015. The first dose of measles (MCV1) is administered at the end of nine months, while the booster dose of DPT vaccine is given along with the second dose of measles (MCV2) between 16 and 24 months. Two doses of JE vaccine administered with measles first dose at the end of 9 months and the second dose between 16–24 months with DPT booster and MCV2 in only JE endemic districts of the country. The second booster dose of DPT is given between 5–6 years and two doses Tetanus Toxoid (TT) are administered at 10 years and 16 years of age. Tetanus vaccine is also given to all pregnant women in their first visit to the health facility, and the second dose is given after 4 weeks (Vashishtha 2012).

The Current Burden of Vaccine Preventable Diseases

Earlier to 1997, there was limited credible evidence on the burden on vaccine preventable diseases in India. In association with MoHFW, NPSF started world-class surveillance mapping the polio cases all over the country. The year 2014 is a landmark year for India as it remained polio-free since January 2011. A period of three consecutive years of polio-free status in the presence of surveillance for AFP of WHO-specified polio-free certification standards will make the country eligible to be declared polio free.³ Since 2007, the number of Neonatal Tetanus (NNT) cases is also on a steady decline, and the recent RMNCH+A (Reproductive, Maternal, Newborn

Child and Adolescent Health) strategy launch provides an opportunity to work towards NNT elimination in the country (MoHFW 2013a). India has declared 18 states as NNT-eliminated, and aims to achieve NNT elimination in the whole country by 2015. The number of reported cases of diphtheria have shown a general declining trend in the last 5 years. The number of reported cases of measles and pertussis has been fluctuating in the last 5 years with a general declining trend.

ROAD TO UNIVERSAL HEALTH COVERAGE

The definition of UHC by High Level Expert Group (HLEG) is 'Ensuring equitable access for all Indian citizens, resident in any part of the country, regardless of income levels, social status, gender, caste or religion, to affordable, accountable, appropriate health services of assured quality as well as public health services addressing the wider social determinants of health deliver to individuals and populations, with the government being the guarantor and enabler of health and related services' (Sen 2012). By meeting some of the most important components of UHC, UIP provides the perfect model to emulate and to solve other health problems plaguing the country. An illustration of meeting the components of UHC through the immunisation programme is provided in Table 13.5.

Therefore, the first step to UHC should involve addressing the barriers to strengthen the immunisation programme. There are well-recognised challenges in the implementation of the immunisation programme in the country. The challenges are listed below:

² See http://apps.who.int/immunization_monitoring/globalsummary/countries?countrycriteria%5Bcountry%5D%5B%5D=IND&commit=OK, accessed on 15 February 2014.

³ The certification for polio eradication will be done by the certification committee by March 2014 of the WHO.

TABLE 13.5 UIP as an Ideal Model of UHC

Components of UHC	UIP as a model of delivering UHC
Equitable access for all Indian citizens	UIP has consistently ensured this. Some barriers and challenges exist, which are discussed.
Affordable	All the antigens are provided free of cost.
Appropriate health services of assured quality	This is the unique nature of UIP that its quality is better than private sector
Services addressing the wider social determinants of health	UIP has not addressed this. However, there is a lot of learning available in the implementation of the PEI during SIAs. This can be helpful in better planning for the future.
Role of government	The government is the major provider of services. Private establishments can get the vaccines free from Government provided they submit some documentation work.

Source: Authors' compilation.

Inequity in Immunisation Coverage

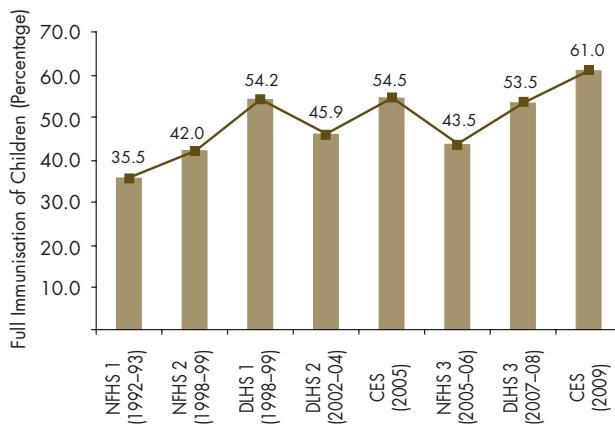
Geographical Inequity: Ideally, there should be universal availability, universal access and universal utilisation of vaccines.⁴ The programme should be geared towards achieving these ideal scenarios. India has made a steady progress in reaching children with full immunisation

till 1 year of age, and the proportion of fully immunised children has increased from 35.5 per cent in 1992–93 to 61 per cent in 2009 (Figure 13.2). However, it has to be noted that 39 per cent of 27 million birth cohort in India is not fully immunised (Figure 13.2) (UNICEF 2012).

The challenges the health system faces are to ensure continued utilisation, effective and inclusive coverage.⁵ Besides, geographical diversity, regional and socio-economic inequities come in the way of achieving complete immunisation coverage in the country. For example, northern Indian states like Jammu and Kashmir and Himachal Pradesh have snow bound and a hilly area, Rajasthan has deserts, and Jharkhand and Chhattisgarh have tropical forests. There are politically sensitive and inaccessible tribal areas in many parts of the country including Chhattisgarh, Odisha and Jharkhand. Some of the areas in the North East states have security issues, while other areas are hilly and have poor roads posing connectivity problems. The task is far more complex in reaching out to mobile/migrant populations and temporary settlements (Vashishtha and Kumar 2013).

There is considerable inequity in vaccination coverage, between and within states (district levels) as well; poorly performing states have greater

FIGURE 13.2 Full Immunisation Coverage through Different Surveys—India



Sources: NFHS-1, NFHS-2, NFHS-3, DLHS-1, DLHS-2, DLHS-3, CES.

⁴ A high quality and complete coverage of immunisation services will have an impact on mortality. This is dependent on some of the important aspects of equity, which can be measured by the following indicators:

- *Vaccine Availability* considered as availability of all the vaccines,
- *Access* is time taken to travel to immunisation site (preferably not more than 30 minutes).
- *Utilisation* can be measured by the following:
 - First contact with immunisation and is measured by DPT1 coverage,
 - DPT3 considered as the indicator for timeliness and continuity of coverage,
 - Child receiving BCG, 3 doses of DPT3 doses of OPV (excluding birth dose) and 1 dose of measles, with antigens stored in an adequate cold chain and before their first year of age is considered as complete immunisation.

⁵ *Continued Utilisation* means that after the initial access with DPT1 vaccine, children need to get DPT2, DPT3 and MCV1 and so on. There is a high proportion of drop-outs after coming in contact with health systems for initial doses do not continue to get vaccines later. It is a challenge faced by high-risk states and districts. *Effective coverage* means having received all intended antigens timely and completely to get complete protection. *Inclusive coverage* means all children without disparities of socio-cultural and other inequities receiving all vaccines.

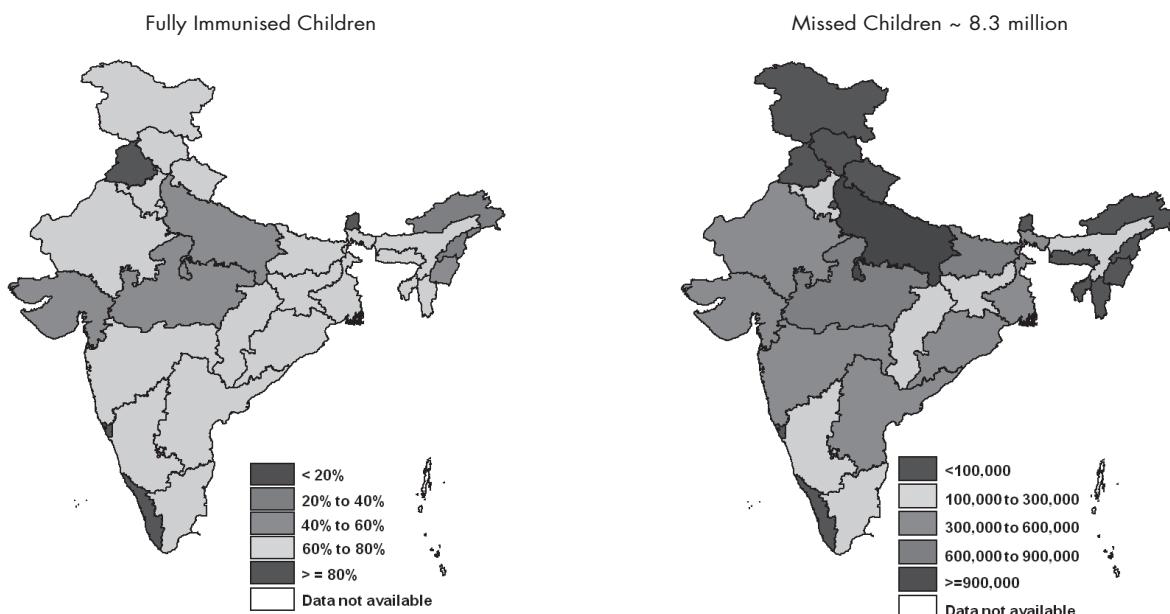
inequities, and even within better performing states there are significant inequities. The large inter-state variations are depicted by the proportion of complete immunisation in the four states (Goa, Sikkim, Punjab and Kerala), which is 80 per cent, while this proportion is less than 50 per cent in five other states (Bihar, Madhya Pradesh, Uttar Pradesh, Nagaland and Arunachal Pradesh) (CES 2010, NFHS 2007). Five states with a high population contribute 72 per cent of the unimmunised children in the country, and nearly half (49 per cent) of the total unimmunised children of India reside in Uttar Pradesh and Bihar. Further, the inter-district variations are high in states of Madhya Pradesh, Rajasthan, Jharkhand, Uttar Pradesh and Manipur (DLHS-3 2007–08). District-level Health Survey (DLHS)-3 shows that even the good performing states like Tamil Nadu, Karnataka and Andhra Pradesh have districts with poor coverage (DLHS-3 2007–08). Further, according to the Annual Health Survey (AHS 2012), conducted in 2011–12 in nine high priority states (8 Empowered Action Group [EAG] states and Assam),⁶ the range of full immunisation coverage varies from 17.7 per cent in the Rayagada district of Odisha to 94 per cent in Kanker district of Chhattisgarh. In addition to this, there is around 10 per cent difference between the urban and

rural areas, with the difference being more prominent in Chhattisgarh, Jharkhand, Madhya Pradesh, Uttar Pradesh and Manipur (CES 2010).

According to AHS (2012) and Coverage Evaluation Survey Report (CES 2010), the variation among states and among districts with states, is even greater if we refer to the ‘missed children’, i.e. the children who did not receive any immunisation (see Figure 13.3).

Gender, Caste and Religion: The CES (2010) reported complete vaccination in 61.9 per cent boys and 59.9 per cent girls; for unvaccinated infants these rates were 7.9 per cent and 7.2 per cent respectively. Only 58.9 percent of the infants belonging to the Scheduled Caste (SC) families were completely immunised, while this proportion was 49.8 per cent among the Scheduled Tribes (STs), 60.6 per cent among Other Backward Classes (OBCs) and 66.3 per cent in other castes (see Figure 13.4). The percentage of children who did not get any vaccination was 7.8 per cent, 9.9 per cent, 8.6 per cent and 5.5 per cent respectively. The vaccination rate by religion showed complete vaccination among 55.7 per cent Muslim infants, 61.2 per cent Hindu infants, 65.6 per cent Christian infants, 78.2 per cent Sikh infants and 76.6 per cent infants of other religions.

FIGURE 13.3 Where are the Missed Children?



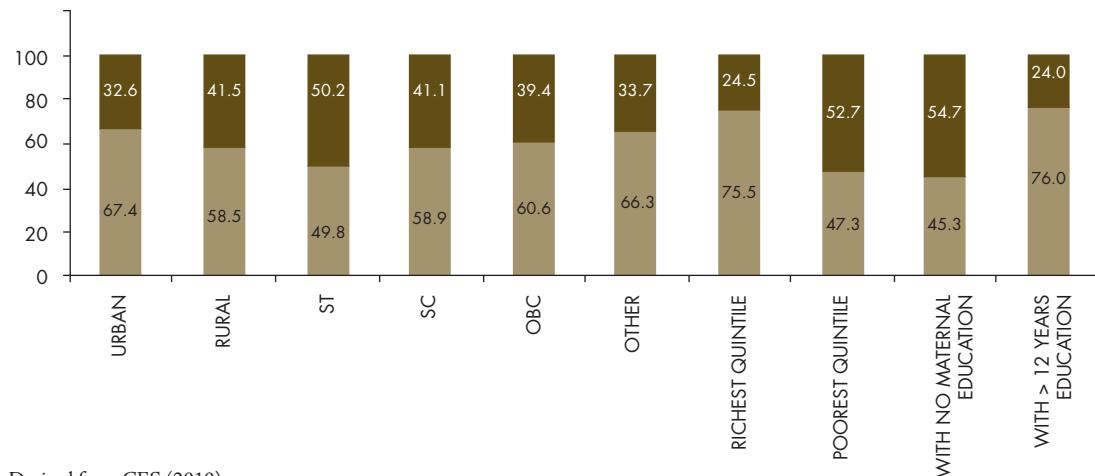
Sources: AHS (2012) and CES (2010); Immunisation Technical Support Unit (ITSU), M&E Division (2014).

⁶ EAG states are Uttar Pradesh, Bihar, Madhya Pradesh, Rajasthan, Jharkhand, Chhattisgarh, Uttarakhand and Odisha.

Wealth Inequity: According to the CES, 2009, there is a direct relationship between the economic status of families and vaccination coverage. The proportion of complete immunisation in the lowest quintile was 47.3 per cent, while it was 75.5 per cent in the top quintile (see Figure 13.4).

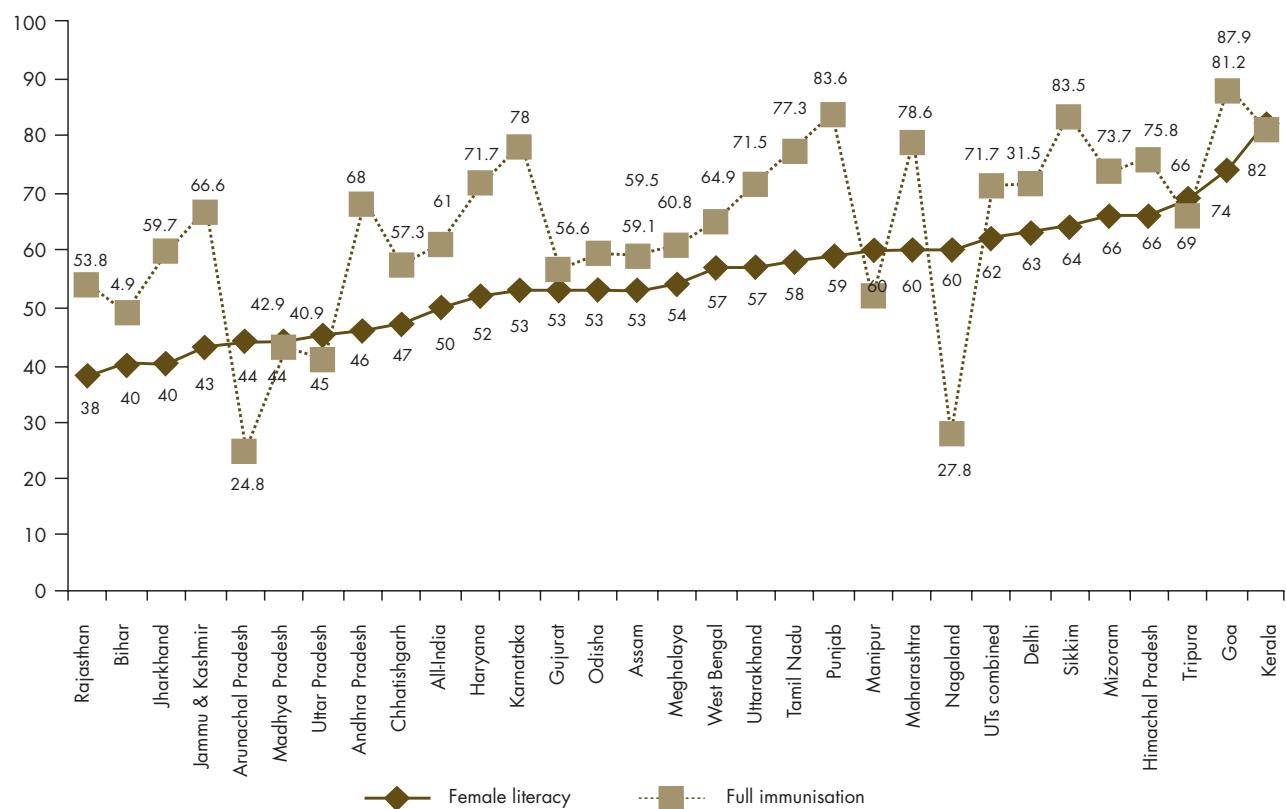
Maternal Education: There is a significant positive correlation between maternal education and complete vaccination. The proportion of complete immunisation coverage for infants of mothers with no education is 45.3 per cent, while it is 76.6 per cent for mothers who had more than 12 years of education (see Figures 13.4 and 13.5).

FIGURE 13.4 Disparities in Immunisation Coverage



Source: Derived from CES (2010).

FIGURE 13.5 Female Literacy and Full Immunisation Coverage (Percentage)



Source: Derived from CES (2010).

THE HEALTH SYSTEM FOR IMMUNISATION IN INDIA

Infrastructure for Immunisation (Cold Chain Points)

To provide effective outreach services for immunisation, appropriate cold chain infrastructure (cold chain points) is required. The estimation of population per cold chain point in each state and the correlation with full immunisation coverage of the states shows that Uttar Pradesh, Jharkhand and Bihar are the poorly performing states with the highest population covered by each cold chain point. In six out of 10 well-performing states, the population covered by each cold chain point is less than 30,000, whereas in the nine poorly performing states, the population covered is greater than 30,000. Furthermore, Uttar Pradesh, Bihar and Jharkhand have relatively higher number of sub-centres served by each cold chain point. As per estimations made by Srihari Dutta, an immunisation specialist at UNICEF, there is a need to have a cold chain point for every 30,000 population to achieve an optimum level of full immunisation coverage (see Figures 13.6 and 13.7) (Banerjee 2003, MoHFW 2013b).

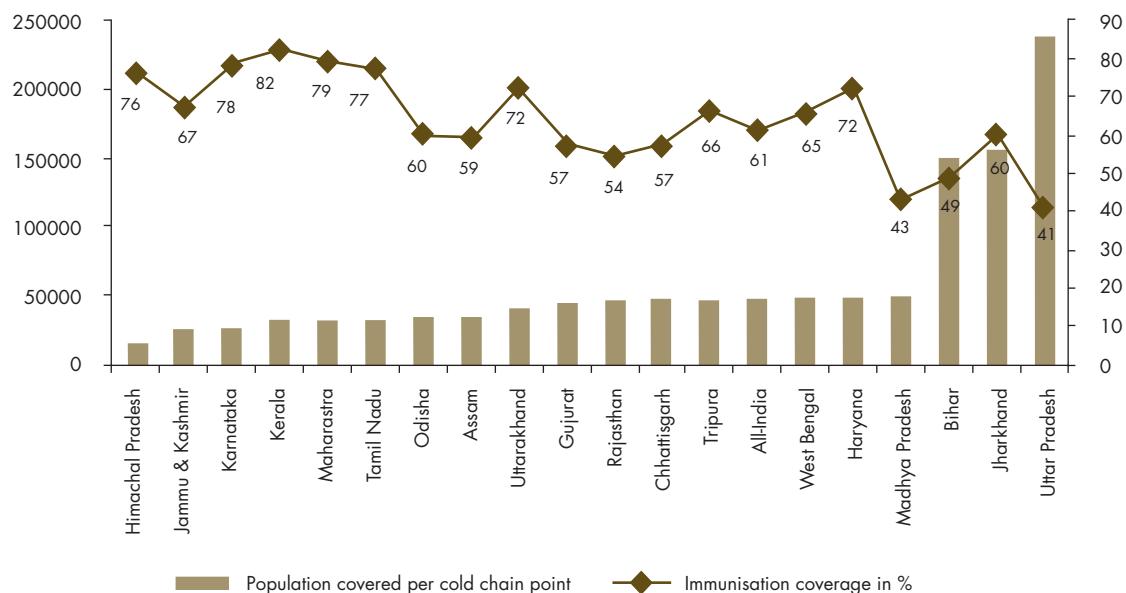
Human Resources

The availability of manpower is one of the important pre-requisites for the efficient functioning of the immunisation services. In 2012, the shortfall in the posts of Health Workers (Female) was 3.8 per cent and Health Workers (Male) was 65.2 per cent. The proportion of vacant positions among the supervisory staff is 38.2 per cent for Health Assistant (Female)/Lady Health Visitor, and 10.3 per cent for allopathic doctors. The shortfall is greater in the states of Chhattisgarh, Gujarat, Haryana, Himachal Pradesh, Karnataka, Madhya Pradesh, Nagaland, Odisha, Uttarakhand and Uttar Pradesh (MoHFW 2013b).

Governance Issues

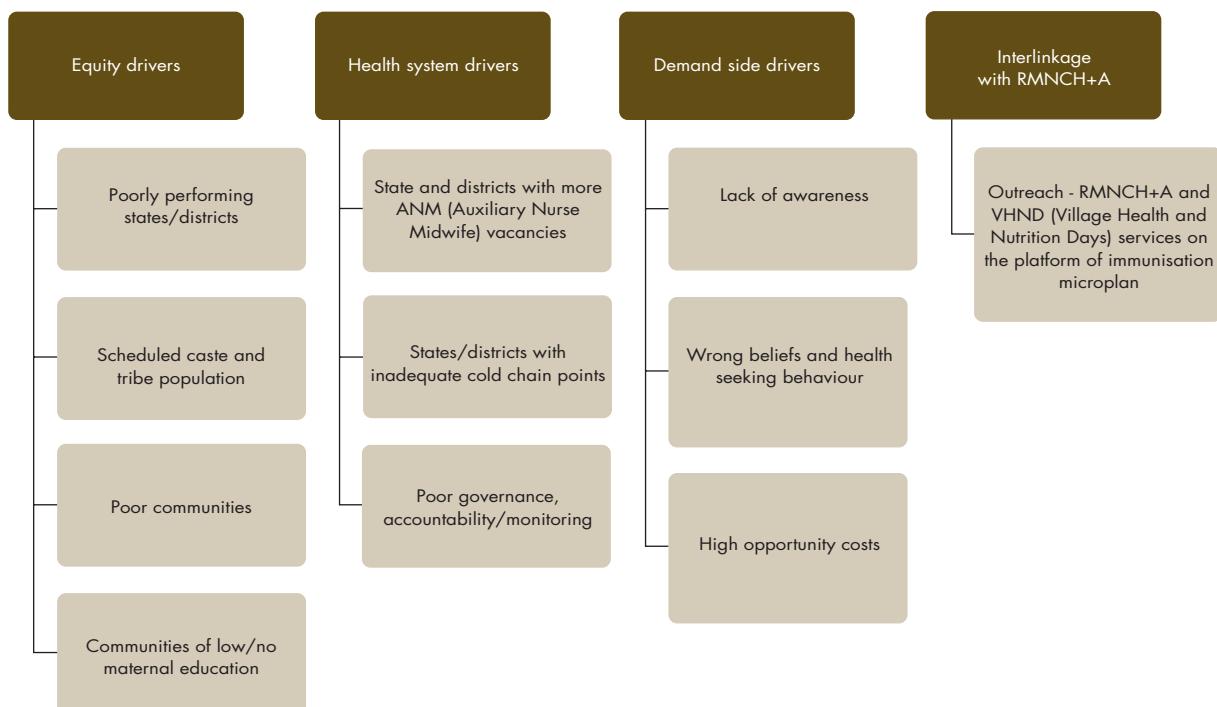
Apart from the barriers listed earlier in this chapter, there are also 'supply side' challenges to improve the coverage of immunisation. They include suboptimal delivery of health services (supply shortages, cold chain equipment and their maintenance, vacant staff positions and lack of training), lack of accountability, inadequate supervision and monitoring, lack of inter-sectoral co-ordination and lack of co-ordination between the state and central governments resulting in missed opportunities to improve immunisation coverage and quality.

FIGURE 13.6 Population Served Per Cold Chain Point vs Immunisation Coverage



Sources: Dr Srihari Dutta—Immunization Specialist, UNICEF India—CCO Review Meeting, 2011; India's national immunization programme, Ajay Khera, Anuradha Gupta, Hema Gogia and Sujatha Rao, http://www.india-seminar.com/2012/631/631_ajay_khera_et_at.htm, accessed on 15 February 2014.

FIGURE 13.7 Key Drivers of Complete Immunisation



Source: Authors' illustration.

Community Participation

As per the available estimates, 'did not feel the need' and 'not knowing about the need' were common reasons for non-immunisation in nearly one-fourth of the population (Vashishta and Kumar 2013: 111–18). Hence, lack of awareness is still one of the greatest barriers to achieve complete immunisation coverage. Low levels of education negatively impact health-seeking behaviour. In addition to these, adverse events following immunisation (AEFI) even when these are shown to be unrelated to a vaccine have been widely and often falsely reported in the media, and contribute to a culture of being hostile to vaccination in certain communities. An example of such media inaccuracies has been provided as a case study in the WHO's website on basics of vaccine safety.⁷

HEALTH SYSTEM DRIVERS

Weak VPD Surveillance

Barring surveillance for detection of polio and measles, managed by the WHO's NPSP, the country

does not have a surveillance platform for other VPDs. The barriers listed above are further compounded by a weak VPD surveillance system in the country. Due to lack of disease burden data on many important VPDs in India, there is a wrong perception that these diseases do not impose an important public health problem. The success of polio eradication in India has proved the importance of data on disease burden in driving the policy-makers to prioritise eradication. Similarly, if WHO-NPSP were to manage the surveillance for all the VPDs, then a robust evidence platform will be built for immunisation planning and implementation. Barring India's polio programme, which has a world-class surveillance network (NPSP), Integrated Disease Surveillance Project (IDSP) had an ambitious intent, but futile implementation of disease surveillance and response.

Health System Strengthening

There is a scope for improvement in the health system and the vaccine enterprise in the country to maximise accessibility and availability of vaccines

⁷ See <http://vaccine-safety-training.org/c-accuracy-media-reports.html>, accessed on 15 February 2014.

for insuring universal coverage (*ibid.*). The health systems should ensure **effective vaccine delivery** with uninterrupted supply of vaccine and logistics, effective vaccine management with appropriate temperature maintenance, trained manpower, detailed and updated micro planning for reaching out to all communities, adequate transportation, appropriate administration of vaccines, supportive supervision, monitoring and reporting. Necessary manpower, capacity building, budget and better management and accountability at the block- and district-level can contribute to improvement of the immunisation coverage.

Demand-side Drivers

Engagement of underserved/marginalised groups to develop locally tailored communication strategies will be useful to create and sustain the demand for immunisation services in the community. Utilisation of community structures to enhance communication and deliver services has proved to be successful through the use of social mobilisation network in the polio eradication programme. Community Mobilisation Co-ordinators (CMCs) selected from within the community played an important role in communication. Involvement of civil society organisations in community outreach and planning for behavioural change in these communities can improve the immunisation coverage. The opportunity cost for the poor working parents also is an important driver from the demand side. Loss in wages and an extra cost for travel and time puts a barrier to many parents to get regular immunisation to their kids. Hence, reaching out to the communities through better micro planning and resources will have to be effectively implemented.

Missed Integration

The inter-linkages with maternal and child health interventions like antenatal care, postnatal care, nutrition, family planning and adolescent health, sanitation and hygiene can bring in more visibility of health programmes and increase acceptability of the healthcare delivery system by the community. Thus, the number of contacts between community and healthcare providers would increase and more interventions around the continuum of care can reduce the drop-outs and left-outs from immunisation. The convergence of several outreach interventions can claim to be more cost-effective, while the synergy of several interventions,

including nutrition, hygiene and sanitation can contribute for better outcomes. India has cherished the vertical management of health programmes, such as polio, TB, and it is high time that integrated platforms are created and sustained, at least now.

Lack of Credible Data

India has the lowest spending on immunisation when compared to countries with similar income. In India, \$ 8.64 is spent on every beneficiary against \$ 46 per beneficiary recommended by the Global Immunisation Vision and Strategy (GIVS) (Taneja et al. 2013). Ideally, locally available evidence and economic evaluations highlighting cost-effectiveness of vaccines should guide the vaccine policy of the country. Such evidence is absent in the country, and should be made available in the near future. In a situation where there is abundance of new and expensive vaccines on the one hand and limitations of resources on the other, the use of vaccines through the UIP or through the private sector should be such that it leads to universal access in the country (Guyatt et al. 2008, Jaeschke 2008).

For policy-makers, a significant problem is to which estimate to base their decisions on when varying evidence is presented to them. As an example, the available studies from India cannot answer whether cancer of the cervix is highly prevalent or not, and there is no sufficient evidence regarding region-specific prevalence of serotypes either. In the absence of reliable data, researchers do not have reliable data to either support or reject the idea that Human Papilloma Virus (HPV) vaccine should be put to trial (Babu 2012). In such instances, public health researchers in India should estimate using national surveys or use innovative methods of research for gathering data by comparing similar countries. The government should not delay the introduction of newer vaccines by merely quoting the lack of locally available data on disease burden. In the absence of reliable evidence, the government should create mechanisms including funding to generate the evidence on disease burden, and use that evidence for the future introduction of vaccines. Till this ideal step is implemented, it is better to at least compare with countries that are similar to that of ours and have evidence to introduce and sustain the use of vaccine. It is imperative that the government makes an effort to create efficient surveillance systems to monitor burden and adverse effects and research funding mechanisms (Babu and Murthy 2011).

Financial Sustainability

All vaccine costs as well as routine immunisation costs are financed by the central government in India, except co-financing for the newly introduced pentavalent vaccine, which is being supported through funds from GAVI Alliance. The Government of India is also responsible for the procurement and distribution of all vaccines, cold chain and injection safety equipment, used under the UIP. The existing health infrastructure and human resources provide immunisation services to the beneficiaries, and their salaries come from overall budget head in the RCH component of National Rural Health Mission (NRHM)/National Urban Health Mission (NUHM). Currently, the funds to the state for the immunisation programme are being provided as part of the overall funding allocated by Project Implementation Plan (PIP) under the NRHM/NUHM in India. Part C of the PIP has provision of detailed funding for routine immunisation. The current mechanism of the UIP programme funding leads to bottlenecks due to lack of centre and states co-ordination in the fund-flow mechanism and service-delivery often suffers. As suggested in the National Vaccine Policy of India, a financial sustainability plan (FSP) for immunisation should be created and the possibility of creation of expanded vaccine fund through innovative financing mechanism should be considered for ensuring sustained universal coverage (Kamara et al. 2008, Hecht 2010). Funds will also be required for expanding the VPD surveillance, which will require a well-functioning laboratory network. A distinct budgeting mechanism needs to be conceived for the strengthening of the laboratory and surveillance mechanism in the country.

Quality of Immunisation

There is intensive focus on the regulation of quality in the public health sector. However, the private health sector is involved in administration of all newer vaccines in the market with the aim that individual protection is achieved albeit offering financial incentives (Vashishtha and Kumar 2013). IAP or the Government of India schedules are only suggestive in nature and, therefore, the implementation of the vaccination schedule is varied throughout the

country, and there is no mechanism to regulate the implementation of different schedules by the private health sector. For example, there is often poor quality of cold chain maintained at the private practitioners. Most of the paediatricians use a domestic refrigerator to store vaccines, which can actually invalidate the efficacy due to repeated thawing and cooling (Sachdeva and Datta 2010). The use of domestic refrigerators is not at all appropriate for storing vaccines. Ideally, ice-lined refrigerators (ILRs) and deep freezers should be used to store the vaccines and maintain the cold chain (Matthias et al. 2007). Loss of maintaining effective cold chain is the most common reason for not achieving the effective immunity targets in children (Atkinson and Chyne 1994). Using domestic refrigerators does not achieve the goal of maintaining the cold chain for vaccines. Worse still, some private practitioners switch off the refrigerators in the night to save their expenses on electricity (Sudarshan et al. 1994).⁸ Also, some practices by private practitioners have detrimental effects in the community. For example, using Rubella Vaccine to children by the private sector in low coverage areas for a long time can precipitate the age shift of the disease and thereby might contribute to increase in the congenital rubella syndrome cases (Robertson et al. 1997; Panagiotopoulos et al. 1999). Issuing standard operating guidelines to private practitioners and ensuring proper implementation through efficient supportive supervision will resolve most of the quality problems in the private sector.

RESPONSE TO SOME CRITIQUES OF IMMUNISATION

Since vaccines are administered to healthy people, safety is an issue; consequently vaccine development is time and resource intensive. The country also has a strong vaccine manufacturing capacity but a large and most vulnerable segment of the population, which is serviced through the UIP, still misses out on the opportunity of surveillance (Chitkara et al. 2013, Duclos et al. 2003, Leutourneau et al. 2008). What concerns most is that some researchers and some self-asserted experts who can influence policy, have consistently advocated against the use of available technology due to perceived risks, often without scientific evidence (Babu and

⁸ Based on the experiences of authors in monitoring the routine immunisation practices in India among the private sector.

Murthy 2011). Such criticism and apprehension regarding vaccine effectiveness and safety was seen earlier regarding use of monovalent oral polio vaccine, type 1 (mOPV1) in India. To allay these fears, NPSW-WHO monitors all incidents of Vaccine Associated Paralytic Poliomyelitis (VAPP) and maintains a qualitative database comparable to the best in the world (*ibid.*). These critics have been silenced due to the success of mOPV1, which has enabled the country to report the lowest burden of P1 type of polioviruses in the history of polio transmission (*ibid.*). This can be true for most other vaccination programmes also. Only standard surveillance systems and research conducted by public health researchers can provide appropriate evidence for decision-making and in responding to the critiques of immunisation.

As an additional analogy, we cite the introduction of *Haemophilus Influenzae* Type b (Hib) vaccine through free UIP for children. This has been delayed by the Government of India due to a campaign launched by some professionals (Mudur 2010). The government's decision was based predominately on the relative higher cost of the newer pentavalent vaccine (Rs 300) compared to the existing DPT vaccine (around Rs 3). On the other hand, scientific evidence shows that the incidence of Hib in India is 7.1/100,000 in under-five-year-old children in 2008, (32/100,000 in children less than 11 months old), a scenario which was present in Europe during the pre-Hib vaccine era (Minz et al. 2008). Every year, India reports the highest number of deaths (72,000 or more) due to Hib disease, and the country ranks among the top 10 countries with the largest number of deaths on this account (Watt et al. 2009). An additional challenge faced is that the surveillance systems in India generally underestimate Hib disease burden. This is because the bacterium is fragile, and hence extremely sensitive to the external environment, and this coupled with lack of adequate laboratory infrastructure and the additional clinical challenge of performing lumbar puncture, leads to further delays in specimen transport. The finding of high rates of clinical meningitis prevented by Hib vaccination in the face of low rates of laboratory confirmed cases of Hib meningitis indicate that, in some parts of the world, diagnostic methods currently available may significantly underestimate the burden of Hib disease (Ward and Vadheim 1998, Dajani et al. 1979). If implemented in the future, a strong VPD surveillance system will resolve such ambiguities and will enable the government to build the mechanism for evidence-based decisions regarding the introduction of new vaccines.

CONCLUSION

The inequities, vaccine delivery challenges, contextual barriers and community issues we discussed are summarised in the path to UHC through immunisation in India (see Figure 13.6). Every year, around nine million routine immunisation sessions are being organised in India. There are around 27,000 cold chain points in the country. Undoubtedly, it is a daunting task to immunise the birth cohort of 27 million. However, without achieving immunisation, India would continue to trail in achieving the Millennium Development Goals (MDGs) 4 and 5 (Berer 2012). There is imminent need of reaching the underserved and the unreached—geographically and socio-economically. To reduce child mortality, appropriate service delivery models will have to be developed, integrated, interlinked and sustained by bringing about holistic and diagonal approach to reap the results of equity-based approach (Criel 2004). As an example, a study involving the 107 highest risk administrative blocks of Uttar Pradesh and Bihar showed the synergistic effects of tracking for routine immunisation, hand-washing, sanitation and management of diarrhea on polio eradication (*ibid.*). More importantly, India should strengthen integrated mechanism for surveillance of VPDs similar to the Centers for Disease Classification (CDC), Atlanta or China. The country should integrate all disease surveillance programmes and strengthen IDSP and link this to the CDC.

Programmatic focus in every district for universal coverage with immunisation needs meticulous planning and special focus on delivery of services to most often missed children in the SC and ST population, population with poor wealth quintiles (BPL), rural and urban poor areas, and children of illiterate mothers. Although reaching the needy may appear costly, the benefits of concentrating on them will outweigh the cost of reaching them (CES 2010, Braveman and Gruskin 2003, Chopra et al. 2012).

In specific, surveillance data will have to guide the policy for immunisation towards UHC. Future economic evaluations can establish cost effectiveness of vaccines over other interventions to support decision-making. The country should create a financial sustainability plan for the introduction of new vaccines in the UIP. There should be implementation of public health cadre such that the shortage of trained manpower to manage the UIP is taken care both at the Centre as well as the state levels, for innovations in vaccines, for disease surveillance and for procurement and effective vaccine management.

Scientific platforms need to be provided to national researchers, programme managers and policy-makers to generate, translate and further implement evidence-based public health in India (Babu et al. 2011). It would be beneficial to the populations if agencies such as WHO and UNICEF help researchers generate data regarding specific policy areas for introducing newer vaccines in the developing countries (Babu and Murthy 2011). Also, WHO-supported mechanisms such as AFP surveillance system can be expanded, to collect evidence on other diseases to help decision-making regarding newer vaccines (Babu 2014).

Finally, we could conclude by arguing that vaccination programmes like polio and measles have shown that UHC's goal of reaching every citizen with preventive, promotive and curative health services is possible in India, including the most underserved in some of the most operationally challenging areas. The health system capability that has achieved universal supplementary immunisation for polio can be used as a model for universal access with routine immunisation and other preventative and promotive health services in the country.

Recommendations for Universal Coverage of UIP in India Governance

Creating centres for disease control with headquarters outside Delhi may help efficient management of the immunisation services in the country. It is important to ensure that data for all the diseases and social determinants are collected and used for action, and create a separate division for the VPDs. Currently, the management of immunisation is facilitated by the creation of ITSU. This should be expanded and institutionalised for better management of the immunisation programme at the national level. Similar structure and supervisory mechanisms should be promoted at the national level. The goal of the immunisation management should be to provide universal coverage for all the necessary antigens for every Indian, irrespective of the region, caste and group they belong to. A technical group should be established at the regional and national level to address the queries of media, public and anti-vaccine groups to allay the fears regarding immunisation.

An enhanced and better coordination mechanism has to be developed to efficiently manage the role and functions of several international and national organisations working in the immunisation sector.

Improve Programme Management

To strengthen the micro-plans for routine immunisation, focusing on high-risk areas with poor immunisation coverage, supportive supervisory mechanism has to be strengthened. The barriers for immunisation discussed in this chapter should be addressed through regular review at every level.

Vaccines

The introduction of new vaccines should be discussed by creating a National Accountability Framework and National Vaccine Action Plan. The plan should include indicators for new vaccines surveillance to promote national attention for VPD surveillance, and data from surveillance should guide the start and sustenance of vaccine supply. The indigenous production of vaccines should be promoted by trying out innovative public-private partnerships.

VPD Surveillance

Create the infrastructure required for VPD Surveillance by expanding the NPSP activities to surveillance of other diseases. The government should own the expansion with complete funding, but by providing autonomy to the organisation. Strengthen the laboratory network in the country and accredit them for global standards. Link them to CDC in the country. WHO-NPSP management should focus on including other VPDs for surveillance. Use their infrastructure to continue to providing training, conduct standardized sentinel site assessments and hold district, state, regional and national surveillance meetings; provide data to review VPD surveillance; advocate the importance of implications of not meeting funding required for the VPDs surveillance and introduction of new vaccine;

Research

Epidemiological studies should be done on a regular basis to assess the burden of diseases and provide evidence for policy formulations. The Government should provide funding to research studies aiming to test new vaccines, facilitate the approval for such studies and create a sustained funding mechanism for research.

Advocacy

UNICEF and other international agencies should aim to facilitate the Government in better communication required for the demand generation and minimizing the myths and rumours surrounding the AEFI.

REFERENCES

- AHS (Annual Health Survey). 2012. *Annual Health Survey*. 2011–12. Office of the Registrar General & Census Commissioner, Ministry of Home Affairs, available from web http://www.censusindia.gov.in/vital_statistics/AHSBulletins/AHS_2nd_Updation_Bulletins.html. Downloaded on June 4, 2014.
- Atkinson, S. J., and J. Cheyne. 1994. 'Immunization in Urban Areas: Issues and Strategies'. *Bulletin of the World Health Organization*. 72 (2).
- Babu, G. R. 2014. 'Health for Indians—Who Cares About it Anyway?' Juliet Dobson (ed.). BMJ Blogs. London: BMJ.
- Babu, G. R. 2012. 'Evidence for Health Policy in India: Do We Have Enough Data?' *Journal of the Royal Society of Medicine* 105 (9): 365.
- Babu G. R., and G. V. S. Murthy. 2011. 'To Use or Not to Use—Dilemma of Developing Countries in Introducing New Vaccines'. *Journal of Global Infectious Diseases* 3 (4): 406.
- Babu, G. R., V. V. Singh, S. Nandy, S. Jana, and T. N. Sathyanarayana. 2011. 'Supportive Supervision And Immunization Coverage: Evidence From India'. *The Internet Journal of Epidemiology* 9 (2): 2.
- Banerjee, B. 2003. 'A Qualitative Analysis of Maternal and Child Health Services of an Urban Health Center by Assessing Client Perception in Terms of Awareness, Satisfaction and Service Utilization'. *Indian Journal of Community Medicine* 28 (4): 153–56.
- Braveman, P., and S. Gruskin. 2003. 'Defining Equity in Health'. *Journal of Epidemiology and Community Health* 57 (4): 254–58.
- Berer, M. 2012. 'Maternal Mortality or Women's Health: Time for Action'. *Reproductive Health Matters*. 20 (39): 5–10.
- CES (Coverage Evaluation Survey). 2010. *Coverage Evaluation Survey 2009, All India Report*. Delhi: UNICEF.
- Chitkara A., First DNB, N. Thacker, V. M. Vashistha, S. Jain, and S. Sosler. 2013. Adverse Event Following Immunization (AEFI) Surveillance in India: IAP's Perspectives.
- Chopra, M., A. Sharkey, N. Dalmiya, D. Anthony, and N. Binkin. 2012. 'Strategies to Improve Health Coverage and Narrow the Equity Gap in Child Survival, Health, and Nutrition'. *The Lancet* 380 (9850): 1331–40.
- Criel B., G. Kegels, and P. V. D. Stuyft. 2004. 'A Framework for Analysing the Relationship between Disease Control Programmes and Basic Health Care'. *Tropical Medicine and International Health* 9 (6): A1–A4.
- Dajani, A. S., B. I. Asmar, and M. C. Thirumoorthi. 1979. 'Systemic Haemophilus Influenzae Disease: An Overview'. *The Journal of Pediatrics*. 94 (3): 355–64.
- District Level Household Survey (DLHS-3), 2007–08,
- Indian Institute of Population Studies, Ministry of Health and Family Welfare Services, New Delhi. 2010.
- Duclos P., A. Delo, T. Aguado, J. Bilous, M. Birmingham, M. Paule Kiely, J. Milstien, D. Wood, and D. Tarnatola. 2003. 'Immunization Safety Priority Project at the World Health Organization'. *Seminars in Pediatric Infectious Diseases* 14 (3): 233–39, July, [http://dx.doi.org/10.1016/S1045-1870\(03\)00038-4](http://dx.doi.org/10.1016/S1045-1870(03)00038-4).
- Guyatt G. H., A. D. Oxman, G. E. Vist, R. Kunz, Y. Falck-Ytter, and P. Alonso-Coello. 2008. 'Rating Quality of Evidence and Strength of Recommendations: GRADE: An Emerging Consensus on Rating Quality of Evidence and Strength of Recommendations'. *BMJ: British Medical Journal* 336 (7650): 924.
- Hecht R., A. Palriwala, and A. Rao. 2010. 'Innovative Financing for Global Health: A Moment for Expanded US Engagement'. A Report of the CSIS Global Health Policy Center March.
- Jaeschke R., G. H. Guyatt, P. Dellinger, H. Schünemann, M. M. Levy, and R. Kunz. 2008. 'Use of GRADE Grid to Reach Decisions on Clinical Practice Guidelines When Consensus is Elusive'. *Bmj*: 337.
- Kamara L., J. B. Milstien, M. Patyna, P. Lydon, A. Levin, and L. Brenzel. 2008. 'Strategies for Financial Sustainability of Immunization Programs: A Review of the Strategies from 50 National Immunization Program Financial Sustainability Plans'. *Vaccine* 26 (51): 6717–26.
- Lawn, J. E., J. Rohde, S. Rifkin, M. Were, V. K. Paul, and M. Chopra. 2008. 'Alma-Ata 30 Years On: Revolutionary, Relevant, and Time to Revitalise'. *The Lancet* 372 (9642): 917–27.
- Letourneau, M., G. Wells, W. Walop, and P. Duclos. 2008. 'Improving Global Monitoring of Vaccine Safety: A Quantitative Analysis of Adverse Event Reports in the WHO Adverse Reactions Database'. *Vaccine* 26 (9): 1185–94.
- MacroInternational. 2007. *National Family Health Survey (NFHS-3), 2005–06*: India: Vol. I. Mumbai: IIPS.
- Matthias, D. M., J. Robertson, M. M. Garrison, S. Newland, and C. Nelson. 2007. 'Freezing Temperatures in the Vaccine Cold Chain: A Systematic Literature Review'. *Vaccine* 25 (20): 3980–86.
- Maurice, J. M., and S. Davey. 2009. 'State of the World's Vaccines and Immunization'. Geneva: WHO (World Health Organisation).
- Minz S., V. Balraj, M. K. Lalitha, N. Murali, T. Cherian, and G. Manoharan. 2008. 'Incidence of Haemophilus Influenzae Type B Meningitis in India'. *Indian Journal of Medical Research* 128 (1).
- MoHFW (Ministry of Health and Family Welfare), Government of India. 2013a. 'A Strategic Approach to

- Reproductive, Maternal, Newborn, Child and Adolescent Health (RMNCH+A) in India'. Delhi: MoHFW.
- _____. 2013b. *Rural Health Statistics in India*, 2012. Statistics Division, MoHFW (Ministry of Health and Family Welfare, Government of India).
- Mudur, G. 2010. 'Antivaccine Lobby Resists Introduction of Hib Vaccine in India'. *Bmj*. 340.
- Panagiotopoulos, Takis, Ioanna Antoniadou, and Eleni Valassi-Adam. 1999. 'Increase in Congenital Rubella Occurrence after Immunization in Greece: Retrospective Survey and Systematic Review'. *BMJ (clinical research ed.)* 319 (7223): 1462–67.
- Patel A. R., and M. P. Nowalk. 2010. 'Expanding Immunization Coverage in Rural India: A Review of Evidence for the Role of Community Health Workers'. *Vaccine* 28 (3): 604–13.
- Robertson, S. E., F. T. Cutts, R. Samuel, and J. L. Diaz-Ortega. 1997. 'Control of Rubella and Congenital Rubella Syndrome (CRS) in Developing Countries, Part 2: Vaccination against Rubella'. *Bulletin of the World Health Organisation*. 75 (1): 69.
- Sachdeva S., and U. Datta. 2010. 'Status of Vaccine Cold Chain Maintenance in Delhi, India'. *Indian Journal of Medical Microbiology* 28 (2): 184.
- Sen, G. 2012. 'Universal Health Coverage in India'. *Economic and Political Weekly* 47 (8): 45.
- Sharma S. 2007. 'Immunization Coverage in India'. Delhi: Institute of Economic Growth, University of Delhi.
- Sudarshan, M. K., M. Sundar, N. Girish, S. Narendra, and N. G. Patel. 1994. 'An Evaluation of Cold Chain System for Vaccines in Bangalore'. *The Indian Journal of Pediatrics* 61 (2): 173–78.
- Taneja G., K. S. Sagar, and S. Mishra. 2013. 'Routine Immunization in India: A Perspective'. *Indian Journal of Community Health* 25 (2): 188–92.
- UNICEF. 2013. 'Narrowing the Gaps to Meet the Goals'. New York: UNICEF.
- Vashishtha, V. M. 2012. 'Consensus Recommendations on Immunization and IAP Immunization Timetable'. *Indian Pediatrics* 49 (7): 549–64.
- Vashishtha, V. M., and P. Kumar. 2013. '50 Years of Immunization in India: Progress and Future'. *Indian Pediatrics* 50 (1): 111–18.
- Vega J. 2013. 'Universal Health coverage: The Post-2015 Development Agenda'. *The Lancet* 381 (9862): 179–80.
- Visaria L., S. Jejeebhoy, and T. Merrick. 1999. 'From Family Planning to Reproductive Health: Challenges Facing India'. *International Family Planning Perspectives*: S44–S9.
- Ward, J. I., and C. M. Vadheim. 1998. 'Haemophilus Influenzae. Bacterial Infections of Humans'. Springer. pp. 305–36.
- Watt J. P., L. J. Wolfson, K. L. O'Brien, E. Henkle, M. Deloria-Knoll, and N. McCall. 2009. 'Burden of Disease Caused by Haemophilus influenzae Type B in Children Younger Than 5 Years: Global Estimates'. *The Lancet* 374 (9693): 903–11.
- WHO (World Health Organisation). 2010. 'WHO Vaccine-preventable Diseases: Monitoring System: 2010 Global Summary'. Geneva: WHO.

14

JANANI SURAKSHA YOJANA, INSTITUTIONAL DELIVERIES AND MATERNAL MORTALITY: WHAT DOES THE EVIDENCE SAY?

Ambrish Dongre

Despite tremendous medical advances, the instances of maternal and neonatal mortality occur quite frequently, especially in developing countries. Each year, more than half-a-million women die from causes related to pregnancy and child-birth, 99 per cent of which take place in the developing countries (UNICEF 2009). Nearly 4 million newborns die within 28 days of birth, 98 per cent of which occur in the low and the middle income developing countries. Most of these maternal and neonatal deaths are a result of direct causes—80 per cent of maternal deaths are due to obstetric complications including post-partum haemorrhage, infections, eclampsia and prolonged or obstructed labour, while 86 per cent of the newborn deaths are the direct results of the three main causes—severe infections, asphyxia and pre-term births. These large numbers of maternal and neonatal deaths can be avoided if skilled medical personnel are at hand, better care is provided during labour and delivery, and key drugs, equipment are available. Given that these resources are more easily available in a medical facility, delivering in a medical facility has been recognised as an important way to reduce maternal and neonatal deaths. Yet, the proportion of women who deliver in medical facilities remains abysmally low in many developing countries, including India.

India is one of the worst performers as far as maternal

and neonatal mortality¹ is considered. Maternal mortality in India constitutes 22 per cent of the worldwide maternal deaths. Though there has been a steady decline in maternal mortality ratio (MMR) in the last decade (see Table 14.1), it is still much higher compared to the other developing countries, such as China, Philippines, Thailand and Sri Lanka, which have MMR less than 100 (*ibid.*). Further, there is a wide disparity in MMR among the states in India. As per 2004–06 figures, all the states in the top panel of Table 14.1 had MMR in excess of 300. In fact, about two-thirds of maternal deaths in India are concentrated in these states. The states in the lower panel of Table 14.1 had MMR less than 200 (with the exception of Karnataka). The table also indicates that the states with a high MMR also have a relatively lower fraction of deliveries taking place in a medical institution.² It was against this backdrop that the National Rural Health Mission (henceforth, NRHM) was launched by the Government of India in April 2005. One of the major objectives of the NRHM has been to reduce the maternal mortality to 100 per 100,000 live births and reduce infant mortality to 30 per thousand live births by the year 2012. This ambitious target was sought to be achieved through the Janani Suraksha Yojana (translated as Safe Motherhood Scheme; henceforth JSY), introduced in 2005.

¹ Maternal mortality ratio (MMR) is the number of maternal deaths per 100,000 live births. Neonatal mortality rate is the number of infants dying before reaching 28 days of age per 1,000 live births.

² Figures for MMR of the states have been obtained from various reports and bulletins published by the Office of Registrar General of India.

TABLE 14.1 Maternal Mortality Ratio (MMR) and Proportion of Institutional Deliveries in India

		MMR				% of institutional deliveries	
		2001–03	2004–06	2007–09	2010–12	2002–04	2007–08
	India	301	254	212	178	40.5	47.0
Low Performing States	Assam	490	480	390	328	26.8	35.1
Bihar/Jharkhand		371	312	261	219	23.0	27.5
Jharkhand		—	—	—	—	22.4	17.7
Madhya Pradesh/Chhattisgarh		379	335	269	230	28.2	46.9
Chhattisgarh		—	—	—	—	20.2	18.0
Odisha		358	303	258	235	34.4	44.1
Rajasthan		445	388	318	255	31.4	45.4
Uttar Pradesh/Uttarakhand		517	440	359	292	22.4	24.5
Uttarakhand		—	—	—	—	23.7	30.0
High Performing States	Andhra Pradesh	195	154	134	110	60.9	71.8
Gujarat		172	160	148	122	52.2	56.4
Haryana		162	186	153	146	35.1	46.8
Karnataka		228	213	178	144	58.0	65.1
Kerala		110	95	81	66	97.8	99.4
Maharashtra		149	130	104	87	57.9	63.5
Punjab		178	192	172	155	48.9	63.1
Tamil Nadu		134	111	97	90	86.1	94.0
West Bengal		194	141	145	117	46.3	49.1
Other		235	206	160	136	—	—

Notes: MMR: Maternal deaths per 100,000 live births. MMR figures for the states of Bihar and Jharkhand, Madhya Pradesh and Chhattisgarh, Uttar Pradesh and Uttarakhand are not available separately. But DLHS reports percentage of institutional deliveries for each. Hence, we have reported them separately.

Sources: Figures for MMR have been obtained through various documents published by the Office of the Registrar General of India. Figures for the proportion of institutional deliveries have been obtained from national reports of the District-level Household Survey (DLHS).

This chapter evaluates the impact of one of the largest Conditional Cash Transfers (CCTs) in the world, JSY in India, on institutional deliveries. JSY encourages institutional deliveries through the provision of monetary incentives to women and to local community health workers. Results indicate that institutional deliveries have increased in the backward states which were the targeted regions, after the launch of the programme. Pre-existing trends in institutional deliveries or changes in availability or access to medical facilities cannot explain these results. The increase in institutional deliveries in the backward states is driven by increased deliveries in public health facilities and decline in deliveries in private health facilities. Thus, JSY has undoubtedly increased institutional

deliveries. What about its effect on maternal mortality or infant mortality? Available data indicates that JSY probably did not have much effect on maternal and infant mortality.

JANANI SURAKSHA YOJANA (JSY)

The main objective of JSY is to decrease maternal and infant mortality by encouraging pregnant women to deliver in medical facilities. This is sought to be achieved through payment of monetary incentives to women who deliver in government or accredited private medical facilities.³ For the purposes of the scheme (and for NRHM as well), the states in India were divided into two categories—‘low performing’ and ‘high

³ Various direct and indirect expenses which the household has to bear are regarded as one of the most important reasons why women do not go to institutions for delivery. But when asked about why the respondent woman did not go to a health facility for delivery, 34 per cent women mentioned that it was not necessary to deliver in a health facility, 24 per cent women said that they had no time to visit a health facility for delivery, and 23 per cent women cited prohibitive costs as the reason for not going to a health facility, while 17 per cent mentioned that they had better care at home. Thus, it is important to note that the costs are not the only the reason why women do not go to health facilities for delivery (IIPS 2010).

performing.⁴ The low performing states are those that had an extremely low proportion of women delivering in a medical institution in 2005, at the start of NRHM and consequently, had a higher MMR.⁵ Conversely, the high performing states are those that were functioning relatively better on this indicator. Initially, the eligibility criteria for women to avail of monetary incentives, and the magnitude of the incentives were uniform across both, low and high performing states. Only women above 19 years of age and belonging to below poverty line (BPL) families could avail of these benefits for the first two live births. The magnitude of incentives was also identical for the rural areas across the two categories of states (Rs 700), while women in the urban areas of only low performing states were eligible for the incentives. However, late 2006 saw a substantial relaxation in these eligibility conditions in the low performing states. Specifically, any woman, irrespective of age, wealth status, caste or the number of previous live births were to be eligible for JSY benefits, thereby making this scheme almost universal in these states. In addition to these, incentives were also increased substantially for women in the low performing states (see Table 14.2). No such changes were made in the high performing states.⁶

To implement the scheme, a new cadre of community health worker—Accredited Social Health Activist (ASHA)—was introduced. She is supposed to be a trained female community health activist who would

TABLE 14.2 Initial and Revised Incentives under JSY (in Rs)

<i>Initial incentives</i>	<i>Rural</i>	<i>Urban</i>
Low performing state	700	600
High performing state	700	Nil
<i>Revised Incentives</i>	<i>Rural</i>	<i>Urban</i>
Low performing state	1,400	1,000
High performing state	700	600

Source: UNFPA (2009).

work as an interface between the community and the public health system. Selected from the village itself and accountable to it, ASHAs are supposed to play an important role in the context of maternal and child health.⁷ As far as JSY is concerned, she is supposed to facilitate delivery in a government or an accredited private medical facility. As per the guidelines, she is to be paid Rs 600 per delivery only if she facilitates the delivery in a government facility.⁸ Initially, ASHAs were appointed only in the low performing states. Later on, the scheme was extended to all the states.

Over the years, the number of institutional deliveries as well as financial expenditure under the scheme has increased manifold as seen in Table 14.3. More importantly, this increase seems to be driven by the low performing states as indicated in Figures 14.1 and 14.2. Figure 14.1 shows that the proportion of JSY beneficiaries out of the total institutional deliveries has shot up dramatically in the low performing states. Figure 14.2 shows that the number of institutional deliveries has gone up in both categories of states, but more so in the low performing states.⁹ In fact, the gap in the

TABLE 14.3 Number of Beneficiaries and Expenditure on the JSY

<i>Year</i>	<i>No. of beneficiaries (Lakhs)</i>	<i>Expenditure (Rs crores)</i>
2005–06	7.39	38.29
2006–07	31.58	258.22
2007–08	73.29	880.17
2008–09	90.37	1,241.33
2009–10	100.78	1,473.76
2010–11	106.96	1,618.39
2011–12	109.37	1,606.18
2012–13	80.68*	1,155.00*

Note: * Physical and financial achievement for 2012–13 is till December 2012.

Source: Physical and Financial Performance of JSY, PIB, MoHFW, 28 March 2013.

⁴ JSY is a part of NRHM.

⁵ Low performing states include Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Uttar Pradesh, Bihar, Odisha, Jharkhand, Madhya Pradesh, Chhattisgarh, Rajasthan, Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura.

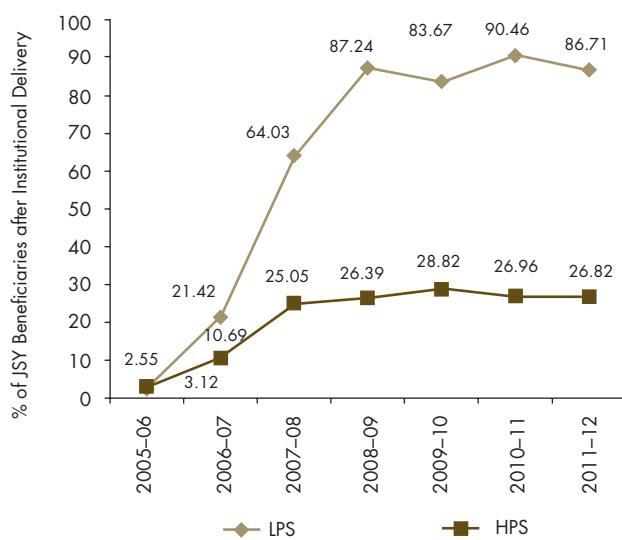
⁶ The scheme was extended to cover even the women in low performing states who belong to BPL households, and are above 19 years of age, and deliver at home with the assistance of a skilled person. These women are now entitled to Rs 500 as cash incentives.

⁷ Details are available at <http://mohfw.nic.in/NRHM/asha.htm#abt>.

⁸ Some states have divided this amount into three components—Rs 250 for transport, which is given to whoever pays for the transport (may not be ASHA), Rs 200 as an incentive for ASHA (non-transferable) and Rs 150 if ASHA escorts woman to the facility/stays with her.

⁹ Both figures show a huge jump between 2006–07 and 2007–08 in the low performing states. This is likely to be the result of relaxation of eligibility and hike in incentive amounts in these States. More generally, studies such as CORT (2007); UNFPA (2009), UNICEF (2010), NHRSC (2011), NRHM (2012), Dongre and Kapur (2013) have also documented increase in institutional deliveries post-JSY.

FIGURE 14.1 Percentage of JSY Beneficiaries amongst those Delivering in an Institution: Low and High Performing States

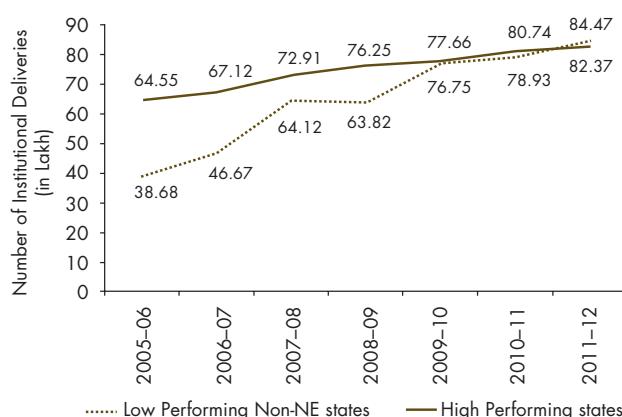


Notes: NRHM (2013) provides number of institutional deliveries for year 2012–13 as well. But the number of JSY beneficiaries after institutional deliveries are available only up to 2011–12.

LPS: Low Performing States, HPS: High Performing States.

Sources: NRHM (2013), RTIs filed by Accountability Initiative.

FIGURE 14.2 Number of Institutional Deliveries: Low and High Performing States



Notes: Low Performing Non-North-East states include Bihar, Jharkhand, Uttar Pradesh, Uttarakhand, Madhya Pradesh, Chhattisgarh, Jammu & Kashmir, Himachal Pradesh, Odisha, and Rajasthan. High Performing States include Andhra Pradesh, Goa, Gujarat, Haryana, Karnataka, Kerala, Maharashtra, Punjab, Tamil Nadu and West Bengal.

Source: NRHM (2013).

number of institutional deliveries between the low and the high performing states in 2005–06 had disappeared by 2009–10.

The key question from policy-maker's point of view is: Can we attribute this increase to JSY? Just because institutional deliveries have gone up post-JSY does not necessarily mean that it is caused by JSY. There can be other plausible explanations. Opening up of new health facilities (in both, public and private sector) improves availability and access to health services. Alternatively, increase in institutional deliveries that we see in the post-JSY period might just be a continuation of a trend that started even before JSY. If any or both these explanations are valid then not taking it into account implies over-estimating the importance of JSY. What does the data suggest?

EMPIRICAL ANALYSIS USING SURVEY DATA¹⁰

How can we use survey data to assess the relationship between JSY and institutional deliveries? As mentioned before, even though the scheme was introduced uniformly across the country, the subsequent modifications made it more attractive and inclusive among the low performing states. Thus, other things being equal, data should show faster increase in proportion of institutional deliveries in the low performing states compared to the high-performing ones. But this is not enough. To be able to say that JSY has led to increase in institutional deliveries, data should show two more things: (a) trends in institutional deliveries between the low performing and the high performing states in the pre-JSY period do not indicate convergence, and (b) there has been no differential increase in the low performing states in availability and access to medical facilities, compared to the high performing states. Does data support this? We have used three successive rounds of the District-level Household Survey (DLHS), specifically the rounds conducted in 1998–99, 2002–04 and 2007–08, to conduct this analysis. Note that the 1998–99 and 2002–04 rounds were conducted before JSY came into being, while the 2007–08 round was conducted after JSY was instituted.

DLHS covers the entire country and is probably the largest when it comes to the sample size.¹¹ Data

¹⁰ Discussion in this section is based on Dongre (2012), which is available for download on http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2196361.

¹¹ DLHS sample size ensures that the sample is representative at the district level. For more details, see IIPS (2010).

is collected through structured questionnaires, and relevant information is obtained about the sampled household, married women in the age group of 15–44 years in the sampled household, husbands of these women, and the sampled villages.¹² Among other things, the focus of the questionnaire for women is to obtain information on various aspects of maternal and child health and healthcare during pregnancy, delivery and post-delivery such as receipt of antenatal care, problems during pregnancy, receipt of iron folic acid tablets/syrup, tetanus injections during pregnancy, place of delivery (whether home or medical facility, government or private), breastfeeding practices, immunisation and vaccinations, prevalence and awareness about diarrhea, pneumonia, etc. Combining the three DLHS rounds give us information about maternal and child health and healthcare for births that have taken place during 1 January 1995 to December 2008. This is quite important since it allows us to analyse trends in institutional deliveries in the low performing and the high performing states, both before and after the introduction of JSY.

Impact on Institutional Deliveries¹³

Data shows that at the baseline, 60 per cent women in the high performing states and barely 26 per cent in the low performing ones delivered in terms of medical facilities.¹⁴ Thus, the gap between the two categories of states was quite large at 34 percentage points. Once we take into account other characteristics of a woman and a household which can influence institutional delivery, the gap comes down to 16.4 percentage points.¹⁵ In simple words, it means that probability of a woman from low performing states delivering in a medical facility was 16.4 percentage points lower than an identical woman in the high performing states. What happened post-JSY? In the initial post-JSY period (i.e. mid-2005 to end-2006), institutional deliveries grew more rapidly in the high performing states,

and as a result, the gap between the two categories of states widened marginally. But in 2007 and 2008, the institutional deliveries grew at a higher rate in the low performing states, and the gap started declining. The results suggest that the gap declined from 16.4 to 9.5 percentage points, i.e. probability of a woman from low performing states delivering in a medical facility was 9.5 percentage points lower instead of 16.4 percentage points, than an identical woman in the high performing states.¹⁶

This is a very important result. But are these trends driven by JSY? Let us explore two main alternative explanations.

- a) Increased availability and access to medical facilities in the low performing states

As mentioned previously, JSY is one component of the NRHM, and creation of medical facilities is another important element of this initiative. Since it is the low performing states where infrastructure gaps are more severe, more facilities would be created in the low performing states under NRHM. This implies that availability and access to medical facilities could change differentially in the low performing states. This can result in more institutional deliveries even in the absence of any monetary incentive due to improvement in availability and access to medical facilities. If we do not take into account impact of these factors, we would over-estimate the effect of JSY. To explore this possibility, village-level data obtained from DLHS-2 (2002–04) and DLHS-3 (2007–08) is used, which has information about the availability and access to various medical facilities such as Anganwadis, sub-centres, primary health centres (PHCs), community health centres (CHCs), government dispensaries, government hospitals and finally, mobile health clinics. Availability is defined as the presence of a particular type of medical facility in a village, and accessibility as the facility being accessible by road throughout the year.

¹² The types of questionnaires canvassed are not uniform across the survey rounds—village questionnaire was not canvassed in the 1998–99 round, while the questionnaire for husbands was canvassed only in the 2002–04 round.

¹³ We define a delivery as ‘institutional delivery’ if it takes place in a medical facility, whether owned by public or private sector or by NGOs or charitable trusts. The public/government medical facilities include sub-centres, PHCs, CHCs, rural hospitals, district hospitals, municipal and state hospitals, etc.

¹⁴ The baseline is the proportion of institutional deliveries in the period 1999–2004.

¹⁵ We control for age of the women, number of pregnancies she had, her and her husband’s education, caste and wealth in the regression analysis.

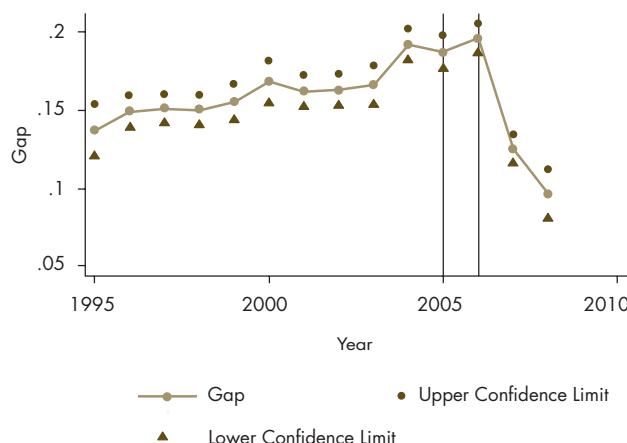
¹⁶ These results are from the all-India sample. The trends in the rural sample are similar to that of the all-India sample. The urban sample displays a slightly different pattern. See the original paper for more details.

The results indicate that except for anganwadis, there has been no differential change in the availability and access of any other medical facility.¹⁷ Thus, larger increase in the proportion of institutional deliveries in the low performing states is unlikely to be driven by increased availability and access of public health facilities during the time period under consideration.¹⁸

b) Pre-existing trends

Other explanation of post-JSY trends in institutional delivery can be the possibility that the gap between the low and the high performing states started narrowing even before JSY was launched. But analysis of DLHS Rounds 1 (1998–99) and 2 (2002–04), which give information on births which have taken place during the years 1995–2004, clearly indicates that the gap in institutional deliveries between the low and the high performing states was in fact widening in the pre-JSY period. So pre-existing trends cannot explain the reduction of gap in the post-JSY period. Figure 14.3 aptly summarises the above discussion.

FIGURE 14.3 Gap in Institutional Deliveries between the Low Performing and the High Performing States



Notes: 2005: Launch of the scheme; 2006: modification in the scheme.
Source: Author's analysis using successive rounds of DLHS.

Deliveries in Public Facilities vs. Private Facilities

As noted earlier, JSY incentives are available for deliveries in government facilities and only accredited private medical facilities. No benefits are available for delivery in the private medical facilities which are not accredited. ASHAs are not supposed to receive any incentives in cases of deliveries in private facilities, accredited or not. Further, the number of accredited private facilities and their geographical spread is quite limited.¹⁹ This suggests that the JSY would reduce the proportion of deliveries in private facilities, and increase the same in government facilities. Does the data support this hypothesis?

Indeed it does. The results show that the deliveries in public facilities have increased at a higher rate in 2007 and 2008, while deliveries in private facilities have declined. So the overall increase in institutional deliveries is actually a combination of increase in institutional deliveries in public medical facilities and decline in institutional deliveries in private medical facilities.²⁰

Is the Benefit of JSY Reaching the Disadvantaged Households?

The direct and indirect costs associated with institutional deliveries are likely to be more binding for the disadvantaged households. Hence, a scheme providing monetary incentives like JSY is expected to benefit more to the relatively disadvantaged households. The eligibility criteria and incentive amounts also favour such households. For example, the magnitude of JSY incentives is higher in the rural areas compared to the urban areas in both the low performing and the high performing states. In the high performing states, only Scheduled Caste (SC)/Scheduled Tribe (ST) and BPL women are eligible for JSY benefits. Similarly, in the low performing states, women from only SC/ST and BPL households are eligible for monetary incentives even when they deliver in accredited private medical facilities,

¹⁷ The corresponding regression equations and tables of results can be found in Dongre (2012).

¹⁸ That there has been no differential increase in public health facilities in the low performing states vis-a-vis the high performing states (as of 2007/2008) itself is an alarming result to say the least. It raises more fundamental question about NRHM itself.

¹⁹ There were only 658 accredited private institutions as on 30 June 2012 across Bihar, Chhattisgarh, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Madhya Pradesh, Odisha, Rajasthan, Uttar Pradesh and Uttarakhand. Bihar, Himachal Pradesh, Jammu & Kashmir and Uttar Pradesh have no accredited private medical facilities. Madhya Pradesh had 41, Odisha had 17 and Uttarakhand had only 2 accredited facilities (see National Rural Health Mission: State wise Progress as on 30 June, 2012, published on 25 September 2012).

²⁰ In addition to describing an interesting outcome of the scheme, this result also adds to the robustness of overall findings.

while other women are not. Hence, one would expect that the proportion of institutional deliveries would grow faster among women from the rural, SC/ST and BPL households in both the low performing and high performing states. What do the results show? Results for the low performing and the high performing states are analysed separately.

In the low performing states, institutional deliveries have grown at an increasing rate among women from households with 'high' wealth in the post-JSY period.²¹ In the low performing states, institutional deliveries have grown at a faster rate among the women from the households with 'high' wealth in the post-JSY period. As a result, gap in institutional deliveries, between women from 'high' wealth households and women from other households, has increased. But the trend reversed post-2006 with institutional deliveries growing at a higher rate among women from the households with 'low' and 'medium' wealth. So there is catching up albeit with a lag. But there is no evidence of catching up in the case of women from rural households or for women from SC/ST households.

The picture is slightly different in the case of high performing states. Institutional deliveries have grown faster for women from households with 'medium' wealth, and to some extent for households with 'low' wealth. Similarly, the proportion of institutional deliveries has been almost constant in the urban areas, while it has grown in the rural areas. As a result, the gap between the rural and urban households has narrowed. But no catching up has happened for women from SC/ST households, and as a consequence, the gap in institutional deliveries between the SC/ST and non-SC/ST households has remained more or less constant.

Thus, the evidence on whether socially disadvantaged households within low and high performing states are benefitting from the JSY is relatively mixed, and it is difficult to draw any definite conclusions.

An important limitation of the analysis so far is that it describes trends only up to 2008 since DLHS-3 provides information on births up to December 2008.

So, in some sense, what we see here are the short-term impacts of JSY. Have these trends continued even after 2008? Are more disadvantaged households benefitting from JSY? We cannot answer these questions simply because no new nation-wide household-level survey data on health has been made available since the release of DLHS-3 in 2010. Field-work for DLHS-4 is complete, but it does not include the 280-odd districts in the low performing states which are covered under the Annual Health Surveys (AHS).²² So DLHS-4 is not much relevant for rigorous nation-wide evaluation of JSY. The last National Family Health Survey (NFHS) was carried out way back in 2005–06. If the reports in the newspapers are to be believed, a revised NFHS is to be launched only in 2014.²³ It is not clear whether the structure of the revised NFHS will be comparable to the previous ones. Data from this revised NFHS is likely to be available only in 2015. Therefore, it will be difficult to know the medium (and potentially long) term effects of JSY till 2015.

EFFECTS OF JSY ON MATERNAL AND INFANT MORTALITY

The million-dollar question is: Has JSY led to the decline in maternal, neonatal and infant mortality?

Maternal Mortality

Maternal mortality is a 'rare' event, so capturing it through surveys requires a huge sample size and hence typical household surveys, including DLHS, cannot yield a reliable estimate of maternal mortality. In the Indian context, periodic Sample Registration System (SRS) bulletins are the time-tested source of mortality indicators. These indicators are provided at the state level, but unfortunately not for every year. The most recent period for which MMR numbers are available is 2010–12.

The numbers indicate that MMR for the country has declined by 16 per cent, from 212 for the period 2007–09 to 178 for the period 2010–12. In 2007–09, only

²¹ In the analysis, we have used wealth index as the proxy for relative poverty of the household. DLHS-3 asks whether the household has a BPL card. But it is well-known that a significant fraction of non-poor households possess BPL cards. This makes using BPL cards to identify poor households inappropriate.

²² The DLHS and AHS are not comparable. More details about the Annual Health Survey can be found at http://censusindia.gov.in/vital_statistics/AHSBulletins/ahs.html, accessed on 30 October 2013.

²³ See <http://www.livemint.com/Politics/zjD4pm80nNrUgpvbpCRKK/Govert-discontinues-annual-health-survey.html?facet=print>, accessed on 30 October 2013.

Kerala had MMR below 100. As per 2010–12 figures, Maharashtra and Tamil Nadu have also managed to get MMR below 100. Except Haryana, Tamil Nadu, Odisha and Punjab, other states have recorded a double digit decline. The largest decline (19 per cent) has been recorded in Rajasthan, West Bengal and Karnataka, closely followed by Uttar Pradesh/Uttarakhand and Kerala.

What does the trend in MMR over time show? Figure 14.4 shows that over time, the gap between low and high performing states has gone down, with the *pace of decline increasing after 2004–06*. In other words, MMR is declining faster in the low performing states, as compared to the high performing states. But the question is: Can we attribute this decline to JSY? The answer is: we cannot say. The reason is that MMR has been declining in both the low and the high performing states even before JSY was introduced. It is difficult to isolate the impact of various factors—increased incomes, increased awareness, improved access and availability of medical care, and JSY, on reduction in maternal mortality. There might be some correlation, but one cannot say much about the causality.

Infant Mortality

We have performed a similar analysis for infant mortality as well, which is represented in Figure 14.5. The figure reveals that infant mortality rate (IMR) has been declining in both the low and the high performing states even before the implementation of JSY. Further,

FIGURE 14.4 MMR in Low and High Performing States

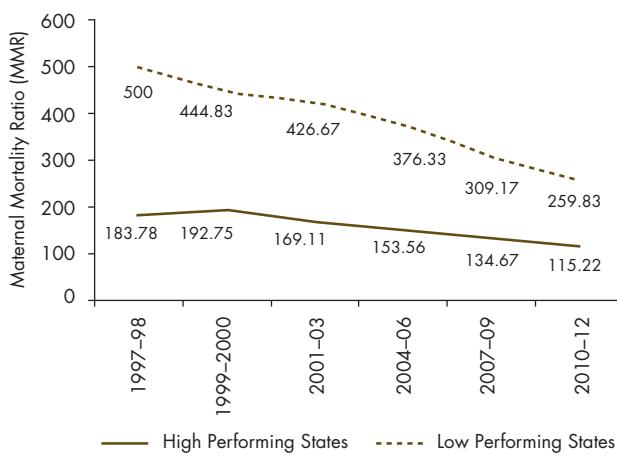
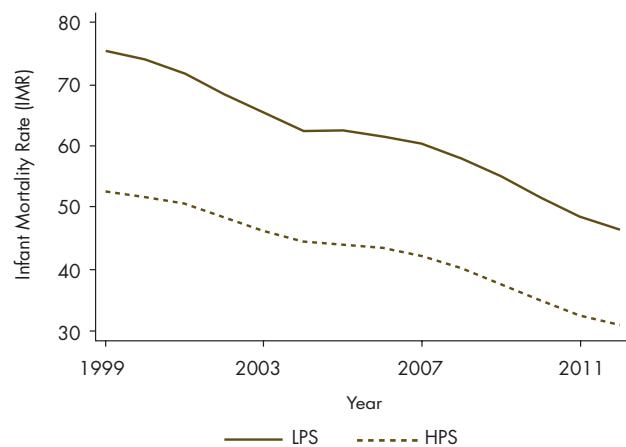


FIGURE 14.5 IMR in Low and High Performing States



there is no visible acceleration in decline in IMR in the low performing states.

Thus, we have an interesting situation here—JSY has increased the proportion of institutional deliveries. But it does not seem to have led to a faster decline in either maternal or infant mortality.

CONCLUSION

One potential reason could be that JSY has not reached to those women who face the highest risk of death during child birth.²⁴ Given that these women are likely to be more socially disadvantaged, efforts should be made to make sure that they are aware of JSY. It is here that ASHAs are to play a very important role. An ASHA is not only supposed to facilitate institutional deliveries, but also act as health activist, and counsel women on birth preparedness and importance of safe delivery, among others.

Another possible reason, and which is cited quite often, is the abysmal state of public health facilities in terms of infrastructure (physical and human), and quality of care.

Despite expansion in medical infrastructure, there continues to be a major gap in coverage. According to the norms, an SC should cover a population between 3,000–5,000, a PHC between 20,000–30,000, while a CHC should cover between 80,000–120,000. However,

²⁴ Our results suggest that this is indeed a possibility.

BOX 14.1 Accredited Social Health Activist—ASHA

Appointment of ASHA (which literally means hope in Hindi) is an important element of NRHM. ASHA is envisaged as a link between the public health system and the local community, and a first port of call for health-related demands of the disadvantaged sections of the population.

In the initial phase, ASHAs were appointed only in the low performing states. But soon the scheme was extended to the North-Eastern states, and subsequently to the tribal and hilly areas of the high performing states as well. Over time, almost all the states have appointed ASHAs.

An ASHA is supposed to carry out a number of responsibilities. She is supposed to be the first port of call for any health related demands of deprived sections of the population, especially women and children. She provides information to the community on determinants of health—nutrition, sanitation and hygiene, information on existing health services, and need for timely utilisation of health and family welfare services. In the context of maternal and child health, she counsels women on birth preparedness, importance of safe delivery, breastfeeding and immunisation. In the context of JSY, she arranges for an escort or accompany pregnant women to the nearest pre-identified facility, and facilitates payment post-delivery. She provides primary medical care for minor ailments such as diarrhoea, fevers and first-aid for minor injuries. She is also a depot-holder for essential provisions such as Oral Rehydration Therapy (ORS), Iron Folic Acid (IFA) tablets, chloroquine, disposable delivery kits (DDK), oral pills and condoms, to be made available to every habitation.

Studies indicate that awareness among mothers about ASHA is fairly high. High proportion of women report receiving advice and help from ASHA in terms of pregnancy registration and information about JSY. A substantial fraction of women report that ASHA stayed with them during delivery. An important role played by ASHA in giving confidence and support to family is worth mentioning. What is also emerging is the key role ASHA play in ensuring that the pregnant woman gets JSY payment. But it is believed that ASHA focus too much on JSY and ignore an important aspect of their work—counselling about pre- and postnatal care and ensuring that women receives it, is not getting enough attention. Studies also indicate than ASHAs have less than full knowledge of their roles and responsibilities. They face a number of issues, most important being a substantial delay in receiving their incentive payments.

Sources: See Bajpai and Dholakia (2011), Dongre and Kapur (2013), NHSRC (2011), UNFPA (2009) for more details.

data indicates that as on March 2012, a sub-centre caters to 5,615 people, a PHC caters to 34,641 people, while a CHC caters to 172,375 people.²⁵ In addition, most health facilities lack basic infrastructure. According to the Concurrent Evaluation of NRHM (2009), only 12.5 per cent of PHCs in Bihar and Chhattisgarh had a labour room with new-born care, while in Odisha, none of the PHCs sampled had such a facility. Only 18 per cent PHCs in the low performing states (excluding the North-east) had piped water supply, while barely 6 per cent of the PHCs have been upgraded as per the Indian Public Health Standards (IPHS). Human resource deficit is another major problem. Let us take the example of the CHCs, where non-availability of specialists (surgeons, paediatricians, physicians, obstetricians and gynaecologists) is quite worrisome. Data as on 31 March 2012 reveals that there was a shortfall of 76 per

cent, and 51 per cent vacancy for surgeons, and 67 per cent shortfall, and 38 per cent vacancy for obstetrician/gynaecologists at CHCs.²⁶

Physical infrastructure and manpower are necessary but not sufficient though. Chaudhury et al. (2006) find that on average, the PHCs have 40 per cent absence rate. Banerjee and Duflo (2004) report a similar absence rate in the health facilities in Udaipur.²⁷ Finally, the quality of care and treatment when health providers actually turn up is highly suspect. A rigorous and innovative body of work by Das and Hammer (2005, 2007) finds that the competence levels among MBBS doctors in the PHCs were so low that there was a 50:50 chance of a doctor prescribing harmful therapy. This is not a consequence of poor training but lack of effort.

Thus, the provision of incentives needs to go hand-in-hand with improvement in physical and human

²⁵ Rural Health Statistics, 2012. At an extreme, a CHC in Bihar caters to a population of 1,315,358 people.

²⁶ Numbers are even worse when it comes for physicians at CHCs. If we take into account all specialists at CHCs, there was 70 per cent shortfall, and 44 per cent vacancy (Rural Health Statistics 2012).

²⁷ On an average, the absence rate was found to be around 45–46 per cent in SCs and PHCs. For more details, see Banerjee and Duflo (2004).

infrastructure together with measures to improve quality of care if increase in proportion of institutional

deliveries is to translate in fall in maternal mortality infant mortality.

REFERENCES

- Bajpai, N., and R. Dholakia. 2011. 'Improving the Performance of Accredited Social Health Activists in India' Working Paper No. 1 of Working Paper Series. Columbia Global Centres, South Asia, Columbia University.
- Banerjee, A., A. Deaton, and E. Duflo. 2004. Health Care Delivery in Rural Rajasthan. *Economic and Political Weekly* 39 (9): 944–49.
- Center for Operation Research and Training. 2007. *Assessment of Asha and Janani Suraksha Yojana in Rajasthan, Jharkhand, Bihar, Uttar Pradesh, Chhattisgarh, Madhya Pradesh, Odisha*, New Delhi.
- Chaudhury, N., J. Hammer, M. Kremer, K. Muralidharan, and Rogers F. Halsey. 2006. 'Missing in Action: Teacher and Health Worker Absence in Developing Countries.' *Journal of Economic Perspectives* 20 (1), Winter 2006: 91–116.
- Das, J., and J. Hammer. 2007. 'Money for Nothing: The Dire Straits of Medical Practice in Delhi, India.' *Journal of Development Economics* 83 (1): 1–36.
- _____. 2005. 'Which Doctor? Combining Vignettes and Item Response to Measure Clinical Competence.' *Journal of Development Economics* 78: 348–383.
- Dongre, A. 2012. 'Can Conditional Cash Transfers impact Institutional Deliveries? Evidence from Janani Suraksha Yojana', Working Paper, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2196361, accessed on 30 October 2013.
- Dongre, A., and A. Kapur. 2013. 'How is Janani Suraksha Yojana Performing in Backward Districts of India?' *Economic and Political Weekly* 48 (42): 53–59.
- IIPS (International Institute of Population Sciences). 2010. *District-level Household and Facility Survey (DLHS-3), 2007–08: India*. Mumbai: IIPS.
- NHSRC (National Health System Resource Centre). 2011. *Programme Evaluation of the Janani Suraksha Yojana*, New Delhi: NHSRC and NRHM.
- NRHM (National Rural Health Mission). 2013. *State Wise Progress as on 30.06.2013*. Delhi: Ministry of Health & Family Welfare, Government of India.
- _____. 2012. *State Wise Progress as on 30.06.2012*. Delhi: MoHFW (Ministry of Health and Family Welfare), Government of India.
- _____. 2009. *Four Years of NRHM 2005–2009: Making a Difference Everywhere*. MoHFW (Ministry of Health & Family Welfare), Government of India, <http://nrhm.gov.in/publications/four-years-of-nrhm-2005-2009.html>, accessed on 30 October 2013.
- Statistics Division. 2013. *Rural Health Statistics in India 2012*. New Delhi: Ministry of Health and Family Welfare, Government of India.
- UNICEF. 2010. *Coverage Evaluation Survey 2009: All India Report*. New Delhi: UNICEF.
- _____. 2009. *The State of the World's Children 2009: Maternal and Newborn Health*. New York: UNICEF.
- United Nations Population Fund India. 2009. *Concurrent Assessment of Janani Suraksha Yojana (JSY) in Selected States: Bihar, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh*. New Delhi: United Nations Population Fund India.

15

POSITIONING QUALITY IN HEALTH SERVICES: A CASE STUDY OF MATERNAL AND CHILD HEALTH PROGRAMMES IN INDIA

Aradhana Srivastava, Sanghita Bhattacharyya and Bilal Avan

Over the years, as India's health system developed, there has been an increased focus on quality in the health sector. This could be a reflection of the growing public awareness and concern about the kind of care provided at institutions, both public and private. In recent years, civil society has been raising its concern for quality in healthcare meant especially for the poor and the vulnerable sections of the population. In maternal health specifically, the potential gains of providing good quality care during pregnancy and delivery, in terms of lives saved for mothers and babies, are enormous. Across less developed countries, 95 per cent coverage of quality facility births could prevent an estimated half of all maternal deaths—around 150,000 women saved each year—and just over a third of all neonatal deaths (Save the Children 2013).

The concept of quality broadly encompasses clinical effectiveness, safety and a good experience for the patient and also implies care which is patient-centred, timely, efficient and equitable (Table 15.1) (Thompson et al. 1991, Institute of Medicine 1990).

At the institutional level, Quality Assurance (QA) and Continuous Quality Improvement (CQI) are two interrelated mechanisms for ensuring quality in service provision. QA is a mechanism/process that contributes to 'defining, designing, assessing, monitoring, and improving the quality of healthcare (MoHFW 2008). It sets standards, assesses how standards are met and accordingly takes corrective action. In CQI, the approach is through plan-do-study-act method in which four repetitive steps are carried out over the course of small

TABLE 15.1 Dimensions of Quality of Care

Dimensions	Description
STRUCTURE	
1. Physical resources	The resources required to enable the provision of quality care infrastructure, equipment, drugs and supplies.
2. Human resources	Care provided by appropriately trained and supervised providers; numbers of staff adequate to meet the demand for care.
PROCESS	
3. Competent and efficient care	Care consistent with scientific knowledge, internationally recognised good practice. Care is safe (avoidance of iatrogenic harm); timely and responsive (respectful, promoting autonomy, equitable).
OUTCOME	
4. Clinical Effectiveness	Positive clinical outcomes achieved (e.g. mortality reduction).
5. Satisfaction with care	Provider and patient-centric care.

Sources: Adapted from Donabedian (1980), Hulton et al. (2000) and Institute of Medicine (1990).

cycles (Varkey et al. 2007). QA is the first step for a transformation process at the health service institution, i.e. accreditation by an external independent assessing body and grant of quality certification to the institution. It involves setting standards and services delivered as per those standards. CQI is essentially an internal voluntary process that follows once the gaps are

identified, and helps sustain the quality improvement process at the institution.

India has witnessed more than two decades of safe motherhood programmes in the health sector, leading to appreciable gains in maternal and neonatal health outcomes. Yet, maternal and neonatal morbidity and mortality continue to remain stubbornly high. Improving the quality of care is critical to further accelerating the decline in these critical Maternal and Child Health (MCH) indicators. When we examine the development of maternal health policies and programmes in India in the light of quality of care, a clear pattern of shifting priorities influencing programme strategies emerge, which ultimately influence the success of critical MCH interventions.

This chapter situates quality in the present MCH programmatic context in India by looking at the evolution of the concept of quality in maternal health

since Independence. It then highlights current facility and community-based mechanisms for QA in the health system. Subsequently, the chapter analyses the current situation of maternal health quality of care in India by synthesising evidence on the experiences of institutional MCH care. Towards the end it highlights the gaps and challenges to integrate quality as an integral part of MCH services.

EVOLUTION OF THE CONCEPT OF QUALITY IN MATERNAL HEALTH SINCE INDEPENDENCE

India has come a long way since Independence towards improving quality of care in MCH services (Table 15.2). For about 30 years after Independence, expanding access and coverage of basic health services which includes

TABLE 15.2 Milestones in Evolution of Quality Awareness in Maternal and Neonatal Health in India

<i>Time period</i>	<i>Milestones</i>	<i>Effect on maternal health quality of care strategies</i>
1950–60	Vertical disease eradication programmes	Comparatively little focus on MCH with neglect of quality concerns.
1960–70	Focus on population control through target-based approach	Pressure to meet targets leads to neglect of community-level health and MCH services.
1978	The Alma Ata Declaration of Health for All by 2000	Reinstated primary health approach on the health agenda in India.
1983	First National Health Policy	Envisaged expanded coverage through hierarchy of rural healthcare and set national infant and maternal health goals.
1985	Seventh Five Year Plan	First articulation of quality as a concern in healthcare.
1991	Structural Adjustment Programme for economic liberalisation	Cuts in social spending lead to declining public health budget; expansion of private sector in healthcare, especially tertiary sector.
1992–93	First National Family Health Survey conducted	For the first time in-depth data on reproductive, maternal and child health and family planning for women available in India, to inform policy and decision-making.
1994–95	The UN Conference on Population and Development (Cairo 1994) and World Conference on Women (Beijing 1995)	Intensification of women's movements within India and globally; advocated the client-centred and quality-oriented target-free reproductive health approach.
1997	Launch of Reproductive and Child Health Programme	Package of integrated family planning, MCH and reproductive health services. Focus on quality health services.
2002	Second National Health Policy	Reflects growing concern with quality in healthcare, including infrastructure, human resources, training and provider attitudes.
2002–07	Tenth Five Year Plan	National Accreditation Board for Hospitals (NABH) and Healthcare Providers established in 2006 in Quality Council of India (QCI) for accreditation of private and public health centres.
2005–12	National Rural Health Mission (NRHM) and Reproductive and Child Health (RCH)-II launched in 2005	Decentralisation and greater fund flow to health sector; Focus on quality through QA strategy in RCH-II; Indian Public Health Standards (IPHS) norms; capacity building and technical support through National Institute of Health and Family Welfare (NIHFW) and National Health Systems Resource Centre (NHSRC).

MCH was at the top of the agenda of India's health sector. However, development focus on vertical disease eradication programmes like malaria eradication or tuberculosis (TB) and cholera control, and pressure to attain family planning targets under the population control programme eclipsed community-based MCH efforts (Amrit 2009, Banerji 1976). The Alma Ata Declaration of 1978 renewed focus on primary healthcare which was people-centered, universally accessible and affordable to all (Hall and Taylor 2003). It triggered several policy changes in the country and also inspired voicing concern about the quality of care along with issues of universal access and equity. Post-structural reforms of the 1990s, the need was felt for quality control of the burgeoning private tertiary healthcare segment. At the same time, the global movement for reproductive rights shifted emphasis on MCH programme towards a rights-based approach and increased concern for quality of care (Srinivasan 2006, Qadeer 2000).

The period since the year 2000 not only marked significant expansion in MCH programmes, but also formulation of concrete QA strategies in maternal and neonatal health took place. Pressure to meet the Millennium Development Goals (MDGs), and pressure from rising public opinion for improved access and quality of healthcare accelerated government efforts for health sector development. The National Rural Health Mission (NRHM), which was launched in 2005, stated quality as one of its key objectives. Institutional deliveries were given a major push through the Janani Suraksha Yojana (JSY) scheme of cash incentive for facility births.

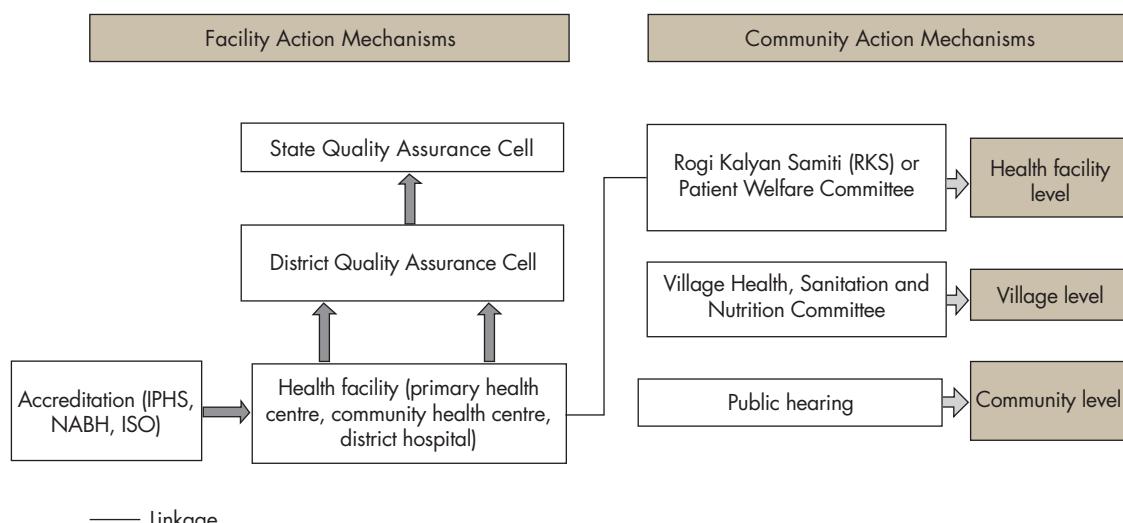
A cadre of community-based link workers (ASHAs) helped bridge the distance between the community and facilities, especially for institutional delivery. A number of mechanisms such as approved accreditation bodies, standard treatment protocols, and guidelines for QA and CQI processes are also in place for quality improvement in MCH care, both in public and private institutions.

QUALITY IMPROVEMENT INITIATIVES IN MATERNAL AND CHILD HEALTH UNDER NRHM

NRHM/Reproductive and Child Health (RCH)-II are the first national health programmes to recognise quality and accountability as critical areas for action in healthcare. They define concrete quality assurance strategies and mechanisms to address this through continuous quality monitoring, feedback and improvement both at the facility and community levels (see Figure 15.1). Though not mandatory, these strategies and mechanisms are accompanied with operational guidelines and funds to help states implement them. They reflect the positive intent towards prioritising quality improvement in health service delivery. The states have used these mechanisms to various extents towards improved quality of services in public facilities under these programmes.

Quality assurance under RCH-II: Under the QA programme of RCH-II, State-level Quality Assurance Committees (SQACs) have been established, along with

FIGURE 15.1 Quality Monitoring Mechanisms in India under NRHM and RCH-II



District-level Quality Assurance Groups (DQAGs) and Quality Circles (QCs) at the public health facilities for identifying problems/areas for quality improvement, analysis and identification of solutions and preparation of action plans. Earlier, limited to family planning services, the scope of QA programme has now been expanded to include overall MCH care through recently revised Government of India guidelines; this includes service provision and skill-based training (MoHFW 2009). The programme has been adopted in most states, after being piloted in six (Box 15.1).

The QA procedure involves a series of visits to a sample of public health facilities at different levels every month by the DQAG, a team of three district-level health officials. This team uses QA checklists (which are annexed to the QA Manual) to review the readiness of the facility to offer services and the measures the quality of services provided. The DQAG team communicates the gaps in readiness or quality identified by them to the Medical Officer in-charge

and suggests actions for improvement before leaving the facility. Follow-up visits are made to the facility every four months, during which progress in addressing the gaps identified previously is assessed. DQAGs present their findings to SQACs, who then advises on larger action areas to be addressed at the state level. The QA checklists provide easy procedures to provide an aggregated score for each individual facility with respect to input (readiness), process (how the service is delivered) and outcome (performance), based on national RCH-II guidelines (Khan et al. 2008). The QA programme applies to only public health facilities at all levels.

Accreditation and quality certification of facilities: Besides quality improvement specific to RCH services, the Indian Public Health Standards (IPHS) was devised as a set of minimum infrastructure and staffing standards prescribed for public facilities at all levels. The idea was to provide a yardstick on which to

BOX 15.1 Pilot of the Quality Assurance Process

Initially the QA process was piloted in six states (Assam, West Bengal, Karnataka, Maharashtra, Uttar Pradesh and Uttarakhand—one district each of the five states and two districts of Uttar Pradesh). The report of the state quality assessments held on sample facilities by the designated field agencies was shared with the respective district QA units. After incorporating their recommendations, the report was shared with the District Health Societies to initiate action on recommendations with support and oversight of the State Mission Director. The pilot activities were later up-scaled to cover the entire state. Elements of quality assessed include access to services, equipment and supplies, professional standards, technical competence and continuity of care. With respect to safe motherhood and newborn care, aspects assessed include facility infrastructure, transport arrangements, communications, equipment functionality, service equipment, supplies inventory, staff training and knowledge/skills, and availability of protocols.

Source: NIHFW (2008).

FIGURE 15.2 Step-wise Quality Improvement Process for Health Facilities in India



Source: Authors' illustration.

BOX 15.2 The Family Friendly Hospital Initiative (FFHI)

The National Health Systems Resource Centre (NHSRC) is implementing the Family Friendly Hospital Initiative (FFHI) to support compliance with evidence-based maternal and newborn care protocols adopted by the Ministry of Health and Family Welfare (MoHFW) in public secondary and tertiary care facilities handling complicated institutional deliveries. The strategy of the programme is to ensure use of available protocols (such as active management of labour, post-partum haemorrhage, safe birth checklist, infection prevention protocol, safe surgery checklists, etc.) through staff training and monitoring use of protocols. A certificate of Family Friendly Hospital (FFH) is provided as formal acknowledgement of improved service standards in such facilities where compliance has been ensured (NHSRC 2010).

The certification process involves a participatory gap analysis to identify quality-related gaps, which are addressed through available resources optimally utilised on the basis of a participatory action plan. The participatory approach encourages ownership and accountability among staff, which becomes a driving force in the sustainability of quality standards in FFHI facilities (*ibid.* 2010). FFHI also ensures physical amenities and availability of essential drugs to manage emergencies. Supportive supervision is provided through the SQACs under RCH-II. FFHI has made considerable progress in Bihar, where it is being implemented in all public health institutions other than those opting for ISO certification. Development partners like UNICEF are supporting the state government capacity building of providers through skills laboratories to meet FFHI standards (UNICEF 2014). Two such trained personnel are deployed in each district to ensure compliance with protocols in MCH facilities (NHSRC 2013). FFHI is also being implemented in 21 facilities in Jharkhand and 80 facilities in Uttar Pradesh (NHSRC 2010).

evaluate facilities and take remedial action according to the gaps identified (MoHFW 2005a, b). The states have accordingly established norms for public facilities and introduced measures for quality improvement and monitoring. The states were also encouraged to get formal accreditation and quality certification of public facilities, especially at the tertiary level (see Figure 15.2).

The two main accreditation bodies in the health sector include National Board for Accreditation of Hospitals and Healthcare Providers (NABH) and Bureau of Indian Standards (BIS). NABH provides accreditation for all levels and types of health facilities (public and private) and allied services such as laboratories and blood banks. BIS specifically provides certification in quality management systems (ISO 9001) to specialty and super-specialty hospitals (Bureau of Indian Standards 2013). Accreditation standards include patient care, management of medication, hospital infection control, continuous quality improvement, facility management and safety, human resources, and information management systems. Quality certification is provided after a rigorous process of gap identification and facility strengthening. The certification is for three years, with one surveillance visit during the period. Certification can be renewed on the basis of re-assessment reports on request from the certified institutions (NABH 2009). Among the states, Gujarat and Kerala, in collaboration with NABH, pursued quality improvement through accreditation of all public health facilities at all levels in collaboration. Pilot programmes on quality

improvement in facilities based on accreditation and certification process are also going on in states like Bihar, Jharkhand and Odisha (see Box 15.2).

Community Action Mechanisms: NRHM acknowledges the denial of healthcare to the community in many ways ranging from deficient facilities (lack of staff, drugs, equipment) to corruption, refusal of treatment on account of inability to pay fees, disrespectful and abusive behaviour of staff and inadequate attention given to the patient resulting in poor quality of care. To deal with such actions the Mission advocates community action. It states, 'Community action organizes people to demand quality health services' (MoHFW 2005c). Methods to devise community feedback include periodic household and facility surveys at village level to track effectiveness of services. Periodic *jan sunwai* or public hearings were also held to facilitate community engagement to improve public health services (*ibid.*).

Village Health, Sanitation and Nutrition Committee (VHSNC): VHSNCs have been constituted for community-based monitoring on agreed benchmarks with regard to the public health system at all levels (outreach services, primary health services, referrals) on demand/need, coverage, access, quality, effectiveness, behaviour and presence of healthcare personnel at service points, possible denial of care and negligence. Rogi Kalyan Samitis (RKSs) or Patient Welfare Committees (PWCs) have been constituted at the primary health centre (PHC)

level and provided with untied fund of Rs 100,000 for facility improvement. It is also authorised to retain user fees at the institutional level for its day-to-day needs. Similar role is performed by Hospital Development Committees (HDCs) at the hospital level (*ibid.*).

REALISING QUALITY: EVIDENCE ON THE STATUS OF QUALITY AND EXPERIENCE OF CARE

Evidence from current literature shows that in spite of the facility and community-based mechanisms instituted in India's health system, the actual status of quality of care available at facilities leaves much to be desired.

Accreditation and quality certification has limited sustainability unless internally driven. In public health institutions, the quality certification process is being encouraged in several states. The NHSRC is providing technical assistance and handholding support to facilities at all levels across states to help them obtain quality certification (see Table 15.3). However, the process has met with limited success as it was not found to be sustainable in the public health facilities owing to high cost and lack of ownership within facilities. Moreover, several infrastructure and human resources gaps could only be addressed at the state level and not at the facility level. In the absence

of handholding support, quality standards declined and the certification status could not be maintained in some cases (NHSRC 2013). However, the positive aspect is that the process instils among the staff awareness on quality improvement and associated processes, which does lead to an improvement in quality of care, even if not meeting stringent quality certification standards.

Effectiveness of community-action mechanisms per se has also been found to be sub-optimal, more so their influence on quality of care. Evaluations have found that the RKSs or PWCs in many places exist only on paper and have not been constituted in reality. In many cases, though constituted, they meet irregularly and do not address patient feedback or grievances. Membership profiles are not as per guidelines. Members are not aware of their role and the bodies generally perform only the function of scrutinising untied fund bills (PHRN 2009, Srivastava and Bobhate 2012). NRHM evaluation admits that their ability to influence critical issues like better fund utilisation of user fees and lower exclusion seems to be limited (NRHM 2012). Effectiveness of the village-level committees (VHSNC) also suffered from similar issues of irregularity of meetings and lack of role clarity among members. Studies in different states including Punjab, Rajasthan, Bihar, Odisha, Chhattisgarh and Jharkhand have found irregularity in functioning and lack of awareness among a majority

TABLE 15.3 ISO Certified Facilities in States (supported by NHSRC), October 2013

State	Quality certification achieved				
	District hospital	Sub-divisional hospital	Community health centre	Primary health centre	Total accredited facilities
Andhra Pradesh	2				2
Bihar	11	5		9	25
Chhattisgarh	4		4		8
Haryana			1		1
Jharkhand	4				4
Madhya Pradesh	1				1
Odisha	8				8
Rajasthan	1				1
Tamil Nadu				78	78
Uttar Pradesh	1				1
Uttarakhand	1				1
West Bengal	6	3			9
NE states	8				8
TOTAL	47	8	5	87	147

Source: NHSRC website, http://nhsrcindia.org/index.php?option=com_content&view=article&id=171&Itemid=647, accessed on 3 March 2014.

of members regarding their roles and responsibilities, especially in the planning and implementing process of untied fund (PHRN 2008, Pandey and Singh 2012, Singh and Purohit 2012). Their success also depended significantly on the active leadership role displayed by the people's representatives at the grassroots level, who were able to steer it meaningfully to address community health issues (Nongdrenkhomba et al. 2012).

Jan sunwais (public hearings) facilitated by non-governmental organisations (NGOs) were organised in Maharashtra, Chhattisgarh, Tamil Nadu, Rajasthan, Jharkhand, Karnataka, Assam, Odisha and Bihar. However, these events were sporadic, one-off and not followed up to evaluate action taken on the issues raised by the community.

Public health system in India is rife with structural quality issues. Findings from concurrent reviews of NRHM and RCH-II have highlighted a number of structural quality-related issues (NRHM 2010, 2011, 2012).

- IPHS guidelines have been widely used to spruce up facility infrastructure across the board, but the system to deliver quality service was found to be limited.
- In case of institutional deliveries, utilisation has expanded at a much faster rate than institutional capacity, thereby leading to severe pressure on facilities and resulting in quality gaps in services delivered. Common shortages include that of proper cleanliness, beds, linen, medicines, injections and surgical equipment and often rusted/obsolete equipment.
- Human resource shortage is also a critical issue, especially in remote rural areas. A large proportion of PHCs in remote rural areas cannot perform institutional deliveries on account of severe shortage of medical officers, specialists or anaesthetists.
- Cleanliness, user-friendly services and privacy in facilities showed a mixed picture. Lack of respect and regard for patient dignity is still a pervasive phenomenon.

Quality does not imply structural quality alone. The process of care and the clinical quality of care given in facilities are also significant in influencing quality of care. However, there is scant evidence on this, especially from the private health sector, both organised and informal. A study using trained, standardised patients to assess the

quality of provider's medical care in India was conducted to assess the correctness of diagnosis and appropriateness of treatment (Das et al. 2012). Findings showed very brief consultation times (of less than five minutes) and poor adherence to recommended treatment guidelines. An earlier study on provider quality showed that provider knowledge often does not translate to practice—while public sector doctors are prone to errors of omission, private doctors are prone to errors of commission (over-prescription or unnecessary procedures in an effort to meet patient expectations) (Das and Hammer 2004).

A group discussion with women on the quality of care for institutional deliveries under JSY revealed that during ante-natal check-ups, Auxiliary Nurse Midwife¹ (ANM) played a limited role and check-ups mostly took place in secondary or tertiary facilities (PHRN 2009). When ANM did the examination, she often neglected blood pressure (BP) check-up, blood or urine tests, focusing only on iron and folic acid (IFA) supplementation and tetanus toxoid (TT) vaccination (*ibid.*). Regarding JSY payments women complained that they were often delayed even beyond a month from delivery (*ibid.*). Poor quality of antenatal care and screening and rough behaviour discouraged women from attending maternity services in PHCs (The Indian Trust for Innovation and Social Change 2007). In a study in Jharkhand, adverse experiences of women delivering in public facilities included non-availability of drugs, poor attention, staff misbehaviour and higher OOP expenditure (Rai et al. 2011).

Access and quality of care is deeply influenced by the social context. Civil society has highlighted social exclusion of dalit and other marginalised women from critical maternal care that could be life-saving. Provider-patient relationships are also influenced by social context, with more women from vulnerable sections reporting poor provider behaviour or abuse (Dasgupta 2011). Irregularities, underreporting and misrepresentations have also been reported around maternal death reviews, which are officially being promoted as effective instruments for identifying causes and critical areas of corrective action to avert maternal deaths (*ibid.*). Verbal autopsies of maternal deaths in Odisha showed that more than 60 per cent maternal deaths are reported from marginalised communities (UNICEF 2009).

¹ ANMs are regarded as the first contact person between people and organisation, between needs and services and between consumer and provider. It is through their activities that people perceive health policies and strategies. It is through them that planners at the upper level gain insights into health problems and needs of the rural people. Considering their status as grassroots level workers in the health organisational hierarchy, a heavy responsibility rests on them (Malik 2009).

Rural-urban differentials in quality of maternal care have also been noted, with quality in rural areas being markedly poorer than in the urban areas. As per NFHS-3 data, 80–82 per cent of urban respondents had their BP measured and weight taken during antenatal examination as compared to only 55 per cent of rural respondents (NFHS 2007). Similar differentials are observed, and even seem to grow wider post-NRHM if DLHS-3 data are examined (Nair and Panda 2011). A study on women's experience of maternity care across income groups in Delhi found that more than 40 per cent high income women were told about pre-term labour symptoms and labour analgesia/pain relief as compared to less than 10 per cent among the middle and low income groups (Dhar et al. 2010). C-section deliveries ranged from 53.6 per cent among high income women to 15 per cent among low income women.

One of the core elements of quality is user satisfaction with care. In the context of maternal healthcare, it is important to look into women's experiences of maternity care and their assessment or level of satisfaction with care. The available evidence in India, however, is scanty, more so for home as compared to institutional deliveries. Key quality constraints highlighted in studies include poor infrastructure and lack of appropriate drugs or equipment to support maternal or neonatal care (Ager and Pepper 2005, World Bank 2007, Das et al. 2010). Treatments are often inadequate due to poor knowledge or skills of providers and have a negative effect on utilisation of facilities (Ager and Pepper 2005). Other provider-related constraints include staff absenteeism, rude behaviour, lack of privacy, general apathy in treatment and demand for bribes. Patients also have to face long waiting time before being treated in hospitals (World Bank 2007, Ager and Pepper 2005, Das et al. 2010). Even at the grassroots level a study reported poor availability of ANM, her lack of commitment and oft refusal to treat certain cases, including those of assistance in delivery (Ager and Pepper 2005).

Preference of private over public facilities was recorded in a study, with respondents citing good staff behaviour, availability at all times, all services under one roof and good physical infrastructure as the reasons for their preference (Jain et al. 2006). Based on available literature, Table 15.4 summarises what Indian women perceive as important for satisfactory maternal care. Recent research has shown that women prioritise quality of care over monetary incentive of JSY while deciding the place for their next delivery (see Box 15.3).

TABLE 15.4 Determinants of Women's Satisfaction with Care: Evidence from India

Parameters	Determinants of satisfaction
Structural aspects	Good infrastructure, cleanliness, water supply, electricity, comfortable and spacious seating, lighting Convenient opening and closing timings; reduced waiting time Availability of all essential equipment, drugs and supplies Availability of doctors and nurses at all times, especially to handle emergencies/maternal or newborn complications
Interpersonal behaviour	Polite and respectful behaviour; dignity and courtesy to patient by all staff Respect for and provision of privacy; confidentiality
Perceived 'good' clinical care	All necessary tests conducted, good medicines prescribed, infection prevention measures taken, adequate advise/counselling on diet, precautions and delivery/postnatal procedures; longer consultation time

Source: Srivastava et al. (2012).

CONCLUSION

India's concern for quality of care in health services has given rise to a series of measures for quality improvement in facilities, ranging from infrastructure norms, accreditation of facilities and community-based monitoring of public health services. Yet, these measures have not been very effective in achieving sustainable gains in quality improvement (see Box 15.4).

Improving quality requires concerted action at national and state levels for policies and programmes to integrate quality at the design stage, create a culture of quality at all levels, enhance accountability and establish/strengthen enabling systems for planning, human resource management, finance, supply chain, community participation, supportive supervision and information systems for programme management. These actions need to be complemented by strengthening institutional capacity at the district level and below to be able to translate the policy and programme guidelines to improve quality of care at the facility.

Recent quality improvement initiatives have tried to provide a holistic approach with some of the elements as described in Tables 15.1 and 15.2. The NABH and Quality Management Systems (QMS) certification aims accrediting the facilities based on standard and protocols. But the major drawback of this process is that

BOX 15.3 Understanding What Women Want from Maternal Health Services in India

While JSY has undoubtedly led to a huge increase in the institutional delivery load in public facilities, evidence is needed on the quality of care and facilitators of women's care, to assess the ultimate objective and long-term sustainability of the scheme. The Public Health Foundation of India (PHFI), London School of Hygiene and Tropical Medicine, and the University of Aberdeen conducted a study in 2012 to explore women's perceptions of quality and satisfaction with maternal healthcare in rural Jharkhand, using qualitative interviews and a community survey of 500 women with recent normal live births.

The qualitative study revealed seven key determinants of care that influence women's decisions whether to deliver in institutions or at home—provider behaviour, influence of community health workers in deciding the place of delivery, accessibility of the institution, emotional support during delivery, belief in clinical care in terms of presence of skilled staff, availability of medicine, and cost of the services. Preference for institutional delivery was guided more by perception of good quality of care (69 per cent) than by cash incentive (30 per cent).

The study documented logistical, infrastructural, financial and social barriers to facility-based childbirth. More than a third of the women surveyed did not reach the facility in time and delivered at home. These women could not arrange their transport and lived in communities with bad roads and poor connectivity. In some cases, no other adult family member was present for childcare and household responsibilities.

One in three women surveyed preferred to deliver at home citing comfort and privacy, and childcare responsibilities. These women also cited cost savings and proximity of a traditional birth attendant as additional factors affecting their preference for giving birth at home. Choice of home as place of delivery was influenced by women's perception that facilities would not have adequate medicines and supplies, good care may not be available, she may face abuse and males would be present during labour and delivery. The opinion of husband and other family members was also important in deciding place of delivery.

Forty per cent of the women who delivered at a facility spent more than the allotted amount (Rs 1,400 JSY conditional cash transfer) due to additional costs such as procuring medicines from outside and informal payments to facility staff. Yet, three-fourths of the women planned to have future deliveries in health facilities. JSY was a significant factor in encouraging institutional deliveries, but not the primary one, as more than 60 per cent of these women said they wanted to deliver at facilities primarily for better pregnancy outcomes.

Source: Bhattacharyya, Srivastava and Avan (2013).

Box 15.4 Gaps in Quality Improvement Initiatives in India

1. Emphasis is towards accreditation, which is a one-time process, as it is difficult to sustain the standards which often gets diluted after certification.
2. Quality certification primarily limited to standards of infrastructure, supplies with less emphasis on process of care.
3. The state and district quality assurance cells are not fully functional in all states.
4. Limited functional committees within the health facilities to sustain the quality improvement initiatives.
5. Lack of empowerment and motivation among health facility staffs to internationalise the quality improvement process.
6. Community participation mechanisms not properly linked and feedback not adequately appropriated for improving facilities and services.
7. Inadequate indicators to measure quality of service delivery.
8. Last but not the least, hardly any direct incorporation of patient perspective to develop patient-centric care.

it is difficult to sustain if not renewed as in the long run the implementation of standards tends to get diluted after initial certification (MoHFW 2009).

To implement continuous quality improvement, district and state quality assurance cells have been established along with facility-level quality improvement committees (including PWCs). The primary aim of this effort is to develop a collective responsibility and focus

on improving the process of care instead of only the infrastructure and clinical aspects. Pilots like the FFHI aim to internalise the quality improvement process. Challenges associated with operationalising state and district Quality Assurance Cells (QACs) as identified through programme review missions include irregular meetings and lack of co-ordination among them. It has been seen that instead of performing their own roles

of quality monitoring, they are increasingly advocating expensive external accreditation and certification processes to all facilities.

Quality, as envisioned in current policy and legislations, is more input-oriented with insufficient focus on outputs and outcomes. Quality improvement efforts under NRHM and RCH-II have focused on facility improvement in terms of strengthening buildings, equipment, drug supplies and human resources. These are essential and perhaps indicate the most basic quality deficiencies faced by the health system in India. Even these necessary conditions have not been met and there are serious structural quality gaps in the Indian public health facilities. The system continues to suffer serious shortfalls in a number of primary- and secondary-level facilities. Shortage in human resources has also become more acute in 2012 as compared to 2005, as revealed through the MoHFW (2013).

However, further attention is also needed on making the system more outcome-oriented and responsive to patient's needs, like courteous behaviour by staff and explanation of diagnosis, treatment and drugs to patients—these do not appear to be addressed, and have emerged as one of the major reasons for non-utilisation of public facilities (MoHFW 2009).

Moreover, quality is a key determinant of utilisation and user satisfaction and is the 'patient's judgement on the quality and goodness of care' (Donabedian 1980). It requires an appropriate response to consumer's expectations (Haddad et al. 1998). Patient satisfaction is therefore indispensable to quality improvement with regard to design and management of healthcare systems (Andaleeb 2001). This is also a process of 'democratisation' of health services, or making them more user-friendly, oriented to meet users' expectations. However, currently quality improvement initiatives do not regularly assess patient satisfaction with services or disrespectful and abusive behaviour of service providers.

Another area where there is a gap is in incorporating community perception in quality improvement process. NRHM has put in place a number of community participation mechanisms through which people can participate in improving facilities and services. But at present these forums are not effective and feedback from these committees rarely feeds to the district and state quality assurance cells. Unless forums like VHSNCs, RKS and public hearings do not get activated and energised, participatory management and community-based monitoring of services would remain rhetorical. Moreover, there is a need for the community to be made more aware of their entitlements in terms of quality of care and be motivated to demand the same from the system. This will help orient the services and quality improvement efforts towards outputs and outcomes. These platforms can be more effectively utilised with an enlightened community.

In spite of schemes like JSY, research evidence has shown that home deliveries still persist (see Box 15.3). Recent statistics also show that home deliveries are around 50 per cent in several high-priority states like Jharkhand, Uttar Pradesh, Bihar and Uttarakhand (AHS 2012). This situation could have been addressed by incorporating traditional birth attendants and training them on safe deliveries. This could have had a significant impact on reduction of infant and maternal mortality.

There is much scope for further research on quality of care to inform programme planning and implementation, including both facility- and community-based studies. Second, data availability is pivotal to evaluating current maternal, neonatal and child health (MNCH) programmes with a quality perspective. While health system could be a useful source, there is a need to ensure that data collection is robust and adequately captures indicators of quality of care. Lastly, research on patient satisfaction could help identify areas to prioritise for quality improvement towards better and more patient centred care.

REFERENCES

- AHS (Annual Health Survey). 2012. *Annual Health Survey Fact Sheet First Updation Round (2011–12), Key Findings*, <http://censusindia.gov.in/2011-common/AHSurvey.html>, accessed on 23 March 2014.
- Ager A., and K. Pepper. 2005. 'Patterns of Health Service Utilization and Perceptions of Needs and Services in Rural Orissa', *Health Policy Plan* 20 (3): 176–84.
- Amrit, S. S. 2009. 'Health in India since Independence', *BWPI Working Paper 79*. Manchester: The Brooks World Poverty Institute.
- Banerji, D. 1976. 'Evolution of the Existing Health Services System in India.' *Medico Friend Circle Bulletin* 3: 1–6.
- Bhattacharyya S., A. Srivastava, and B. I. Avan. 2013. 'Delivery Should Happen Soon and My Pain Will Be Reduced: Understanding Women's Perception of Good Delivery Care in India', *Global Health Action* 6: 22365, <http://dx.doi.org/10.3402/gha.v6i0.22635>, accessed on 4 February 2014.
- Bureau of Indian Standards, Government of India. www.bis.org.in, accessed on 2 August 2013.
- Das, J., A. Holla, V. Das, M. Mohanan, D. Tabak, and B. Chan. 2012. 'In Urban and Rural India, A Standardized Patient

- Study Showed Low Levels of Provider Training and Huge Quality Gaps'. *Health Affairs* 31 (12): 2774–84.
- Das J., and J. Hammer. 2004. 'Strained Mercy: The Quality of Medical Care in Delhi'. World Bank Policy Research Working Paper 3228. The World Bank: New Delhi, March.
- Dasgupta J. 2011. 'Ten Years of Negotiating Rights around Maternal Health in Uttar Pradesh, India'. *BMC International Health and Human Rights* 11(Suppl 3): S 4.
- Dhar, R. S., J. Nagpal, V. Bhargava, A. Sachdeva, and A. Bhartia. 2010. 'Quality of Care, Maternal Attitude and Common Physician Practices across the Socio-economic Spectrum: A Community Survey'. *Archives of Gynecology and Obstetrics* 282 (3): 245–54.
- Donabedian, A. 1980. 'The Definition of Quality and Approaches to Its Assessment'. Ann Arbor: Health Administration Press.
- Haddad S., P. Fournier, N. Machouf, and F. Yatara. 1998. 'What Does Quality Mean to Lay People? Community Perceptions of Primary Care Services in Guinea'. *Soc Sci Med* 47: 381–94.
- Hall J. J., and R. Taylor. 2003. 'Health for All Beyond 2000: The Demise of the Alma-Ata Declaration and Primary Health Care in Developing Countries'. *Medical Journal of Australia* 178 (1): 17–20.
- Hulton, L. A., Z. Matthews, and R. W. Stones. 2000. 'A Framework for the Evaluation of Quality of Care in Maternity Services'. Southampton: University of Southampton.
- ITISC (Indian Trust for Innovation and Social Change), The. 2007. 'The Socio-economic Determinants behind Infant Mortality and Maternal Mortality'. New Delhi: ITISC.
- Institute of Medicine. 1990. *Medicare—A Strategy for Quality Assurance, vol. I*. Washington, DC: National Academy Press.
- International Institute for Population Sciences, Macro International. 2007. *National Family Health Survey (NFHS-3), 2005–06*. Mumbai: International Institute for Population Sciences.
- Jain M., D. Nandan, and S. K. Misra. 2006. 'Qualitative Assessment of Health Seeking Behaviour and Perceptions Regarding Quality of Health Care Services among Rural Community of District Agra'. *Indian J Community Med* 31 (3): 140–44.
- Khan, M. E., A. Mishra, V. Sharma, and L. C. Varkey. 2008. 'Development of a Quality Assurance Procedure for Reproductive Health Services for District Public Health Systems: Implementation and Scale-up in the State of Gujarat'. New Delhi: Population Council.
- Malik, Geeta. 2009. 'Role of Auxiliary Nurse Midwives in National Rural Health Mission', *The Nursing Journal of India*, vol. C No. 3, March, www.tnaionline.org/april-09/8.htm, accessed on 07 February 2014.
- MoHFW (Ministry of Health and Family Welfare). 2009. *Reproductive and Child Health Program II. Mid-term Review. Aide-Memoire*. New Delhi: MoHFW, Government of India.
- . 2008. *Quality Assurance for District Reproductive and Child Health Services in Public Health Systems. An Operational Manual*. New Delhi: Ministry of Health and Family Welfare, Government of India.
- Nair H., and R. Panda. 2011. 'Quality of Maternal Healthcare in India: Has the National Rural Health Mission Made a Difference?' *Journal of Global Health* 1 (1): 79–86.
- National Accreditation Board for Hospitals and Healthcare Providers n.d. http://nabh.co/main/Allopathic_Clinics/pop/gib.pdf (accessed on March 3, 2014).
- National Accreditation Board for Hospitals and Healthcare Providers. 2009. *General Information Brochure*. New Delhi: National Accreditation Board for Hospitals and Healthcare Providers.
- NHSRC (National Health Systems Resource Centre). *Annual Work Report 2011–12*, http://nhsrcindia.org/annual_report/NHSRC%20Annual%20Work%20Report%202011-12.pdf, accessed on 3 March 2014.
- . 2010. 'Family Friendly Hospital Initiative: An NRHM Initiative'. New Delhi: NHSRC.
- NIHFW. 2008. *Report of SIHFWs/CTIs for NRHM Training*, http://www.nihfw.org/pdf/FinalExecutive_summary_-cti.doc, accessed on 3 March 2014.
- . 2005a. *National Rural Health Mission. Mission Document*. New Delhi: MoHFW, Government of India.
- . 2005b. *National Program Implementation Plan, Reproductive and Child Health Program (RCH) Phase II*. New Delhi: MoHFW, Government of India.
- . 2005c. *National Rural Health Mission—Framework for Implementation*. New Delhi: MoHFW, Government of India.
- . *The Indian Public Health Standards*, <http://nrhm.gov.in/nhm/nrhm/guidelines/indian-public-health-standards.html>, accessed on 3 March 2014.
- Nongdrenkhomba, H. N., B. M. Prasad, B. K. Shome, and A. C. Baishya. 2012. 'Community-based Health Committee Initiatives in India: A Descriptive Analysis of Village Health Sanitation and Nutrition Committee Model'. *BMC Proceedings* 6 (Suppl 5): O29.
- NRHM (National Rural Health Mission). 2012a. *Fifth Common Review Mission Report 2012*. New Delhi: NHSRC.
- . 2011. *Fourth Common Review Mission Report 2010*. New Delhi: NHSRC.
- . 2010. *Third Common Review Mission Report 2009*. New Delhi: NHSRC.
- Pandey, A., and V. Singh. 2012. 'Tied, Untied Fund: Assessment of Village Health and Sanitation Committee's Involvement in Utilization of Untied Fund in Rajasthan', http://www.chsj.org/uploads/1/0/2/1/10215849/cheers_29-10-12.pdf, accessed on 16 March 2014.
- PHRN. 2009. 'A Rapid Assessment of Communitization Processes of the National Rural Health Mission in Jharkhand, Orissa and Bihar'. New Delhi: PHRN.
- . 2008. 'An Assessment of the Status of Village Health and Sanitation Committees in Bihar, Chhattisgarh, Jharkhand and Orissa', http://www.phrnindia.org/Village_Health%20and%20Sanitation%20Committee.pdf, accessed on 16 March 2014.

- Qadeer, I. 2000. 'Health Care Systems in Transition III. India, Part I. The Indian Experience.' *J Public Health Med* 22 (1): 25–32.
- Rai, S. K., R. Dasgupta, M. K. Das, S. Singh, R. Devi, and N. K. Arora. 2011. 'Determinants of Utilization of Services under MMJSSA Scheme in Jharkhand Client Perspective: A Qualitative Study in a Low Performing State of India.' *Indian Journal of Public Health* 55 (4): 252–59.
- Save the Children. 2013. 'Surviving the First Day, State of the World's Mother.'
- Singh R., and B. Purohit. 2012. 'Limitations in the Functioning of Village Health and Sanitation Committees in a North-western State in India.' *International Journal of Medicine and Public Health* 2 (3): 39–46.
- Srinivasan, K. 2006. 'Population Policies and Family Planning Programmes in India: A Review and Recommendations.' Fifth Dr. C. Chandrasekaran Memorial Lecture. IIPS Newsletter, January.
- Varkey, P., M. K. Reller, and R. K. Resar. 2007. 'Basics of Quality Improvement in Health Care' *Mayo Clin Proc* 82 (6) 735–39, <http://www.med.unc.edu/cce/files/education-training/QI%20methods.pdf>, accessed on 4 February 2014.
- World Bank. 2007. 'Achieving the MDGs in India's Poor States: Reducing Child Mortality in Orissa.' New Delhi: World Bank.

FURTHER READINGS

- Andaleeb, S. S. 2001. 'Service Quality Perceptions and Patient Satisfaction: A Study of Hospitals in a Developing Country.' *Soc Sci Med* 52: 1359–70.
- Clar, C., and B. I. Avan. 2010. *Evolution of the Concept of Quality of Care with Respect to Clean Delivery in High, Middle and Low Income Countries. A Systematic Review*. Aberdeen: IMMPACT and PHFI.
- Donabedian, A. 1966. 'Evaluating the Quality of Medical Care.' *Milbank Q* 83(4): 691–729.
- Institute of Medicine. 'Crossing the Quality Chasm: A New Health System for the 21st Century'. Healthcare Quality: Institute of Medicine, Washington, DC 2001.
- Kahan, Barbara, and Michael Goodstadt. 1999. 'Continuous Quality Improvement and Health Promotion: Can CQI Lead to Better Outcomes?' *Health Promotion International* 14 (1).
- Leebov, Wendy, and Clara Jean Ersoz. 1991. *Health Care Manager's Guide to Continuous Quality Improvement*. Chicago: American Hospital Publishing.
- MoHFW (Ministry of Health and Family Welfare). 2013. *Rural Health Statistics in India* 2012. New Delhi: MoHFW, Government of India.
- . 2011. *Operational Guidelines for Implementation of Integrated Management of Neonatal and Childhood Illness (IMNCI)*, <http://mohfw.nic.in/WriteReadData/l8925/209730261RCH%20IMNC.pdf>, accessed on 3 March 2014.
- . 2009. *National Health Accounts India 2004–05*. New Delhi: MoHFW, Government of India.
- NHP (National Health Policy), Government of India. 2002, http://nhsrcindia.org/index.php?option=com_content&view=article&id=147&Itemid=697, accessed on 3 March 2014.
- NHSRC (National Health Systems Resource Centre). 'Quality Assurance Framework Summary', http://nhsrcindia.org/index.php?option=com_content&view=article&id=139, accessed on 5 November 2013.
- . 1983, http://www.communityhealth.in/~commun26/wiki/images/6/64/Nhp_1983.pdf, accessed on 3 March 2014.
- NIHFW (National Institute of Health and Family Welfare). 2008. 'Workshop for Senior and Mid-level Managers on improving Quality of Care in Health Sector'. Shimla, 4–8 June. New Delhi: NIHFW and World Bank Institute.
- NRHM (National Rural Health Mission). 2013. *Sixth Common Review Mission Report 2012*. New Delhi: NHSRC.
- Planning Commission, Government of India. *Tenth Five Year Plan* (2002–07). 'Chapter on Health' New Delhi: Government of India, Planning Commission, http://www.planningcommission.nic.in/plans/planrel/fiveyr/10th/volume2/v2_ch2_8.pdf, accessed on 3 March 2014.
- . *First Five Year Plan* (1952–57). 'Chapter on Health' New Delhi: Planning Commission, <http://www.planningcommission.nic.in/plans/planrel/fiveyr/1st/1planch32.html>, accessed on 3 March 2014.
- . *Seventh Five Year Plan* (1985–90). 'Chapter on Health' New Delhi: Government of India, Planning Commission, <http://www.planningcommission.nic.in/plans/planrel/fiveyr/7th/vol2/7v2ch11.html>, accessed on 3 March 2014.
- Purohit, B. C. 2001. 'Private Initiatives and Policy Options: Recent Health System Experience in India.' *Health Policy Plan* 16 (1): 87–97.
- Shrivastava, S. R., and P. S. Bobhate. 2012. 'Implementation of Rogi Kalyan Samiti (RKS) at Primary Health Centre Durvesh (2009–2010)' *TAF Preventive Medicine Bulletin* 11 (3): 307–14.
- Srivastava, A., et al. 2012. 'Women's Satisfaction with Maternal Health Services in Developing Countries: Methods and Determinants.' New Delhi: PHFI.
- Thomason, J., and K. Edwards. 1991. 'Using Indicators to Assess Quality of Hospital Services in Papua New Guinea.' *Int J Health Planning Management* 6: 309–11.
- UNICEF. 2009. 'Maternal and Perinatal Death Enquiry and Response' New Delhi: UNICEF.
- WHO (World Health Organisation). 2006. 'Quality of Care: A Process for Making Strategic Choices in Health Systems.' Geneva: WHO.

Section III

EMERGING CHALLENGES

16

NEW MODELS FOR PUBLIC-PRIVATE PARTNERSHIPS IN HEALTH PROMOTION

Jacob Puliyel

The last two decades have been the era of public-private partnerships (PPPs). The Saskatchewan Institute of Public Policy defines PPPs as co-operative ventures between public and private sectors, built on the expertise of each partner which meets clearly defined public needs through appropriate allocation of resources, risks and rewards (Allan 2001).

A particularly important element is the emphasis upon risk-sharing, joint investment of resources, and sharing of authority. These factors differentiate a PPP from contracting-out and also privatisation. In all the three models, the public sector ceases to be a direct provider of services to the public, but instead becomes a procurer of services and a regulator. With contracting-out, the private-sector party provides the service in return for payments, but it is not involved in the decision-making nor is there transfer of responsibility. In privatisation, the public sector hands over the responsibility for the project to the private party, and subsequently the government's role is minimal. The partnership aspect is what is crucial to the PPP.

The concept of PPP evolved in the context of ballooning public debt in the 1970s and 1980s. The first systematic programme in the United Kingdom (UK) aimed at encouraging PPPs was the private finance initiative (PFI) introduced in 1992 by the Conservative Government. It was structured in a manner so that a public sector body seeking to make capital investments did not incur any borrowing. The borrowing was incurred

by the 'private sector vehicle' implementing the project and therefore, from the public sector's perspective, a PPP was an 'off-balance sheet' method of financing the delivery of new or refurbished public sector assets (Tan 2012). It was argued that the expertise and efficiencies of the private sector could be harnessed by this contract for services traditionally procured and delivered by the public sector (Allan 2001). A large number of hospitals were refurbished under this scheme.

PFI: THE FAILED EXPERIMENT

The PFI for hospitals failed miserably. Allyson et al. (2002) show that using the PFI to build the UK National Health Service (NHS) hospitals is an expensive way of building new capacity that constrains services and limits future options. PFI have also had a negative impact on levels of service. Crucially it has been shown that hospitals financed through PFIs had reduced their bed capacity by 30 per cent and hospital staffing by 20 per cent (Gaffney et al. 1999, Pollock et al. 1999). It was shown that one PFI hospital replaced two or three hospitals. The new hospitals were built in out-of-town sites using proceeds from the sale of land of the original hospitals in prime locations (Pollock et al. 2002), and so adds to the inconvenience faced by the public.

Allyson et al. (2002) demonstrated that PFI brings no new capital investment into public services and it

creates a debt which has to be serviced by the future generations. The PFI costs are almost double the estimated costs of a similar scheme funded by public finance. In spite of all the tall-talk of sharing risks in a PPP, where a trust wishes to terminate a contract either because of poor performance or due to insolvency of the private consortium, it still has to pay the consortium's financing costs, even though the latter is in default. It would otherwise have to take-over the consortium's debts and liabilities, given that the lending institutions make their loans to the consortiums conditional on NHS guarantees. In such cases, 'the attempt to shift financial responsibility from the public to the private sector fails' (*ibid.*).

The UK Treasury Select Committee has now added its criticism. It examined PFIs funding for new infrastructure, such as schools and hospitals, and concluded that it does not provide taxpayers with good value for money, and stricter criteria should be introduced to govern its use (Commons Select Committee 2011). The Chairman of the Treasury Select Committee, Andrew Tyrie, Member of Parliament, observed that the average cost of capital for a low-risk PFI project is over 8 per cent—double that of government gilts.

The Committee observed that the higher borrowing costs resulting from the credit crisis meant that PFIs are now an 'extremely inefficient' method of financing projects. The Committee has not seen any convincing evidence that savings and efficiencies during the lifetime of PFI projects offset the significantly higher cost of finance. Indeed, the report raises concerns that the current 'value for money' appraisal system is biased to favour PFIs. It identified a number of problems with the way costs and benefits for such projects are calculated.

The Treasury Sub-Committee Report of 2011 is telling and begs to be quoted verbatim, '... PFI means getting something now and paying later. Any Whitehall department could be excused for becoming addicted to that. We can't carry on as we are, expecting the next generation of taxpayers to pick up the tab. PFI should only be used where we can show clear benefits for the taxpayer. PFI should be brought on balance sheet. The Treasury should remove any perverse incentives unrelated to value for money by ensuring that PFI is not used to circumvent departmental budget limits.'

REPLICATION ACROSS SECTORS AND ACROSS COUNTRIES

Interestingly, the spectacular failure of the original programme did not hinder replication of this grand scheme. The concept of PPP has spread both in the developed and in the developing countries. Initially they were used for infrastructure development, e.g. ports, rail, power, roads and hospitals. Over the past two decades, more than 1,400 PPP deals were signed in the European Union (EU), representing a capital value of approximately €260 billion (Kappeler and Nemoz 2010). In Pakistan, economic advisors advised the public sector to 'mend its ways' and promote PPPs as the only way forward for the development of the infrastructure and power sectors (Ahmad 2013). Today, Monsanto with no infrastructure development in the traditional sense of the term advertises its involvement in a PPP¹ with state governments in India reaching farmers with their seeds that are modified, patented and genetically locked (Shiva 2013), leading to farmers being forced to buy more every season.

TINKERING WITH THE MODEL

It is now widely recognised that the problem with most PPP is that the private investor makes all the profit (with returns higher than the government bond rate) and nearly all the income risk is borne by the public partner. It is suggested that PPP can survive if the focus of evaluation is changed from reduction in debt of the public sector partner, to looking at 'value for money' after appropriate allocation of risk. The New Zealand Treasury released a report in 2006 by Katz (2006) suggesting that '... there is little empirical evidence about costs and benefits of PPP' and that any '... advantages of PPP must be weighed against the contractual complexities and rigidities they entail'. It suggested that the decision whether to proceed with a PPP rather than with a conventional procurement process should be hinged on the following three questions:

1. Is the public agency able to specify outcomes in service-level terms, thereby leaving scope for the PPP consortium to innovate and optimise?
2. Is it easy for the public agency to specify outcomes in a way that performance can be measured objectively and rewards and sanctions applied?

¹ See <http://www.monsantoindia.com/public-private-partnership.html>, accessed on 1 November 2013.

3. Are the public agency's desired outcomes likely to be durable, given the length of the contract?

If the answer to any of these three questions is 'no', then conventional procurement is likely to be preferable to a PPP (*ibid.*).

PRODUCT DEVELOPMENT PARTNERSHIPS

An offshoot of the traditional PPP for infrastructure development is Product Development Partnerships (PDPs). This is a form of PPP that develops drugs especially for neglected diseases like tuberculosis (TB) and tropical diseases of the developing countries. Not-for-profit organisations provide industry cash incentives needed to develop these interventions and market them. An example of this is 'The Global Fund to fight AIDS, Tuberculosis and Malaria', which was established to finance interventions against these three diseases. Similarly, the 'Roll Back Malaria Partnership' mobilises resources to fight malaria in endemic countries. The Global Alliance for Vaccines and Immunisation (GAVI) is a product development partnership for vaccines.

PDPs and Vaccines

The vaccine marketing enterprise is now a PPP. Most modern vaccines are produced by private manufacturers,

and profits from sales of these vaccines accrue to them. However, publicly-funded international organisations and tax-free charities—the World Health Organisation (WHO)/United States Agency for International Development (USAID)/GAVI invest in research to develop new vaccines and for field trials to promote its use. The target vaccine market is usually publicly funded. This chapter examines PPPs broadly in the context of health and looks more specifically at PPP in vaccines. The chapter argues that this scheme puts international organisations in an unenviable position of selling vaccines—some of doubtful utility—and this erodes the very credibility of the organisations.

PUBLIC FUNDING OF VACCINE RESEARCH

Research and Development (R&D) on vaccines is considered a public good (Kremer 2002). Efforts to encourage research on vaccines can adopt one of the three strategies. The first two have their advantages and disadvantages while there are no takers for the third.

- a) Research grants and tax credits can be given to research organisations to promote research. Such research is done mostly in academic and research organisations which are not directly involved in manufacture or marketing of the products. This

BOX 16.1 Case Studies

H.influenza B (Hib) is a bacterial pathogen that can cause pneumonia and meningitis in children. A vaccine against Hib is now available. However, studies done by the World Health Organisation (WHO) in Indonesia (Gessner et al. 2005) and Bangladesh (Baqui et al. 2007) looking at Hib disease prevented by Hib vaccine found that there was no statistically significant difference among those full vaccinated compared to those not immunised. The press release about the study jointly issued by the WHO, Johns Hopkins Bloomberg School of Public Health, The GAVI Alliance, The Hib Initiative, USAID, Government of Bangladesh (JHSPH 2007), however, misleadingly states that the study shows Hib vaccine protects children from a significant burden of life-threatening pneumonia and meningitis (Puliyel et al. 2010, Puliyel 2010).

Hepatitis B virus causes inflammation of the liver and in some; it causes a chronic hepatitis that may progress to liver cancer and death. A vaccine against Hepatitis B is available. Mark Miller (of the Children's Vaccine Initiative of the WHO and the National Institute of Health, Bethesda) claimed that 250,000 persons die in India each year due to Hepatitis B-related liver disease (Miller 2000). Initially, Dr Miller wrote that a model 'stratified by income group and geographic region' was used to arrive at this estimate of deaths. However, data from well-maintained cancer registries suggests that the number of deaths from Hepatitis B-related cancers was about 5,000 per year (Dhir et al. 1998). When challenged to publish his model, Dr Miller claimed his model was lost (Puliyel 2004). The paper was not retracted.

Soon after the Pentavalent Vaccine was introduced in Sri Lanka there was a series of five deaths. A WHO group of experts investigated the deaths. They could find no alternate explanation for three deaths. Using the Brighton Protocol they were bound to have classified these deaths as 'probably related to the Pentavalent vaccine' (WHO 2008). The experts modified the Brighton Protocol and removed the categories 'probably related' and 'possibly related' from the classification. Their report states that although they could find no alternate explanation for the events, the deaths were classified as unlikely to be related to the vaccine using their modified Brighton classification (*ibid.*).

is called the ‘push’ strategy—paying for research in the hope that the industry will find it useful. Quite often the projects supported by taxpayer funds do not result in new vaccines or other tangible results. The ‘push’ method has been criticised as being wasteful and inefficient.

- b) ‘Pull’ mechanisms on the other hand, incentivises the development of actual vaccines. The research is usually done by the pharmaceutical industry. Industry does its own research and develops useful and marketable vaccines and this is rewarded. Here, the public pay nothing unless a viable vaccine is developed. This encourages researchers to self-select projects that yield viable products. If an acceptable vaccine is developed, the ‘pull’ programme is committed to purchase the vaccine for use the world over. An annual market of \$ 330 to \$ 660 million is considered necessary to stimulate research. This market is guaranteed by a purchase commitment—the Advance Market Commitment (AMC) which is integral to the ‘pull’ mechanism (*ibid.*). However, the pull mechanism is criticised because the commitment to purchase vaccines at a fixed price violates the laissez-faire principle allowing the market forces to determine prices. This removes the basic incentive to innovate and bring good quality vaccines to the market. These days, the pull mechanism is preferred by the international funding agencies.

For this purpose, the Global Fund for Vaccines was launched by GAVI, a public-private venture formally launched at the World Economic Forum (WEF) in Davos in January 2000. GAVI’s founding partners include WHO, United Nations Children’s Fund (UNICEF), World Bank, Bill & Melinda Gates Children’s Vaccine Programme, Rockefeller Foundation, International Federation of Pharmaceutical Manufacturers’ Associations (IFPMA), and a few other national governments. It was created starting with a \$ 750 million donation by the Bill & Melinda Gates Foundation. Since this initial donation, the Fund has received commitments from the governments of the US (\$ 50 million), Norway (\$ 125 million), the United Kingdom (\$ 5 million) and The Netherlands (\$ 100 million) (*Hardon 2001*).

- c) There is a third strategy which is to allow the market forces to control both supply and demand for vaccines. Paradoxically, votaries of the free market are strangely silent where vaccine markets are concerned.

This chapter will dwell mostly on the ‘pull strategy’ of the PPPs.

GAVI AND ADVANCE MARKET COMMITMENTS

As explained above, GAVI utilises AMC to incentivise vaccine development. AMC was launched in 2005 (Center for Global Development 2005). Poor countries cannot afford to buy expensive vaccines and the vaccines meant for them have to have their prices marked down. To encourage multinational companies to make these vaccines for the poor, the AMC underwrites the losses they incur in this way. Donors (donor countries and philanthropic organisations) put up the monetary equivalent of sales proceeds that a multinational pharmaceutical company would make from developing and testing a new drug for the western market, for making a drug for a neglected disease in poor countries (Kremer and Glennerster 2004). The normal profit for a new drug in the West is considered to be \$400 million. The donors make a binding commitment to buy a few hundred million doses of a new vaccine for a neglected disease at a buy-out price that will yield about \$400 million in profits for the manufacturer. In return, the manufacturer would commit to making the vaccine available to low-income countries thereafter, at a low ‘tail price’ on a no-profit basis (Light 2011).

The manufacturer who accomplishes the task of making an acceptable vaccine first, takes the prize of the AMC. Light (2011) has suggested that this is a vaccine developer’s nightmare as they have to bear all the risks and costs of discovering and testing the drug without financial support if they are pipped at the finish line. All their efforts would be a total loss to the company. The AMC scheme would in fact also work as a disincentive for competitors wanting to develop a more efficacious or less expensive products as there would be no buyers for the product in the face of the highly subsidised AMC funded product. Light notes that despite the proposed buy-out worth billions of dollars, the AMC design included no arrangement for acquiring intellectual property rights or for technology transfer (*ibid.*).

AMC and Pneumococcal Vaccine

One of the first vaccines awarded the AMC was the pneumococcal conjugate vaccine (PCV). When the AMC for the vaccine was agreed in 2008, it was clear that the subsidy would initially be exclusively granted to Pfizer and GlaxoSmithKline (GSK) for a vaccine

that was already in the market. In 2008, Pfizer reported \$ 2.72 billion in revenue for the first generation pneumococcal vaccine, Prevnar. According to Berman and Malpani (2011), presenting the pneumococcal AMC as a cost-effective mechanism was 'disingenuous'. They argue that at the agreed price of \$ 3.50 per dose of pneumococcal vaccine, Pfizer and GSK will be given a 'subsidy' of \$ 225 million.

Berman and Malpani (2011) suggest that GAVI needs to eliminate the conflicts of interest that have led to advantageous arrangements for multinational pharmaceutical companies.

Four points need to be highlighted with regard to the PCV AMC (Birn and Lexchin 2011):

- (1) The vaccine is of questionable benefit, since it assumes that the prevalence of disease strains (serotypes) is the same worldwide, an assumption that is not necessarily valid (also see Puliye et al. 2011);
- (2) The AMC was extended to an existing vaccine developed for a high-income market rather than for its stated purpose of developing new vaccines for low-income settings;
- (3) The PCV AMC is financing exorbitant pharmaceutical company profits;
- (4) The efficacy and cost-effectiveness of PCVs, as opposed to other vaccines and child health interventions—or integrated socio-political primary healthcare approaches—are dubious.

Conflicts of Interest at GAVI

Birn and Lexchin (2011) note that GAVI has been accused of practising 'scientific imperialism'. According to them, the interests of almost three-fourths of GAVI members are aligned with profit-making rather than people's health. Of the 20 members, two represent pharmaceutical companies themselves; five of the donor countries are heavily influenced by corporate lobbying; two are involved in PPPs with pharmaceuticals (WHO and UNICEF); two consider profit-making as compatible with addressing global inequality (Bill & Melinda Gates Foundation and World Bank); and four are 'private citizens' who are connected to finance, banking and insurance industries.

Hardon (2001) records that at the first GAVI-partners meeting, the Head of SmithKline Biologicals outlined the conditions for industry participation; '... a guarantee for reasonable prices, support for a credible and sustainable market, respect for intellectual property rights, a tiered pricing system including safeguards

against re-export of products back from developing countries to high-priced markets, and a prohibition on compulsory licensing.' Industry representatives opposed technology transfer arrangements, '... claiming that vaccines were too complex for public research institutes and local production' Birn and Lexchin (2011). Hardon (2001) notes that GAVI partners appeared unconcerned about possible conflict of interest between the large research-based companies' interest in markets for new products and the public health objective of preventing childhood mortality in the developing countries.

Light (2007) agrees that the so-called G8 'AMC pilot' for pneumococcal vaccine was really a large long-term procurement and it was not an AMC. In 2007, several affluent countries—the UK, Italy, Canada, Russia and Norway—and the Bill & Melinda Gates Foundation announced donations totalling \$1.5 billion to buy new vaccines to ease the burdens of disease that will help eradicate pneumococcal diseases in the world's poorest children and foster economic growth. According to Light (2007), only a quarter of the money was spent on covering the costs of vaccines—three-quarters went towards extra profits for vaccines that are already profitable. Light (2007) argues that '... by commercializing vaccines for poor people, the AMC approach is making the culture of the GAVI Alliance more commercially oriented than it previously was, and it is shifting the Alliance towards becoming the vehicle for making vaccines for poor individuals into the next main market for the drug industry'. In a review of five immunisation initiatives, Hardon and Blume (2005) concluded that the GAVI Alliance is more corporate-led, less transparent, not really accountable outside of itself, and more oriented to paying profitable prices than were previous initiatives.

Underestimating Costs

Light (2007) points out that the criticism of GAVI AMC for pneumococcal vaccine is covered up by the Alliance's claim that the AMC will prevent 5.4 million child deaths—89 per cent of which are projected to take place after the donors' money has been spent. This claim is itself dubious. According to WHO, the vaccine saves only 3.6 lives for every 1,000 children vaccinated (Madhi et al. 2008). The cost per life saved is often underestimated. Farlow (2011) points out that the cost per death averted from the initial \$ 5.6 billion investment on pneumococcal vaccine is about \$ 2,000. Light's (2011) figure, based on non-GAVI studies,

is \$ 4,722 per death averted. The projection of Light (2011) had a decimal place error and the actual cost per life saved is \$ 47,220 (Puliyel 2011)! Looking at opportunities foregone because of the programme, in comparison, the cost per death averted from the use of Expanded Programme of Immunization (EPI) vaccines (diphtheria, pertussis, tetanus [DPT] vaccine, oral polio vaccine measles vaccine and Bacillus Calmette-Guerin [BCG] vaccine) is \$ 205 in South Asia and Sub-Saharan Africa. GAVI faces a stark choice between promoting the use of new and more expensive vaccines, and improving access to inexpensive vaccines for polio, measles, yellow fever and hepatitis, to millions not yet reached (Farlow 2011, Light 2011).

Safety Concerns

Safety concerns have got short shrift in the push for introducing new vaccines. Telling examples are the deaths surrounding the use of Pentavalent vaccine (which combines Hepatitis B and H influenza B vaccines with the older DPT Triple Antigen. The vaccine is promoted mostly in the developing countries by GAVI and WHO. It is not used in the West because the combination vaccine is less effective than the components used separately (Bar-On et al. 2009). In these circumstances the safety of the combination vaccine has not yet been tested in the developed countries, known for their strong surveillance systems.

The Pentavalent vaccine has been associated with deaths soon afterwards in many countries where it has been administered. The deaths have been sporadic and as in deaths following allergic reactions to drugs, others vaccinated from the same multi-dose vial remain unscathed.

When deaths occur soon after the administration of a vaccine, the investigating team looks for other plausible explanations for the reaction. The vaccine is considered as probably the cause of the adverse event only when there is no alternate explanation (according to WHO's Brighton classification) (WHO 2005).

As described in the case studies above (Box 16.1), in Sri Lanka the WHO experts found no alternate explanation for the deaths following use of the pentavalent vaccine so they deleted the categories 'possibly related and probably related' from the Brighton Classification and certified that the adverse event following immunisation (AEFI) was unlikely to be related to immunisation (WHO 2008)

The vaccine was introduced in Kerala in December 2011. Within 6 months there were 5 deaths. It was

apparent that 1 child in 10,000 vaccinated children, died as the result of an AEFI (Puliyel 2013).

In the context of all these deaths, the Council for International Organizations of Medical Sciences (CIOMS)/WHO Working Group on Vaccine Pharmacovigilance got together to alter the way AEFI are reported and investigated (CIOMS/WHO 2012). The presumption that any AEFI must be considered as 'probably' related to vaccine if there is no alternate explanation for the adverse event has been done away with. The new algorithm suggests that only reactions that meet 'AEFI-specific case definitions' will be classified as AEFI and investigated. If the vaccine is new, like the pentavalent vaccine, deaths following vaccination may be classified as '[Not an AEFI]' (*ibid.*, see p. 170 notes for guidelines). Using this new method of evaluating causality, all the deaths that have occurred have been classified as 'Not an AEFI'.

This last step of designating an AEFI as 'not an AEFI' is patently unscientific, illogical and nearly Orwellian. King (2012) has pointed out that the agenda of the Global Advisory Committee on Vaccine Safety (GACVS) is to develop a system that will minimise the reporting of AEFI, especially those considered severe, to minimise the risk that the reporting of AEFI will be 'programmatically disruptive'. Of the 40 members on the CIOMS/WHO committee, 19 were private partner representatives of vaccine manufacturers.

In Vietnam, 61 children have died so far following use of the pentavalent vaccine (Tuoitrenews 2013). In March 2013, the WHO-AEFI group was called to investigate a spate of 12 deaths following pentavalent vaccine use in Vietnam. Armed with the new COIMS/WHO tool, its Vietnam report stated, '... no fatal AEFI has ever been associated with this vaccine' (WHO 2013). This suggests that even deaths recorded previously by experts in Sri Lanka as AEFI—unlikely to be related to vaccine' has been changed to 'Not an AEFI'. The new scheme is discussed extensively on the PubMed Commons (Tozzi 2013).

Increasing Health Inequities

Interestingly, Hardon (2001) has pointed out that by spending such a large amount of its resources on new vaccines, GAVI and the Global Fund run the risk of compounding health inequities in the poorest countries which they have prioritised for support. In nine of the countries selected for support in the first round, immunisation coverage remains below 75 per cent. 'In the programmes approved by GAVI, developing

country governments will join hands with multilateral and bilateral agencies to increase the number of children reached by the services who receive new, expensive and under-used vaccines. Those children not reached by current immunization programmes will probably lose out again. As inequity in access to vaccines persists, they will remain the losers' (*ibid.*).

AMC as Incentive for Vaccine Research

In the face of the mounting criticism of AMCs and the AMC for pneumococcal vaccine, Kane (2011) has defended the need for an AMC incentive to promote vaccine research. He feels that the vaccine industry needs a signal that GAVI is capable of raising billions of dollars to buy vaccines like PCV and Rotavirus vaccines. He writes, 'Every health worker in the developing world understands the importance of pneumonia (the number one cause of death in children) and diarrhoea (the number two cause of death in children in many countries). GAVI, to remain relevant, has no choice but to try to raise the resources to make these vaccines available to children in the poorest countries, and to continue its efforts to solve the financial problems of getting new and underutilized vaccines to the poor' (*ibid.*).

Paradoxically Kane's (2011) defence exposes the flaw in GAVI's logic for disease amelioration. Pneumonia and diarrhoea are caused by numerous pathogens. Just because there is a vaccine available for a limited number of strains of one of the many pathogens causing pneumonia and in the same way for diarrhoea, it cannot be the justification for spending billions of dollars on vaccines as if that would tackle the problem of diarrhoea and pneumonia entirely. The unrealistic expectation propagated by such propaganda will ultimately erode the very credibility of the organisation and vaccination programmes in general.

THE WAY FORWARD: ABSOLUTE RISK REDUCTION

The relevance of vaccines depend on local factors, especially the prevalence and magnitude of the problem in a locality. Data on usefulness has to be generated locally and market commitment must depend on this. An AMC on the other hand by implication assumes that the prevalence of serotypes is the same worldwide and the same vaccine will be considered as the priority intervention in all countries. To assume that GAVI or any other organisation can make one decision for the

whole world is presumptuous. Having committed to an AMC, international organisations are placed in the unenviable position of selling this around the world. This puts them in the embarrassing situation described at the start of this article.

Fiona Godlee, the editor of the *British Medical Journal*, started a campaign suggesting that researchers must report data in terms of absolute risk reduction (ARR) rather than relative risk. She points out that '... impressive sounding reductions in relative risk can mask much smaller reductions in absolute risk' (Godlee 2008). Data on ARR must be used to decide about vaccine selection for different regions.

ARR describes the difference between two treatments. It tells actual numbers (or rates) of people who experience harms or benefits as compared with another treatment. In the case of pneumococcal vaccine, suppose a vaccine prevents 50 per cent of the strain-related disease, the relative risk (or proportional difference) of 50 per cent can sound impressive. However, if the strain itself is rare, say 2 per cent of the population has the disease due to the strain, a 50 per cent risk reduction will work out to be a 1 per cent ARR—meaning that there will be 1 person saved from pneumonia in 100 people taking the drug. Once this data is available, it is easy to calculate the numbers needed to treat (NNT) to prevent one case of disease or death. The numbers needed to vaccinate (NNV) to prevent one case of pneumonia is 100 in the illustration above. The cost per disease avoided or death averted, can then be calculated easily. In the case of the pneumococcal vaccine, Madhi et al. (2008) have reported that 3.6 children avoid pneumonia per 1,000 children vaccinated in the areas where it was studied. This will differ by region and so a blanket prescription of AMC drugs is inappropriate. A detailed discussion on how to estimate the affordability of the intervention against the gross national product (GNP) of the country is available elsewhere (Dhanasiri and Puliyel 2007, Tyagi et al. 2003). Dhanasiri and Puliyel (2007) also discuss how to compare cost-utility of the programme against utility of other programmes which may compete for scarce healthcare budgets.

CONCLUSION

GAVI must be credited with increasing international interest in vaccines. A new model of PPP is emerging called public-private community partnership (PPCP) where the government and the private players work together for social welfare eliminating the prime focus

BOX 16.2 Selecting Vaccines for Universal Programme of Immunisation in India

Vaccines are introduced into the national programme of countries based on the burden and seriousness of disease to be prevented, the safety and efficacy of the vaccine and its economic affordability in the context of the national economy. Feasibility for inclusion in the routine immunisation schedule and acceptance of the people at large also needs to be considered. Resolution 45.17 of the World Health Assembly mandates that member countries integrate cost effective 'newer vaccines' into the national immunisation programmes. However, of late, the WHO has been making recommendations for universal inclusion of vaccines like the rotavirus vaccine without regard to local cost effectiveness. Organisations like the GAVI have been persuading the developing countries to use new vaccines by providing donor grants (effectively driving costs to nearly zero in the initial stages). The full cost implications are realised once funding is withdrawn, after the vaccine has been included in the universal immunisation programme (UIP) of the country. This form of pressure on governments to introduce new vaccines into their UIP without evaluating the local burden of disease or cost-benefits, in effect perverts the intention of the World Health Assembly (Resolution 45.17).

For vaccine selection, the process can be logical and mathematical and so it is particularly easy to present the data to the public to garner their support. This has been described elsewhere. Briefly, the general guideline is that interventions that cost less than the per capita gross national product (GNP), per quality adjusted life years (QALY) saved, are considered cost effective.

Data on absolute risk reduction by the intervention in the country must be sought and from this, the numbers needed to treat (NNT) (number of individuals who must be vaccinated) to avoid 1 case of disease can be derived. The cost of immunisation to avoid 1 case of disease can then be calculated easily. Evaluations up to this point are mathematical. Interventions that have poor risk-benefit ratio, those that are not cost-effective or affordable cannot be recommended. If, however, the intervention is both cost-effective and affordable, there is also the need to evaluate efficiency of the programme—whether it is capable of providing better returns than other uses of this resource.

If a cost-utility assessment has been done, the 'optimum decision rule' involves ranking the incremental cost-utility ratios of different interventions and selecting those with the lowest ratio ('best value') until the budget is depleted.

A hypothetical example may be used to clarify this. Assume polio control costs Rs 350 crore and saves 1 QALY per Rs 10,000 spent, rotavirus control costs Rs 200 crore and saves one QALY per Rs 20,000 spent, and tuberculosis control costs Rs 700 crore and saves one QALY per Rs 5,000 spent. Assume also a budgetary constraint of Rs 1,000 crores. The first programme to be accepted should be TB control as it provides the best utility (1 QALY/Rs 5,000). Once this is accepted, there is only Rs 300 crore remaining in the budget. The next programme to be accepted must be polio control. Rotavirus control costs only Rs 200 crore, which is less than the cost of polio control (Rs 350 crore), but polio control takes precedence as it provides more utility.

Source: Puliyl (2014).

of private players for profit (CARD, undated, Cohesion Foundation Trust, undated). Health and vaccines are suitable candidates for PPCP. Given the persuasive

abilities of GAVI in raising funds for immunisation, it must work to shed its conflicts of interests and endeavour in a PPCP to promote child health.

REFERENCES

- Ahmad, Mansoor. 2013. 'Public Sector Urged to Promote Public-Private Partnership'. *The News*, 29 October 2013, <http://www.thenews.com.pk/Todays-News-3-210793-Public-sector-urged-to-promote-public-private-partnership>, accessed on 28 October 2013.
- Allan, John R. 2001. 'Public-Private Partnerships: A Review of Literature and Practice'. Saskatchewan Institute of Public Policy, Paper no. 4, <http://www.uregina.ca/sipp/documents/pdf/cicreport.pdf>, accessed on 28 October 2013.
- Bar-On, E. S., E. Goldberg, A. Fraser, L. Vidal, S. Hellmann, and L. Leibovici. 2009. 'Combined DTP-HBV-HIB Vaccine versus Separately Administered DTP-HBV and HIB Vaccines for Primary Prevention of Diphtheria, Tetanus, Pertussis, Hepatitis B and Haemophilus Influenzae B (Hib)'. *Cochrane Database Syst Rev*. 3: CD005530.
- Baqai, A. H., S. El Arifeen, S. K. Saha, L. Persson, K. Zaman, et al. 2007. 'Effectiveness of Haemophilus Influenzae Type B Conjugate Vaccine on Prevention

- of Pneumonia and Meningitis in Bangladeshi Children: A Case-control Study'. *Pediatr Infect Dis J.* 26 (7): 565–71.
- Berman, D., and R. Malpani. 2011. 'High Time for GAVI to Push for Lower Prices'. *Human Vaccines* 7: 3: 290, March.
- Birn, Anne-Emanuelle, and J. Lexchin. 2011. 'Beyond Patents: The GAVI Alliance, AMCs and Improving Immunization Coverage through Public Sector Vaccine Production in the Global South'. *Human Vaccines* 7: 291–92.
- CARD (Center for Advanced Research and Development). Undated. 'Public Private and Community Partnership Programme at Mandla'. <http://www.cardindia.net/pub7.asp>, accessed on 1 November 2013.
- Center for Global Development. 2005. 'Making Markets for Vaccines: Ideas into Action'. Washington, DC Center for Global Development, <http://www.cgdev.org/publication/making-markets-vaccines-ideas-action>, accessed on 20 June 2014.
- CIOMS/WHO. *Report of Working Group on Vaccine Pharmacovigilance: Definition and Application of Terms for Vaccine Pharmacovigilance*, http://whqlibdoe.who.int/publications/2012/9789290360834_eng.pdf, accessed on 1 November 2013.
- Cohesion Foundation Trust. Undated. 'UNDP Supported Project on Public-Private-Community Partnership (PPCP)', <http://ppcp.in/dungarpur-rajasthan/cohesion-foundation-trust.pdf>, accessed on 1 November 2013.
- Commons Select Committee. 2011. 'Committee Publishes Report on Private Finance Initiative Funding'. 19 August, <http://www.parliament.uk/business/committees/committees-a-z/commons-select/treasury-committee/news/pfi-report/>, accessed on 20 June 2014.
- Dhanasiri, S. K., and J. M. Puliyel. 2007. 'Regulating Vaccines: Can Health-economics Tools be Used Profitably?' *Indian Pediatrics* 44: 11–14.
- Dhir, V., and K. M. Mohandas. 1998. 'Epidemiology of Digestive Tract Cancers in India. III. Liver'. Jul–Sep, 17 (3): 100–03.
- Farlow, A. 2011. 'Fixing GAVI's Cash Crunch'. *Hum Vaccin* 7: 295–96.
- Gaffney D., A. M. Pollock, D. Price, and J. Shaoul. 1999. 'PFI in the NHS: Is There an Economic Case?' *BMJ* 319: 116–19.
- Gessner, B. D., A. Sutanto, M. Linehan, I. G. Djelantik, T. Fletcher, et al. 2005. 'Incidences of Vaccine-preventable Haemophilus Influenzae Type B Pneumonia and Meningitis in Indonesian Children: Hamlet-randomised Vaccine-probe Trial'. *Lancet* 365: 43–52.
- Godlee, F. 2008. 'Absolute Risk Please'. *BMJ* 336: 0.1.
- Hardon, A. 2001. 'Immunisation for All? A Critical Look at the first GAVI Partners Meeting'. *HAI Europe* 6: 2, http://www.haiweb.org/pubs/hailights/mar2001/HAILightsMar2001_1.pdf, accessed on 18 June 2014.
- Hardon, A. and S. Blume. 2005. 'Shifts in Global Immunization Goals (1984–2004): Unfinished Agenda and Mixed Results'. *Soc Sci Med* 60: 345–56.
- JHSPH (Johns Hopkins Bloomberg School of Public Health). 2007. 'Hib Vaccine: A Critical Ally in Asia's Effort to Reduce Child Deaths' (press release), <http://www.jhsph.edu/news/news-release/2007/baqui-h.b.html>, accessed on 1 November 2013.
- Kane, M. 2011. 'New Vaccines for the Least Developed Countries'. *Human Vaccines* 7: 298–99.
- Kappeler, Andreas, and Nemoz Mathieu. 2010. 'Public-Private Partnerships in Europe before and during the Recent Financial Crisis'. *Economic and Financial Report 2010/04*. July. European Investment Bank, http://www.bei.europa.eu/attachments/efs/efr_2010_v04_en.pdf, accessed on October 2013.
- Katz, Dieter. 2006. 'Financing Infrastructure Projects; Public-Private Partnerships (PPPs)'. New Zealand Treasury Policy Perspectives Paper 06/02, <http://www.treasury.govt.nz/publications/research-policy/ppp/2006/06-02/08.htm>, accessed on 15 November 2013.
- King, Paul G. 2012. *Draft Review of: A Report by WHO's Global Advisory Committee on Vaccine Safety*. June, [Eng], http://dr-king.com/docs/20120928_FAMESYstems_ReviewOfGACVSJune2012ReportOnSafety_Thimerosal_AluminumAdjuvants_OtherVaccineIssues_fnl_r2b.pdf, accessed on 1 November 2013.
- Kremer, M. 2002. 'A Purchase Commitment for Vaccine', in Inge Kaul, Katell Le Goulen and Mirjum Schnupf (eds), *Global Public Goods Financing: New Tools for New Challenges, A Policy Dialogue*, pp. 37–42. New York: United Nations Development Programme (UNDP).
- Kremer, M., and R. Glennerster. 2004. *Strong Medicine: Creating Incentives for Pharmaceutical Research on Neglected Diseases*. Princeton: Princeton University Press.
- Light, D. W. 2011. 'Saving the Pneumococcal AMC and GAVI'. *Human Vaccines* 7: 138–41.
- . 2007. 'Is G8 Putting Profits before the World's Poorest Children?' *The Lancet* 370: 297–98.
- Madhi, Shabir A., Orin S. Levine, and Thomas Cherian. 2008. 'Reply to Incidence of Pneumonia is not Reduced by Pneumococcal Conjugate Vaccine: Pneumococcal Conjugate Vaccine is Efficacious and Effective in Reducing the Burden of Pneumonia'. *Bull World Health Organ* 86 (10). October.
- Miller, M. A., and L. McCann. 2000. 'Policy Analysis of the Use of Hepatitis B, Hemophilus Influenzae Type B, Strepto-coccus Pneumoniae-conjugate and Rotavirus vaccines in the National Immunization Schedules'. *Health Econ* 9: 19–35.
- Pollock, A. M., M. Dunnigan, D. Gaffney, D. Price, and J. Shaoul. 1999. 'Planning the New NHS: Downsizing for the 21st Century'. *BMJ* 319: 179–84.
- Pollock, A. M., J. Shaoul, and N. Vickers. 2002. 'Private

- Finance and Value for Money in NHS Hospitals: A Policy in Search of a Rationale? *BMJ* 324: 1205–09.
- Pollock, Allyson M., Jean Shaoul, and Neil Vickers. 2002. 'Private Finance and "Value for Money" in NHS Hospitals: A Policy in Search of a Rationale?' *BMJ* 324(7347): 1205–1209, 18 May, <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1123165/#B2>, accessed on 14 June 2014.
- Puliyel, J. 2014. 'Immunisation: Challenges of Ensuring Public Health: Assessing the Past, Charting the Future', *Yojana*, Februray, <http://yojana.gov.in>. <http://jacob.puliyel.com/download.php?id=309>, accessed on 20 July 2014.
- . 2013. 'AEFI and the Pentavalent Vaccine: Looking for a Composite Picture.' *Indian Journal of Medical Ethics* 10 (3) July–September. <http://ijme.in/pdfs/213ed142.pdf>, accessed on 20 June 2014.
- . 2011. 'Cost of Pneumococcal Vaccine Underestimated Ten-fold'. *Human Vaccines* 7: 1.
- Puliyel, J., J. Mathew, N. Vashisht, and V. Sreenivas. 2011. 'Effectiveness Versus Efficacy of Conjugated Pneumococcal Vaccine: A Systematic Review of Randomised, Controlled Trials with Meta-analysis Examining Absolute Risk Reduction and Relative Risk' *Clinical Microbiology and Infection*: 17, Issue Supplement s4, p. 299 (p. 1442), <http://onlinelibrary.wiley.com/doi/10.1111/j.1469-0691.2011.03558.x/pdf>, accessed on 20 June 2014.
- Puliyel, J. M. 2010. 'GAVI (Global Alliance for Vaccines and Immunisation) and WHO: Demanding Accountability'. *BMJ* Aug 4: 341:c 4081. WHO Expert Panel 2008. Report of a WHO Ad Hoc Expert Panel to Review Reports of Serious AEFI following administration of pentavalent vaccine and other vaccines—Sri Lanka 2008, <http://jacob.puliyel.com/download.php?id=213>, accessed on 20 June 2014.
- Puliyel, J. M., J. L. Mathew, and R. Priya. 2010. 'Incomplete Reporting of Research': Et tu, WHO? *Indian J Med Res* 131: 588–89.
- Puliyel, J. M. 2010. 'GAVI (Global Alliance for Vaccines and Immunisation) and WHO: Demanding Accountability'. *BMJ* Aug 4: 341:c 4081. WHO Expert Panel 2008. Report of a WHO Ad Hoc Expert Panel to Review Reports of Serious AEFI following administration of pentavalent vaccine and other vaccines—Sri Lanka 2008, <http://jacob.puliyel.com/download.php?id=213>, accessed on 20 June 2014.
- Puliyel, J. 2004. 'Policy Analysis of the Use of Hepatitis B, Hemophilus Influenzae Type B, Streptococcus pneumoniae-conjugate and Rotavirus Vaccines in the National Immunization Schedules. *Health Econ*, November 13 (11): 1147–48.
- Shiva, Vandana. 2013. 'How Economic Growth Has Become Anti-life'. *The Guardian*, 1 November. <http://www.theguardian.com/commentisfree/2013/nov/01/how-economic-growth-has-become-anti-life>, accessed on 1 November 2013.
- Tan, Virginia. 2012. 'Public-Private Partnership (PPP)', <http://a4id.org/sites/default/files/files/%5BA4ID%5D%20Public-Private%20Partnership.pdf>, accessed on 20 June 2014.
- Tozzi, A. E., E. J. Asturias, M. R. Balakrishnan, N. A. Halsey, B. Law, and P. L. Zuber. 2013. 'Assessment of Causality of Individual Adverse Events Following Immunization (AEFI): A WHO Tool for Global Use'. *Vaccine*. 17 31 (44): 5041–46, October. doi: 10.1016/j.vaccine.2013.08.087. Comments on PubMed Commons available at <http://www.ncbi.nlm.nih.gov/pubmed/24021304>, accessed on 18 June 2014.
- 'Tuoitrenews 15 Infants Die after Quinvaxem Vaccination This Year', <http://tuoitrenews.vn/society/15499/15-infants-die-after-quinvaxem-vaccination-this-year>, accessed on 1 January 2014.
- Tyagi, V., S. K. Singh, A. Sawhney, V. Taneja, and J. M. Puliyel. 2003. 'Using Gross National Product to Calculate Acceptable Immunization Costs. Deploying Cost-effectiveness Calculations in Reverse.' *Pharmacoconomics* 21: 497–99.
- WHO (World Health Organisation). 2013. 'Safety of Quinvaxem (DTwP-HepB-Hib) Pentavalent Vaccine', 10 May, http://www.who.int/immunization_standards/vaccine_quality/quinvaxem_pqnote_may2013/en/index.html, accessed on November 2013.
- . 2008. Report of a WHO Ad Hoc Expert Panel to Review Reports of Serious AEFI Following Administration of Pentavalent Vaccine and Other Vaccines—Sri Lanka 2008, <http://jacob.puliyel.com/download.php?id=213>, accessed on 20 June 2014.
- . 2005. 'Adverse Events Following Immunization (AEFI): Causality Assessment', http://www.rho.org/files/rb3/AEFI_Causality_Assessment_WHO_2005.pdf, accessed on 1 November 2013.
- . 2005. Brighton Classification, http://www.rho.org/files/rb3/AEFI_Causality_Assessment_WHO_2005.pdf.

17

NON-COMMUNICABLE DISEASES IN INDIA: CHALLENGES AND IMPLICATIONS FOR HEALTH POLICY

Sailesh Mohan and D. Prabhakaran

With economic development, changing lifestyles, demographic changes and rapid epidemiological transition, India is witnessing the rise of chronic non-communicable diseases (NCDs) such as cardiovascular disease (CVD), diabetes, cancer and chronic obstructive pulmonary disease (COPD). Communicable diseases and maternal and child health conditions continue to be the important priorities and thus, India currently has to deal with the dual challenge of communicable diseases and NCDs.

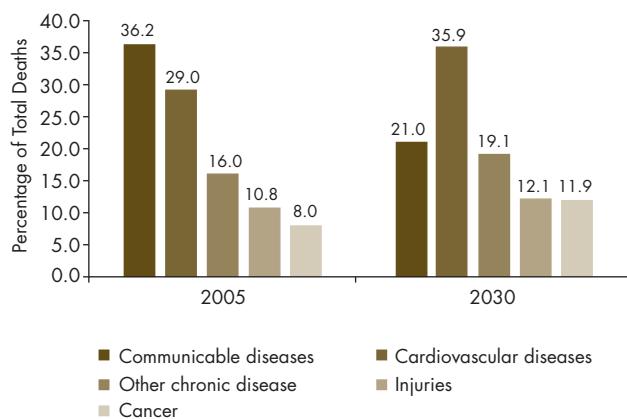
This chapter scrutinises the foremost reasons for the increase in NCDs, appraise the current and projected risk factor and disease burdens, examine the responses so far and suggest strategic high impact evidence-based public health actions that can contribute to addressing and controlling NCDs effectively in India.

CHANGE IN DISEASE PROFILE: THE RISE OF NCDs

During the last few decades of the twentieth century, considerable changes in societal development, health and nutritional status as well as life expectancy, fertility and mortality rates have taken place in India. Mortality from communicable disease has been declining, while that from NCDs has risen. This rise has been driven by various transitions in demography (population ageing), epidemiology (change from communicable diseases to

NCDs) and nutrition (higher calorie intake and lower physical activity levels). As a consequence, India's disease profile has undergone significant change with NCDs currently accounting for 53 per cent of the total mortality and 44 per cent of the disability adjusted life years (DALYs) lost. Estimates point to a further increase to 67 per cent of total mortality by 2030. CVD is a major contributor to this burden, attributable to 52 per cent of NCDs associated mortality and 29 per cent of total mortality (Patel et al. 2011, Mohan et al. 2011) (see Figure 17.1)

FIGURE 17.1 Changes in Mortality Profile in India



Source: Adapted from Mohan et al. (2011).

BURDEN OF NCDs: AN OVERVIEW

The primary NCDs have shared risk factors (tobacco use, alcohol use, unhealthy diet, physical inactivity) which can be effectively prevented by risk factor modification. Information on these risk factor burdens provide an indication of likely disease burden in the future as well as forms the basis for developing, implementing and evaluating appropriate public health interventions. Important NCD-related risk factors are given in Figure 17.2 and their contribution to the disease burden summarised below.

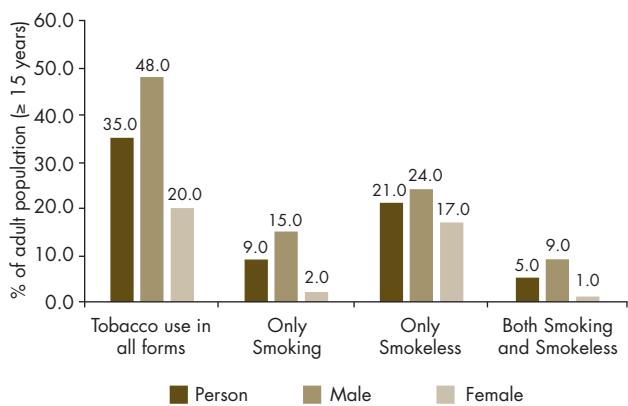
Tobacco and Alcohol Consumption

Tobacco is used in myriad ways (*beedis*, cigarettes and smokeless forms) in India, and the country is the second largest producer and the third largest global consumer of tobacco. Not surprisingly, its use is widespread and there are about 275 million tobacco users in the country (GATS India 2010) (see Figure 17.3). It is one of the main causes of premature, NCD-associated death and disability. Notably, tobacco use is increasing among the youth, women and the poor. Nearly one million deaths are due to tobacco use, most deaths occurring among the poor and in the economically productive age group of 30–69 years. By 2030, it is estimated that nearly 1.5 million deaths will occur annually from tobacco use (Jha et al. 2008).

However, it not only entails health implications but also significant economic costs with the cost of treating three major tobacco-related NCDs (cancer, heart disease and COPD) in 2002–03 estimated to be Rs 308.3 billion, which far exceeds the revenue added to the public exchequer (Reddy and Gupta 2004).

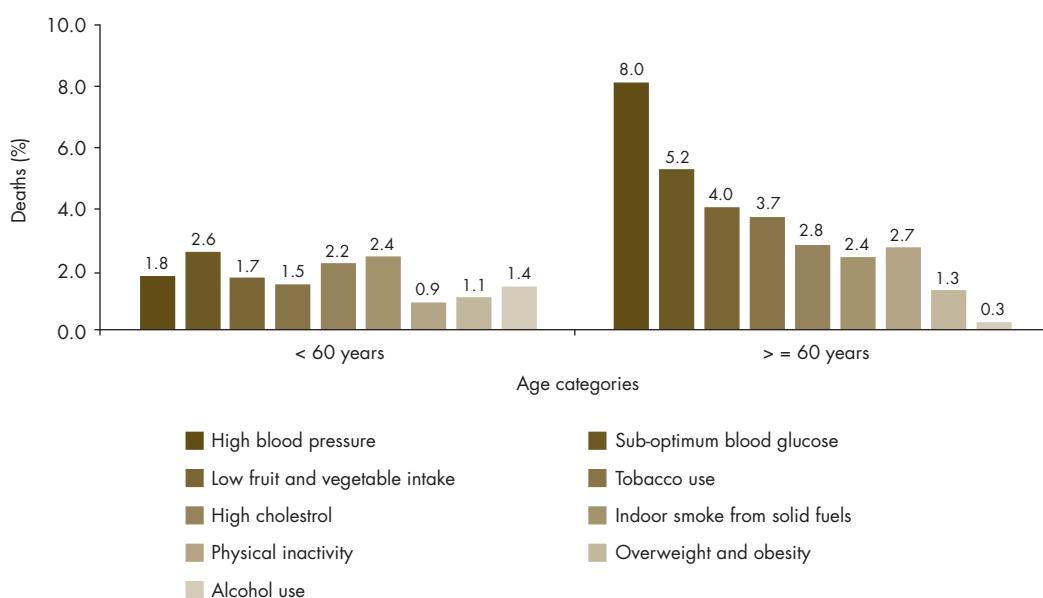
Alcohol consumption accounts for a significant proportion of neuropsychiatric disorders, fatal road traffic accidents and suicides. Alcohol consumption is higher among the poor and less educated, but disconcertingly is also increasing among the youth.

FIGURE 17.3 Magnitude of Tobacco Use in India



Source: Adapted from GATS India (2010).

FIGURE 17.2 Mortality (%) Attributable to Leading Chronic Disease Risk Factors in India (2004)



Source: Adapted from Patel et al. (2011).

Changes in Diet and Physical Activity

Discernable changes in the per capita calorie consumption over the past few decades in India has not been reported, but noteworthy increases in edible oil and fat consumption has been documented in the rural as well as the urban areas. Oil intake had increased from 18 gms per person daily in 1990–92 to 27 gms per person daily in 2003–05, while fat intake increased from 41 gms to 52 gms per person daily during the same period. Aggregate consumption data also indicate an increasing trend in edible oil consumption, which has grown from 9.7 million tonnes in 2000–01 to 14.3 million tonnes in 2007–08, and 17.5 million tonnes in 2012–13 (Mohan et al. 2007, Jha 2013) with a large proportion of unhealthy oils high in saturated and trans-fats that are linked to NCDs, particularly CVD (Mohan et al. 2011). Excess dietary salt consumption, which is a key determinant of hypertension and associated CVD, is also very high with the average intake ranging between 9–12 gms/day. This amount far exceeds the World Health Organisation (WHO) recommended intake of 5 gms/day as well as the National Institute of Nutrition's recommended intake of 6 gms/day (Mohan et al. 2013). Further, fruits and vegetable consumption which provides protection against NCDs is inadequate, particularly so among the poor.

On the same note, physical activity, another protective factor has also been found to be less than recommended levels with 29 per cent of the population being insufficiently active (IIPS 2006). Rapid and extensive urbanisation, increased mechanisation of work and adoption of sedentary lifestyles are likely contributing to this.

DISEASE BURDEN

Cardiovascular Disease

As indicated above, CVD is a major cause of mortality in India. About 2.7 million people die of CVD currently with this figure expected to increase to 4 million by 2030. Estimates indicate that there are about 30 million coronary heart disease (CHD) patients, with 14 million residing in rural and 16 million in urban areas. The prevalence of CHD in those aged ≥ 20 years ranges from 6.6 per cent–12.7 per cent in the urban and 2.1 per cent–4.3 per cent in rural India. Over the past few decades, CHD

prevalence has increased almost two-fold in the rural areas and six-fold in the urban areas (Reddy et al. 2005). Stroke prevalence is between 334–424 per 100,000 population in the urban areas and between 244–262 per 100,000 population in the rural areas. Notably, available data indicate that about 10–12 per cent of all stroke deaths in India occur in those below 40 years, highlighting the huge impact it has not only on families and households, but also for the nation's economy as it affects productivity of its workforce (Gupta et al. 2008).

Type-2 Diabetes Mellitus

Type-2 diabetes mellitus is the predominant form of diabetes and it has been rising rapidly, with the country until recently being often labeled as the 'diabetes capital' of the world. As per the most recent estimates of the International Diabetes Federation (IDF), there are about 65 million people with diabetes, which is projected to increase to 109 million by 2035 (IDF 2013). Moreover, diabetes is an important risk factor for CVD, and CVD is the major cause of death and disability in persons with diabetes. Diabetes currently accounts for almost a million deaths annually.

Hypertension or High Blood Pressure

Hypertension is the leading risk factor for CVD and accounts for nearly 10 per cent of all deaths in India. As of 2004–05, 20–40 per cent adults in the urban areas and 12–17 per cent in the rural areas suffered from it. The number of hypertensive cases in India is projected to nearly double from 118 million in 2000 to 213 million by 2025 (Reddy et al. 2005). Besides, nearly 40 per cent adults in 2007–08 had pre-hypertension, a precursor condition with high likelihood of converting into hypertension if left unaddressed (Mohan and Koller 2013).

Chronic Obstructive Pulmonary Disease or Chronic Lung Disease

Chronic obstructive pulmonary disease (COPD) is more common among men as the major underlying cause is tobacco smoking, but is also increasing among women due to the adverse impact of indoor air population as a result of solid fuel usage for cooking in poorly ventilated houses. The number of COPD patients is estimated to increase from 13 million in 1996 to 22.2 million by 2016 with many likely to require hospitalisation with consequent financial repercussions

for both patients and the healthcare system (Mohan et al. 2011).

Cancer

Each year about 800,000 new cases of cancer and 730,000 deaths occur in India (*ibid.*). The most common cancers in men are those of the oral cavity, esophagus and lung, while in women the main sites are the cervix, breasts and ovaries. Delayed diagnosis leads to late initiation of treatment, with more than 75 per cent of cancer patients presenting and seeking care when already in the advanced stages of the disease (*ibid.*). This vastly decreases the likelihood of positive outcomes of treatment. Tobacco use is one of the leading risk factors, while alcohol use contributes to a substantial proportion of head, neck and stomach cancers.

Injuries

India has seen a huge increase in the number of motor vehicles as a consequence of urbanisation, population growth and economic development. Insufficiency of public transport systems has also contributed to this increase. These factors along with poor road infrastructure has led to high rates of road traffic accidents and associated injuries. Currently, about 2.8 million people are hospitalised due to road traffic accidents. This is projected to increase to 3.6 million hospitalisations by 2015 (Gururaj 2006 cited in Mohan et al. 2011). States with higher motorisation rates have greater numbers of related injuries and deaths. Agricultural-related occupational injuries are also common, mostly among rural men belonging to the lower socio-economic groups (*ibid.*).

Mental Health

Mental health disorders are emerging as a significant public health problem in India. Conditions such as schizophrenia, mood disorders (depression and bipolar mood disorders) and mental retardation account for 8.5 per cent of the total burden of diseases. It is estimated that nearly 7 per cent of the adult population suffer from serious mental disorders, with not much rural urban difference, but women having a higher burden. The productive working age segment of the population, aged between 25–44 years is more vulnerable. Mental health disorders not only are independent risk factors for other NCDs such as CVD and diabetes, but can also occur as a result of long-term suffering from them (*ibid.*).

ECONOMIC BURDEN OF NCDs: MACRO- AND MICRO-LEVEL IMPACTS

Dealing with NCDs and risk factors leads to huge costs not only to individuals, but also to the economy. Most people suffering from NCDs incur significantly high out-of-pocket (OOP) expenses to take care of NCD-related healthcare costs. Medicines usually account for up to 45 per cent of this expenditure (Mahal et al. 2010). In 2004, the annual income loss among working adults due to NCDs was Rs 251 billion and that due to hypertension alone amounted to Rs 43 billion (*ibid.*). In 2010, the annual median direct cost per diabetic individual was reported to be about Rs 25,391, and the annual total cost of diabetes care in India was estimated to be more than Rs 1,541 billion (Tharkar et al. 2010). During 2005–15, the projected income loss due to CVD and diabetes alone is likely to be about \$ 237 billion (WHO 2005). In addition to this, families suffering from NCDs not only face income losses due to disease, but also due to care-giving and premature deaths. To obtain care for NCDs, individuals and families often resort to distress financing and shell out vast amounts of catastrophic expenditures, which impoverish and ultimately drive people into poverty (Mahal et al. 2010). A WHO 36-country study in 2004 reported that in most countries, including India, a month's treatment with just one anti-hypertensive medication costs 1.8 day's wages (van Mourik et al. 2010). This is even more unaffordable if multiple drugs, as is usually the case with hypertension treatment, are necessary for attaining treatment targets, and if more than one family member has hypertension.

UNIQUE CHARACTERISTICS OF NCDs IN INDIA

Different from developed countries, NCDs, particularly CVD, diabetes and associated deaths in India occur at younger ages with related adverse health, economic and societal consequences. This is mainly attributable to higher risk factor burden at younger ages, earlier disease onset (at least 10 years younger), premature mortality, and higher case fatality rate of CVD-related complications. Indians have higher propensity to develop CVD and diabetes at lower thresholds of overweight and obesity (Mohan et al. 2011, Joshi et al. 2007). Reports also indicate the reversal of the social gradient whereby the poor suffer increased exposure to risks such as tobacco use, hypertension and acquiring diseases such as

CVD and diabetes, a situation similar to that observed in developed countries that already have undergone health transitions (Reddy et al. 2007, Kar et al. 2010). Besides, in comparison to other countries, India suffers a very high loss in potential productive years of life because of premature CVD deaths in those aged 35–64 years: 9.2 million years were lost in 2000 and 17.9 million years are expected to be lost in 2030 (Reddy 2007). These factors are further compounded by the poor lacking access to expensive medical care once disease occurs leading to widening disparities in care and social inequity.

Proven and effective prevention and treatment strategies for hypertension and diabetes are readily available, but their rate of detection and control are abysmally low. There is a huge gap between detection and adequate treatment (called 'The rule of halves') (Mohan et al. 2011, Mohan and Koller 2013); less than half of those who have hypertension or diabetes are actually detected, less than half of those detected receive appropriate treatment, and less than half of those receiving treatment have their blood pressure or blood sugar treated to recommended targets. This 'rule of halves', which applies to many developing country settings is likely to be worse in India as less than 10 per cent have their blood pressure or blood sugar under control (*ibid.*). Further, the proven and inexpensive evidence-based secondary prevention therapies in primary and secondary care facilities is often lacking, leading to a large and escalating burden of avoidable and premature mortality (*ibid.*). A recent global study indicated that upto 80 per cent individuals were not on proven and effective life-saving drug treatment after a stroke or heart attack in countries like India (Yusuf et al. 2011). This results in otherwise avoidable complications, increased healthcare costs, poor quality of life, premature disability and death.

CURRENT EFFORTS TO ADDRESS NCDs

The health system in India, despite the epidemiological transition, is yet to re-orient itself to adequately address the rising burden of NCDs, as the focus is still largely on providing acute care and not in providing chronic care. As a result there are considerable inadequacies in service delivery both at the primary and secondary care level. Heterogeneity of providers, as well as in the quality, availability and accessibility of care, has led to wide disparities with the rich having access to most expensive evidence-based care, and the poor lacking access to basic

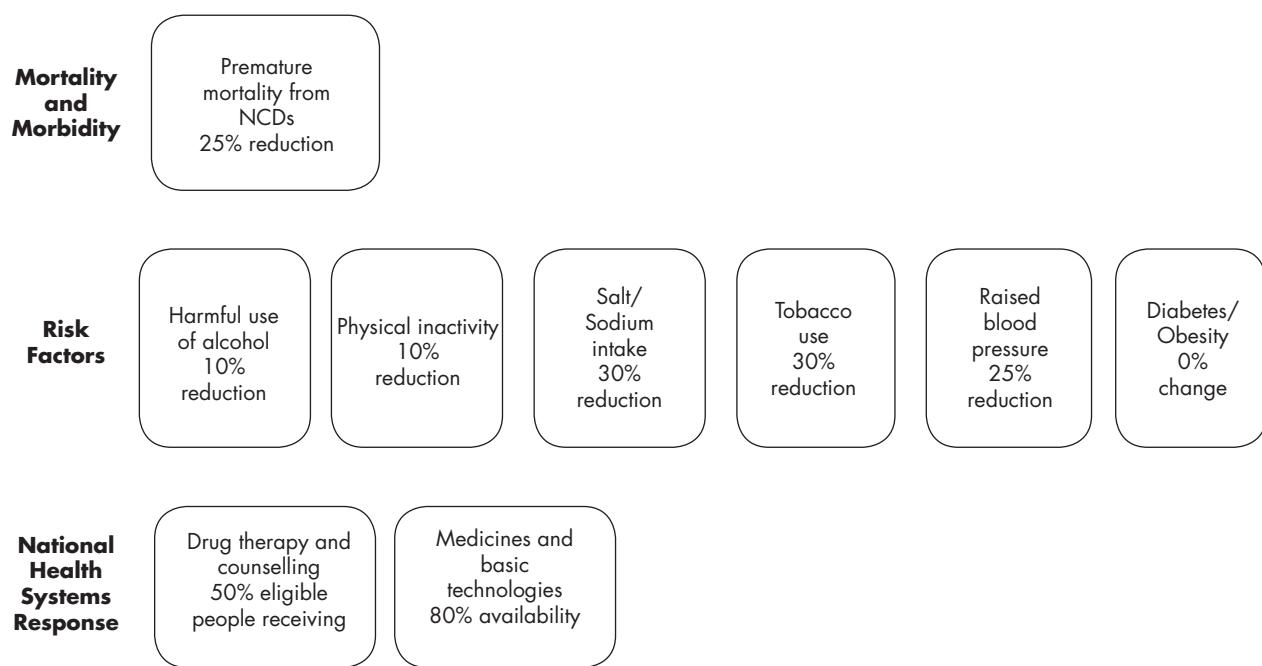
primary care. Functional referral systems within the public sector as well as between the public and private sectors are also weak. Required emphasis on early diagnosis and evidence-based management approaches are also limited. Furthermore, in the absence of financial risk protection, most people with NCDs rely on OOP expenses to meet healthcare costs.

The government has few national programmes to address NCDs that include the National Cancer Control Programme (NCCP), the National Trauma Control Programme (NTCP), the National Programme for Control of Blindness (NPCB), the National Mental Health Programme (NMHP), the National Tobacco Control Programme (NTCP), and the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) (Mohan et al. 2011). Recently, the National Programme for the Healthcare of the Elderly (NPHCE) has also been started (NPHCE 2011). The NPCDCS is of most importance to NCD prevention and control. This programme has hypertension and diabetes as one of the main focus areas. It is being implemented in 100 districts and expected to cover the rest of the country within the Twelfth Five Year Plan period. NPCDCS aims at: a) assessment of risk factors, early diagnosis and appropriate disease management for high-risk groups, and b) health promotion for the general population (NPCDCS 2011). Debates are on regarding implementing universal health coverage (UHC) strategies and health sector reforms that can likely contribute to reducing NCDs. Besides, India is a signatory to the WHO Framework Convention on Tobacco Control (FCTC) and is implementing the Cigarettes and Other Tobacco Products Act, 2003 (COTPA), which obligates smoking bans in public and work places, advertisement bans, prohibition of sales to and by minors, regulating the contents of tobacco products and graphical health warnings on tobacco product packages.

THE WAY FORWARD TO ADDRESS NCDs

Since the landmark United Nations (UN) High Level Meeting on NCDs in 2011 which concluded that NCD prevention and control is a high priority issue, many countries have now agreed to a goal of 25 per cent reduction in the levels of NCDs in 2010 by 2025, and to establish a global monitoring framework to measure progress towards this goal. This framework includes

FIGURE 17.4 WHO-United Nations Goals and Targets for NCD Prevention and Control



Source: Adapted from WHO (2013).

specific targets and indicators (WHO 2013) (see Figure 17.4). The growing burden of NCDs in India and the know-do gap with respect to detection, prevention and management, NCDs need to be addressed as a public health priority. These goals and the framework provide a pertinent opportunity and the stimulus to prioritise NCD prevention and control efforts in India in order to attain the mandated reduction and improve population health.

A cohesive plan that incorporates effective public health interventions to minimise risk factor exposure in the whole population and to reduce the risk of disease-related events in individuals at high risk is necessary. Combining risk reduction (or preventive approach) and management (or high risk clinical approach) and aligning this with the WHO-UN mandate is the most cost-effective, and sustainable approach for ensuring early, medium- and long-term impact on NCDs in India.

Population-wide NCD Prevention Approaches

In most developed countries that have effectively addressed and reduced the burden of NCDs over the past few decades, population-wide preventive approaches supported by a supporting environment, i.e. an environment where it is easier for people to

make healthier choices in terms of food, activity, not using tobacco, alcohol, etc. due to implementation of healthy public policies, had contributed fundamentally. This is because these approaches are high-impact, cost-effective and sustainable over time as they target lifestyle change (Engelgau et al. 2011). An analysis by leading health organisations such as the WHO and the World Economic Forum (WEF) confirm the cost effectiveness of select population-wide approaches for NCD control (Beaglehole et al. 2011) (see Table 17.1). Nonetheless, implementation of these approaches requires multi-sectoral partnerships with non-health sectors where most of determinants of NCD are. Public health policies for reducing excess consumption of dietary salt, fat, sugar and alcohol, require regulatory and consumer education approaches; promoting physical activity involves sound urban planning and creation of activity-enabling environments; injury prevention mandates promoting use of seat belts/helmets, reduction of drunk driving, and inculcating safe pedestrian habits; increasing fruit-vegetable consumption entails suitable agricultural and pricing mechanisms; and implementing comprehensive tobacco control (effective implementation of COTPA, 2003, under the auspices of NTCP), have the potential to prevent a large proportion of the disease burden in the whole population, given that most disease events occur

at modest elevations of multiple risk factors rather than at striking elevation of a single risk factor. For instance, a 2 per cent population-wide decrease of diastolic blood pressure, easily achievable through modest salt reduction, was estimated to prevent 300,000 coronary heart disease and stroke deaths in India, with larger blood pressure decreases yielding even higher reductions (Rodgers et al. 2000). As mentioned before, population salt intake exceeds current WHO recommended levels, and the recent global burden of disease study reported it to be the 7th leading cause of mortality in the South-east Asian region which is much higher than in the rest of the world (11th rank globally), underlining the adverse health impact in countries like India (Lim et al. 2010). A 15 per cent reduction in salt intake was studied (in 2005) to be possible through voluntary reduction in processed foods by the food industry and consumer education to encourage dietary change using mass media at an estimated cost of just Rs 2 per person/year (Asaria et al. 2007). Reducing salt intake is not only cost-saving, but has the potential to improve hypertension control rates, reduce the need for anti-hypertensive medications and limit associated healthcare costs (Mohan and Koller

2013, Whelton et al. 1998). In a milieu of increasing hypertension and CVD, population-wide salt reduction is a priority intervention to achieve the global UN-NCD reduction goal.

In addition, other policies for bans on misleading advertisement of junk foods and marketing to children, regulating food safety, mandating food labelling and ban on trans-fats are also essential to achieve NCD control.

Strengthening the Health System to Provide Clinical Care

Interventions directed at health system strengthening are indispensable for reducing NCD-related premature death and disability. To provide evidence-based NCD-related care, activities related to prevention, surveillance, screening and management should be integrated into all levels of healthcare (primary, secondary and tertiary). All healthcare providers providing NCD-related care require regular skill enhancement, strengthening and updating. Given the large number of people with NCDs who need to be taken care of, and the acute shortage of physicians, task-sharing and task-shifting of NCD-

BOX 17.1 Global Salt Reduction Efforts: Some Examples

- World Health Organisation (WHO) currently recommends ≤ 5 g/d;
- Many countries have reduced salt intake in their populations, many are initiating salt reduction efforts through different strategies;
- Japan reduced salt intake from 13.5 g/d to 12.1 g/d (higher reduction in North Japan from 18 to 14 g/d) in the 1960s after implementing a public education campaign against the backdrop of high stroke mortality, which subsequently reduced;
- Finland reduced salt intake from 14g/d in 1970 to 8g/d in 2002 through community-based interventions, regulation of food industry and public policy efforts, reducing high mortality from cardiovascular disease;
- Recently, UK reduced salt intake from 9.5g/d in 2004 to 8.5 g/d in 2008 through consumer education, civil society advocacy and collaboration with the food industry.

TABLE 17.1 High Priority and Cost-effective NCD Interventions

<i>Risk factor</i>	<i>Interventions</i>	<i>Cost per person/year (INR)</i>
Tobacco use	Effective implementation of the National Tobacco Control Act	9.28 or \$ 0.16
Dietary salt	Consumer education using mass media, action by food industry	3.48 or \$ 0.06
Overweight, physical inactivity, unhealthy diet	Mass media campaigns, taxes on unhealthy foods, subsidies for healthy foods, mandatory food labelling, marketing restrictions	20.30 or \$ 0.35
Excess alcohol consumption	Increased taxation, ad bans and access restrictions	2.90 or \$ 0.05
Cardiovascular risk reduction	Using low cost drug combinations for high risk individuals	52.20 or \$ 0.90
Total cost		88.16 or \$ 1.52

Source: Adapted from Beaglehole et al. (2011).

related care by training of non-physician health workers should also be explored. For example, modelled estimates from India indicate that community health worker training in hypertension management is likely to be cost saving for the health system, in addition to averting numerous CVD deaths and hospitalisations (Mohan et al. 2012). Similarly, evidence from other developing countries like South Africa and Iran which also face a high NCD burden indicates the effectiveness of task-sharing and shifting in improving NCD outcomes.

The recently launched NCPDCS offers great prospect for both health system strengthening as well as improving NCD management if leveraged appropriately. For example, the opportunistic screening planned in NPCDCS at the sub-centre level (initial contact point with health system) could be strengthened with provision of electronic decision support tools with screening and referral algorithms for the health workers to detect, refer and follow up NCD patients as well as facilitate reporting utilising appropriate data templates and thereby contribute to surveillance and the development of a health information system to track major NCDs and associated outcomes.

Some potential difficulties that are possible include costs, issues with training personnel to use these tools, availability of electricity, calibration, maintenance of equipment, etc.

Similarly, the NCD clinics mandated under NPCDCS could be leveraged to facilitate guideline-based management with greater use of generic drugs and those recommended by the Indian Public Health Standards/National List of Essential Medicines as well as capacity building of health personnel in delivery of chronic care. Training guidelines for physicians and health workers under the NPCDCS can be used, incorporating regular evidence updates where and when

required. Similarly, properly validated and affordable devices to measure blood pressure, blood sugar and other clinical indices should be provided at all health facilities.

As NCDs require long-term care, appropriate referral and follow-up pathways across various levels of care as well as public and private sectors are required. Given that medicines account for a high proportion of expenses for obtaining care, measures to ensure affordable, accessible and uninterrupted drug supply are necessary. Financial risk protection measures should be adopted to reduce burden on individuals as in its absence treatment outcomes will be impacted. States can adopt the model of the Tamil Nadu Medical Services Corporation (TNMSC) where it centrally purchases generic drugs at low prices and deploys a computer-based drug inventory management system for optimal distribution. This system not only has reduced costs and increased efficiency and also has helped prevent stock-outs that were common.

As most of the population has low levels of awareness and given the less than optimal detection rates of major NCDs, blood pressure measurement and possibly non-laboratory risk assessment using simple risk scores (based on assessment of age, gender, family history, blood pressure, physical activity) among adults should be mandated as part of all national health programmes irrespective of the disease it deals with. To increase the awareness on major NCDs, information dissemination through community education and communication can play a huge role. All national programmes can be leveraged to incorporate at least minimal information and messages around NCD prevention and control.

India is confronted with an accelerated increase in NCDs and can no longer ignore the threat they pose to health as well as development. As NCDs entail huge health and economic implications and they require to

BOX 17.2 Tamil Nadu Medical Supplies Corporation: Elements of the Innovative Model and Success Factors

- Central tendering and purchase of commonly used drugs (generics) for the entire state from manufacturers,
- Drugs delivered to district warehouses for distribution in required quantities,
- Each health facility is provided a 'passbook' with a fixed amount to obtain required drugs from essential drug list,
- Drug name and value are entered in the passbook.

Success factors:

- Transparency,
- Extensive use of information technology,
- Testing of drugs to ensure quality,
- Blacklisting of firms not meeting quality standards.

be dealt with as a public health priority. Appropriate context-specific and resource-sensitive combination of both the population and the high risk clinical approach should be leveraged towards preventing and controlling

NCDs. Despite many challenges that are there in reducing NCDs, there are also opportunities to spur actions required to meeting the WHO-UN goal of 25 per cent reduction in NCD-related mortality.

REFERENCES

- Asaria P., D. Chisholm, C. Mathers, M. Ezzati, and R. Beaglehole. 2007. 'Chronic Disease Prevention: Health Effects and Financial Costs of Strategies to Reduce Salt Intake and Control Tobacco Use.' *Lancet* 370: 2044–53.
- Beaglehole R., R. Bonita, R. Horton, C. Adams, G. Alleyne, et al.; for The Lancet NCD Action Group and the NCD Alliance. 2011. Priority actions for the non-communicable disease crisis. *Lancet* 377: 1438–47.
- Engelgau, M. M., S. El-Saharty, P. Kudesia, V. Rajan, S. Rosenhouse, and K. Okamoto. 2011. 'Capitalizing on the Demographic Transition: Tackling Non-communicable Diseases in South Asia.' Washington, DC: The World Bank.
- GATS India. 2010. 'Global Adult Tobacco Survey, GATS India 2009–10.' New Delhi: Ministry of Health and Family Welfare.
- Gupta R., P. Joshi, V. Mohan, K. S. Reddy, and S. Yusuf. 2008. 'Epidemiology and Causation of Coronary Heart Disease and Stroke in India.' *Heart* 94:16–26.
- Gururaj G. 2006. 'Road Traffic Injury Prevention in India National Institute of Mental Health and Neuro Sciences', Publication no. 56. Bangalore.
- IDF Diabetes Atlas, 6th edition. 2013. <http://www.idf.org/diabetesatlas/>, accessed on 5 March 2014.
- IIPS (International Institute for Population Sciences), World Health Organisation. 2006. *World Health Organisation (WHO)-India-WR Office. World Health Survey, 2003.* Mumbai: IIPS.
- Jha, Dilip Kumar. 2013. 'India's Per Capita Consumption of Edible Oil Might Rise 4%.' *Business Standard*, 26 March 2013. http://www.business-standard.com/article/markets/india-s-per-capita-consumption-of-edible-oil-might-rise-4-113032300184_1.html, accessed on 5 March 2014.
- Jha P., B. Jacob, V. Gajalakshmi, P. C. Gupta, N. Dhingra, et al., and RGI-CGHR Investigators. 2008. 'A Nationally Representative Case-control Study of Smoking and Death in India.' *N Engl J Med* 358: 1137–47.
- Joshi P., S. Islam, P. Pais, S. Reddy, P. Dorairaj, et al. 2007. 'Risk Factors for Early Myocardial Infarction in South Asians Compared with Individuals in Other Countries.' *JAMA* 297: 286–94.
- Kar, S. S., J. S. Thakur, N. K. Virdi, S. Jain, and R. Kumar. 2010. 'Risk Factors for Cardiovascular Diseases: Is the Social Gradient Reversing in Northern India?' *Natl Med J India* 23: 206–09.
- Lim, S. S., T. Vos, A. D. Flaxman, G. Danaei, K. Shibuya, et al. 2013. 'A Comparative Risk Assessment of Burden of Disease and Injury Attributable to 67 Risk Factors and Risk Factor Clusters in 21 Regions, 1990–2010: A Systematic Analysis for the Global Burden of Disease Study 2010.' *Lancet* 380: 2224–60.
- Mahal A., A. Karan, and M. Engelgau. 2010. 'The Economic Implications Non-communicable Diseases for India.' Washington, DC: World Bank Discussion Paper, January.
- Mohan S., and T. Koller. 2013. 'Hypertension and Related Comorbidities in India: Implications for the Health System.' New Delhi: WHO Country Office for India.
- Mohan, S., N. Campbell, and A. Chockalingam. 2013. 'Time to Effectively Address Hypertension in India.' *Indian J Med Res* 137: 627–31.
- Mohan S., K. Singh, D. Prabhakaran, and V. Rajan. 2012. 'Challenges and Options in Prevention and Control of Non-communicable Diseases in India.' *India Health Beat* 6 (4): 1–6, June.
- Mohan S., K. S. Reddy, and D. Prabhakaran. 2011. 'Chronic Non-communicable Diseases in India: Reversing the Tide.' Public Health Foundation of India, http://www.phfi.org/images/what_we_do/PHFI_NCD_Report_Sep_2011.pdf, accessed on 5 March 2014.
- NPCDCS (National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke). 2011. *Operational Guidelines.* Directorate General of Health Services, Ministry of Health and Family Welfare, Government of India.
- NPHCE (National Programme for Health Care of the Elderly). 2011. *Operational Guidelines.* Directorate General of Health Services, Ministry of Health and Family Welfare, Government of India.
- Patel V., S. Chatterji, D. Chisholm, S. Ebrahim, G. Gopalakrishna, et al. 2011. 'Chronic Diseases and Injuries in India.' *Lancet*; 377: 413–28.
- Reddy, K. S. 2007. 'India Wakes Up to the Threat of Cardiovascular Diseases.' *J Am Coll Cardiol.* 50: 1370–72.
- Reddy, K. S., and P. C. Gupta, eds. 2004. *Report on Tobacco Control in India.* Delhi: Ministry of Health and Family Welfare, Government of India.
- Reddy, K. S., B. Shah, C. Varghese, and A. Ramadoss. 2005. 'Responding to the Threat of Chronic Diseases in India.' *Lancet* 366: 1744–49.
- Reddy, K. S., D. Prabhakaran, P. Jeemon, K. R. Thankappan, P. Joshi, et al. 2007. 'Educational Status and Cardiovascular

- Risk Profile in Indians.' *Proc Natl Acad Sci USA* 104: 16263–68.
- Rodgers A., C. Lawes, and S. MacMahon. 2000. 'Reducing the Global Burden of Blood Pressure Related Cardiovascular Disease.' *J Hypertens Suppl* 18: S3–S6.
- Tharkar S., A. Devarajan, S. Kumpatla, and V. Viswanathan. 2010. 'The Socioeconomics of Diabetes from a Developing Country: A Population Based Cost of Illness Study.' *Diabetes Res Clin Pract* 89: 334–40.
- van Mourik, M. S., A. Cameron, M. Ewen, and R. O. Laing. 2010. 'Availability, Price and Affordability of Cardiovascular Medicines: A Comparison across 36 Countries Using WHO/HAI Data.' *BMC Cardiovasc Disord* 10: 25.
- Whelton, P. K., L. J. Appel, M. A. Espeland, W. B. Applegate, W. H. Ettinger Jr, et al. 1998. 'Sodium Reduction and Weight Loss in the Treatment of Hypertension in Older Persons: A Randomized Controlled Trial of Nonpharmacologic Interventions in the Elderly (TONE)'. *TONE Collaborative Research Group. JAMA* 279: 839–46.
- WHO (World Health Organisation). 2013. 'Global Action Plan for the Prevention and Control of Non-communicable Diseases 2013–2020'. Geneva: WHO.
- . 2005. 'Preventing Chronic Diseases: A Vital Investment'. Geneva: World Health Organisation, http://www.who.int/chp/chronic_disease_report/full_report.pdf, accessed on 5 March 2014.
- Yusuf S., S. Islam, C. K. Chow, S. Rangarajan, G. Dagenais, et al. 2011. 'On Behalf of the Prospective Urban Rural Epidemiology (PURE) Study Investigators. Use of Secondary Prevention Drugs for Cardiovascular Disease in the Community in High-income, Middle-income, and Low-income Countries (the PURE Study): A Prospective Epidemiological Survey.' *Lancet* 378: 1231–43.

18

IMPROVING ACCESS TO MENTAL HEALTHCARE IN INDIA: OPPORTUNITIES AND INNOVATIONS

*Rahul Shidhaye and Vikram Patel**

Mental health is an integral part of an individual's overall health (Prince et al. 2007). The World Health Organisation (WHO) defines mental health as 'a state of well-being in which every individual realises his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community' (WHO 2001). Mental health problems are the result of an interaction between genetic, biological, psychological, and adverse social and environmental factors that shape an individual's personal make-up and lead to poor quality of life, disability and even death (WHO 2005). Mental health problems can be broadly categorised into common mental disorders, severe mental disorders, substance use disorders, and childhood mental disorders (see Table 18.1). These problems affect a large number of people across all age groups in India, and hence constitute a significant public health burden. In this chapter, we will discuss the public health significance of mental health problems, barriers to access to care, and recent opportunities and innovations for improving access to mental healthcare in India.

SIGNIFICANCE OF MENTAL HEALTH PROBLEMS ON PUBLIC HEALTH

Mental health problems have great significance for public health, the key reasons for which are discussed in this chapter.

They Affect People of all Ages

Mental health problems can affect people at different stages of the lifecycle. These mental disorders, based on their burden in the population, could be in the nature of: neuro-developmental disabilities, and emotional and behavioural disorders in childhood; anxiety and depression, self-harm, substance-use disorders, and psychotic disorders in adults; and dementia, depression and self-harm in older people.

Various studies in India have reported widely varying prevalence rates of mental health problems from 9.54 to 370 per 1,000 population. A meta-analyses of these studies have estimated that the prevalence of any mental health problem ranges from 5.8 to 7.3 per cent of the population (Gururaj et al. 2004). This translates to 70.2 to 88.3 million people in India based on the Census 2011 population.

LEADING CONTRIBUTOR TO THE BURDEN OF DISEASE

Mental health problems constitute around 7.5 per cent of the global burden of disease (Murray et al. 2012). They are the leading causes of Disability Adjusted Life Years (DALYs; a metric which combines the impact of a disorder on life expectancy and disability) in men and women in the prime of their lives, i.e. between the ages

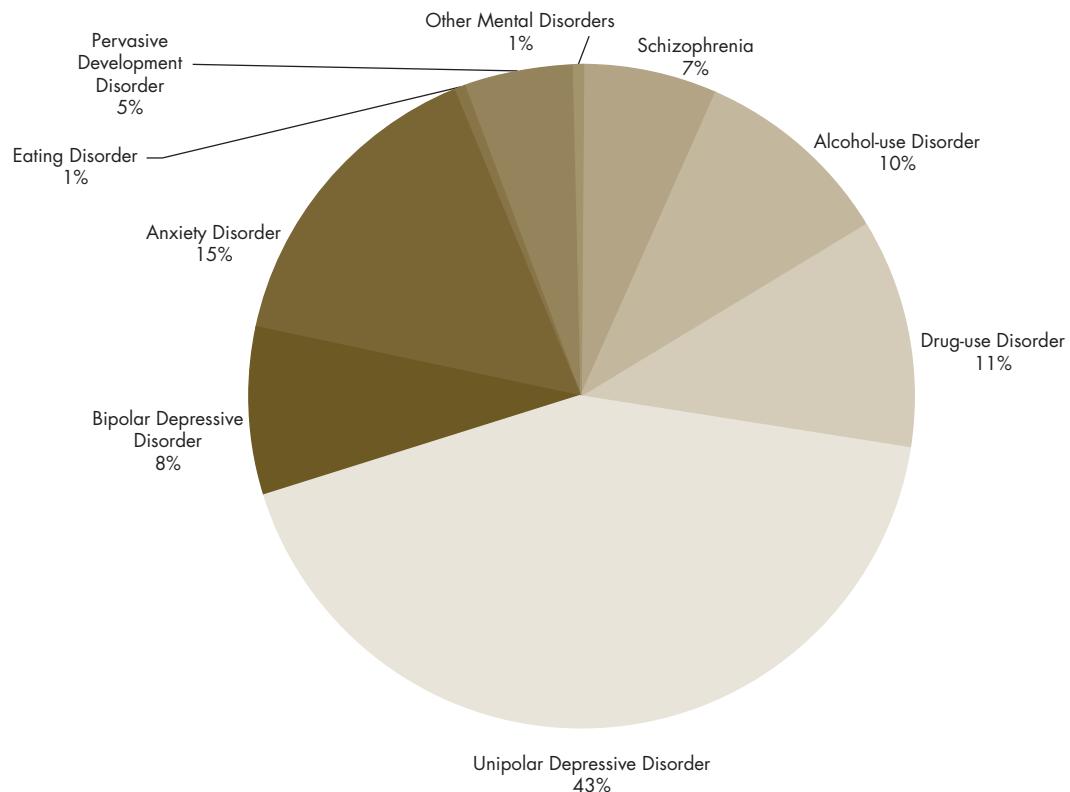
* Vikram Patel is supported by a Wellcome Trust Senior Clinical Fellowship.

TABLE 18.1 Brief Overview of Mental Health Problems

Category	Disorders	Key Features
Common Mental Disorders	Depression, anxiety disorders (phobia, obsessive compulsive disorder, post-traumatic stress disorder), somatoform disorders	Is 'hidden', usually not recognised as a 'disorder'; Typically present in primary care with medically unexplained symptoms (multiple aches and pains); sleep and appetite problems; strong association with social disadvantage (poverty, gender).
Severe Mental Disorders	Schizophrenia, bipolar disorder, brief psychosis, dementia	Recognised as a 'disorder' in most of the cultures; runs chronic course and is associated with severe disability; Strong association with genetic factors.
Substance-use Disorders	Alcohol-use disorder, other substance-use disorders (opium, cannabis, cocaine, inhalants)	More common in men; Strong association with poverty; Rarely present in clinical settings, except in case of secondary complications such as liver failure or injuries during intoxicated stage.
Childhood Mental Disorders	Neuro-developmental disabilities such as autism, attention deficit hyperactivity disorders, depression and anxiety disorders, conduct disorder	Long delays in recognition; Far-reaching consequences on individual development.

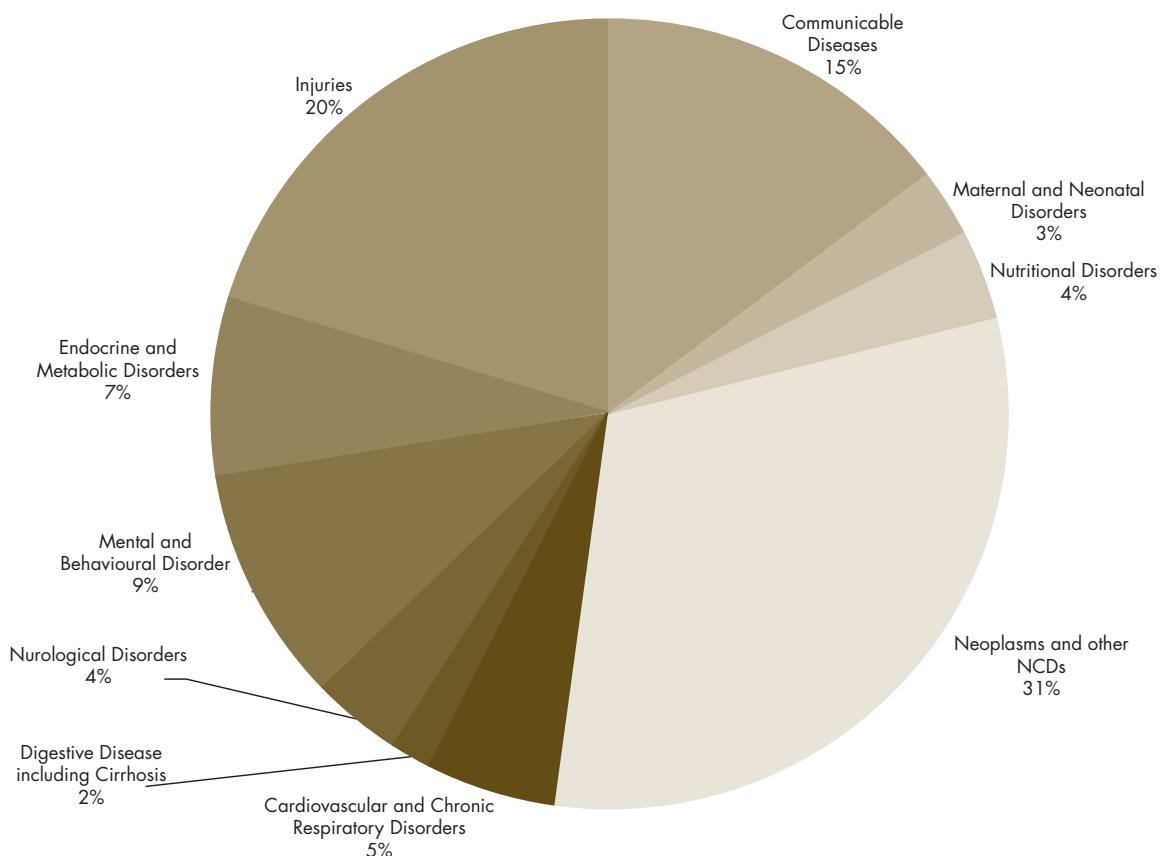
Source: Patel (2003).

FIGURE 18.1 Contribution by Different Mental Health Problems to Disability-Adjusted Life-Years in All Age Groups in India in 2010



Source: Based on the data downloaded from IHME (2013). The authors would like to thank Dr Sandesh Samudre for helping with the analysis of India GBD 2010 data to produce Figures 18.1 and 18.2 in this chapter.

FIGURE 18.2 Contribution by Different Health Problems to Disability-Adjusted Life-Years in Age Group 15–29 Years in India in 2010



Source: Based on the data downloaded from IHME (2013).

of 15–39 years (*ibid.*). The mental health problems which contribute the most to DALYs are depression, bipolar affective disorder, substance-use and alcohol-use disorders, schizophrenia, and dementia (*ibid.*). The number of global DALYs attributable to mental health problems increased by 38 per cent from 1990 to 2010 (*ibid.*).

In India, the contribution of mental health problems to the overall burden of disease in 2010 was estimated to be 5.6 per cent (IHME 2013). This represents an increase of 65 per cent in the past 20 years and this burden is projected to increase during the next 25 years as a consequence of the epidemiological and demographic transition (Patel et al. 2011). Self-harm contributes to 3.4 per cent of Years of Life Lost (YLLs) and depression is one of the top five leading causes of Years Lived with Disability (YLDs) (IHME 2013). There has been a 150 per cent increase in DALYs contributed by self-harm and 50 per cent increase in

DALYs contributed by depression in the last two decades (Murray et al. 2012).

Association with Premature Mortality

Mental health problems are independently associated with increased risk of early death and their overall contribution to causes which lead to death (all-cause mortality) is also very high (Prince et al. 2007). Schizophrenia and dementia increase the risk of all-cause mortality by two-and-a-half times (relative risk for schizophrenia is 2.59 (95 per cent Confidence Interval: 2.55-2.63) and for dementia it is 2.63 (95 per cent Confidence Interval: 2.17-3.21) (Heila et al. 2005), while depression increases the risk by one-and-a-half times [relative risk: 1.7 (95 per cent Confidence Interval: 1.5-2.0)] (Prince et al. 2007). In statistical analysis, confidence interval provides the 'interval' bounded by lower and upper estimate. There is a 95 per cent chance that this interval covers the true relationship between

exposure and outcome (schizophrenia/dementia and all-cause mortality in this case respectively) at the population level. Patients with schizophrenia have a 10–25 year reduction in life expectancy as compared to the general population. This increase in the all-cause mortality risk is excluding the risk for suicides (*ibid.*). Although the mortality rate from suicide is high, natural causes of death and differential access to care due to their mental health problem account for a greater part of the reduction in life expectancy (Heila et al. 2005).

Mental health problems are also an important proximal risk factor for suicide. Amongst the individuals who commit suicide, around 47–74 per cent of them suffer from a mental health problem (Patel et al. 2007). The recently published findings of the *Million Death Study* (2012) observed that 3 per cent of the surveyed deaths in individuals aged 15 years or older were due to suicide, corresponding to about 187,000 suicide deaths in India in 2010 (Patel et al. 2012). Suicide mostly kills individuals in their youth, 40 per cent of suicide deaths in men and 56 per cent of suicide deaths in women occurred at ages 15–29 years, thus making suicide a leading cause of death in this age group (*ibid.*). There is around 1.3 per cent chance that a 15-year-old individual in India would commit suicide in his/her lifetime; men having around one-and-a-half times higher risk than women (*ibid.*).

Strong Linkages with Poverty and Social Disadvantage

There is strong evidence linking mental health problems with factors related to social disadvantages such as poverty, illiteracy and gender. In low and middle income countries, low levels of education, food insecurity, poor housing, and financial stress exhibit a relatively consistent and strong association with the risk for depression and anxiety disorders (Lund et al. 2010). Mental health problems and poverty interact in a vicious negative cycle. Thus, conditions of poverty increase the risk of mental health problem through heightened stress, social exclusion, decreased social capital, malnutrition, and increased obstetric risks, violence and trauma (Lund et al. 2011). Conversely, people with mental health problems are at increased risk of drifting into or remaining in poverty through increased health expenditure, reduced productivity, stigma, and loss of employment and associated earnings (*ibid.*) (these are further elaborated below). Gender further compounds the problem as it plays a major role in determining socio-economic position and access to resources and social

status (Shidhaye and Patel 2010). Women are one-and-a-half to two times more likely to suffer from depression and anxiety disorders as compared with men (Kessler et al. 2003). Low education, low standard of living, intimate partner violence (IPV), dowry harassment and husband's alcohol use have been found to be independently associated with depression and suicide among women in India (Shidhaye and Patel 2010).

Violation of Human Rights

Stigmatisation of and discrimination against people with mental health problems is common in all sections of society, from the community to schools, work-place and even healthcare settings. Stigma and discrimination present formidable barriers both to social inclusion for affected people and their families, and to access to appropriate healthcare (Shidhaye et al. 2013). In the worst cases, there are profound violations of human rights in the form of restrictions to their freedom (e.g. by being chained) in their homes, in mental hospitals and in traditional healing centres. Some persons are subjected to inhuman and violent practices, sometimes as a way to 'treat' their disorders. Many homeless persons in India suffer from a mental health problem; homelessness is not only often the result of a mental health problem but it can itself worsen the course of the disorder.

Negative Impact on Physical Health

Mental health problems are intimately connected with other health conditions such as cardiovascular diseases, diabetes, chronic infections such as HIV and tuberculosis (TB), and injuries (Prince et al. 2007). There is a bi-directional association between mental health problems and these health conditions in which mental health problem can act as a risk factor and could also be a consequence due to these health conditions (*ibid.*). Mental health problems are associated with risk factors for chronic disease such as smoking, reduced activity, poor diet, obesity, and hypertension (*ibid.*). Mental health problem such as depression could be a consequence of chronic physical conditions by creating a psychological burden, which arises from factors such as the acute trauma of the diagnosis; the difficulty of living with the illness; the long-term threat of shortened life expectancy; necessary lifestyle changes; complicated therapeutic regimens; distressing symptoms such as pain; and stigma, which can lead to guilt, loss of social support, or breakdown of key relationships (*ibid.*). If an individual suffers from schizophrenia, dementia or substance-use disorders, and also has physical health

problems such as diabetes, cardiovascular disease or cancer, then these individuals receive poor general medical care simply because they suffer from mental health problem. Mental health problems can delay help-seeking, reduce the likelihood of detection and diagnosis, and adversely affect adherence to medication, behavioural modification and health promotion-related activities (Lawrence et al. 2003, Desai et al. 2002, Cradock-O'Leary et al. 2002). In addition to this, specific mental health problems such as depression in a specific sub-population such as mothers can potentially have far more detrimental effects which could be inter-generational. There is an independent association between perinatal depression and low birth weight, and infant under-nutrition at six months and reduction in adherence to child-health promotion and disease-prevention interventions (Prince et al. 2007) for example immunisation (Rahman et al. 2004, Patel et al. 2004).

Economic Impact

Mental health problems not only affect the health of an individual, but also the economic outcomes at the individual and household level. Studies from India show that people with depression spend more days being unable to work as usual due to their illness (Patel et al. 1998). The total cost of a single episode of depression, due to lost productivity and healthcare costs, is equivalent to three weeks' wages for agricultural workers (Chisholm et al. 2000). A population-based study conducted in Goa in 2007, assessed the healthcare costs of three common conditions affecting women (reproductive tract infections, anaemia and depression) and reported that only depression was associated with increased healthcare costs and markedly increased the risk of catastrophic health expenditure (Patel et al. 2007). In the case of severe and enduring disorders like schizophrenia or dementia, around a third of caregivers need to spend significant time at home- caring for the person, which results in cutting back or giving up their work (Fineberg et al. 2013). Alcohol Use Disorders have significant costs related to healthcare and lost productivity as well as social costs related to law-enforcement, property damage and loss, and other direct administrative costs and economic loss due to the fact that caregivers miss on their work. It is estimated that the costs associated with alcohol, amounts to more than 1 per cent of the gross domestic product (GDP) of the high and middle income countries (Rehm et al. 2009). There is little data on the long-term economic costs of childhood mental health problems and psychoses, but

these are likely to be significant given their impact on lost educational and employment opportunities and caregiver burden.

Most People Affected do not have Access to Affordable, Evidence-based, Quality Care

There are a wide range of drug, psychological and social interventions which have been shown to be cost-effective and which can transform the lives of people affected by mental health problems (Patel et al. 2007). Despite this evidence, there is a huge disparity between the burden of mental health problems and availability of mental health services. It is estimated that only 10 per cent of those with mental health problems are receiving evidence-based interventions (Murthy 2011). Both demand and supply factors contribute to this large treatment gap. Low demand for services is due to the historic lack of availability of services and the poor awareness about these conditions and their treatments. Supply barriers are mostly due to the great shortage of qualified mental health specialists in India; e.g., estimates in 2011 suggest only about 4,000 psychiatrists in the country, most of whom work in the urban areas and in the private sector (WHO 2011). Inadequate training and support to non-specialist health workers and the lack of a reliable drug supply limits the delivery of mental healthcare through the primary care system. Moreover, this unmet need for care is even larger in the rural areas as most specialist services are concentrated in the urban areas (Murthy et al. 2011).

Thus, mental health problems constitute a significant burden of disease in India; they affect people across all age groups, especially those with social vulnerabilities, reduce life expectancy and kills individuals in their youth, result in social isolation and in extreme cases human rights violations, ultimately leading to huge suffering and unmet needs in the population.

POLICY CONTEXT FOR IMPROVING ACCESS TO MENTAL HEALTHCARE

While the challenges for reducing the treatment gap for mental health problems in India are many, several recent developments at the global and national level offer a conducive policy environment for strengthening the mental health system in the country and improve the delivery of mental health services. The major policy initiatives are outlined in this chapter.

WHO Comprehensive Mental Health Action Plan

The Sixty-sixth World Health Assembly, held in May 2013, adopted the Comprehensive Mental Health Action Plan for the period 2013–20 and urged the member states to implement the proposed actions mentioned in this Plan. The vision of this Action Plan is a world in which mental health is valued and promoted, mental health problems are prevented and persons affected by these disorders are able to exercise the full range of human rights and to access high-quality, culturally-appropriate health and social care in a timely way to promote recovery, all in order to attain the highest possible level of health and participate fully in society and at work free from stigmatisation and discrimination (WHO 2013). The Action Plan relies on six cross-cutting principles of Universal Health Coverage (UHC), Human Rights, Evidence-based Practice, Life-Course and Multi-sectoral approach, and Empowerment of persons with mental health problems and psychosocial disabilities (*ibid.*).

Mental Health Care Bill

The draft Mental Healthcare Bill was tabled in Parliament in August 2013. It has been cleared by the Parliamentary Standing Committee and is currently in the Rajya Sabha (Upper House of Parliament). The Bill enshrines access to healthcare as a right and an entitlement, ensuring that the vast majority of people with mental health problems have the right to receive care close to their homes, through the established district-level healthcare system (MoHFW 2013). The Bill mandates the provision of a range of facilities (including supported homes and community-based rehabilitation) and support to people in their own homes to help them achieve full and effective participation in the community. Beyond the narrow domain of treatment, the Bill makes the state responsible for the implementation of the programme for promotion of mental health and prevention of mental health problems and suicide. The state also has to ensure that adequate numbers of mental health professionals are available and international norms are achieved in 10 years. These provisions in the new Bill could well serve as a key legal foundation for the proposed expansion of the District Mental Health Programme (DMHP) in the Twelfth Five Year Plan. The Bill proposes to de-criminalise suicide attempts and encourage those in need of

counselling and related support to access it without fear or shame. The person with a mental health problem will have the right to advance directives (AD), a legal document drawn up when the person is well, on the treatment protocols that s/he would like to be followed, and to a nominated representative (NR) to facilitate her/him in supported decision-making during periods of ill-health or crisis. All involuntary commitments in an extraordinary situation have to be requested by an NR. In the case of homeless persons, the state or a state-appointed party would serve as the NR. There is also a landmark proposal in this draft Mental Healthcare Bill to establish Mental Health Review Commission that will regulate admission and discharge, deal with violation of rights, and thus prohibit the pervasive culture of exploitation, neglect and abuse of human rights. The Bill also provides for stringent regulations for all mental healthcare facilities, irrespective of the sector (public or private). Unlike in the past, the process of drafting the Bill has involved extensive consultations, over two years, with a broad range of stakeholders, including civil society organisations representing people affected by mental health problems. The provisions on access to care for homeless persons were included based on this feedback.

National Mental Health Policy and Plan

During the consultations on the Mental Healthcare Bill, the need for a National Mental Health Policy was highlighted by several stakeholders, as a result of which the Ministry of Health and Family Welfare (MoHFW) created a Policy Group in April 2011 to prepare a National Mental Health Policy and Plan. The policy group was entrusted with the task of re-designing the DMHP as a matter of priority to be ready for the Twelfth Five Year Plan period (MoHFW 2012).

Based on the document reviews, consultations with key stakeholders and field visits, the Policy Group concluded that the DMHP required substantial changes and planned a complete overhaul of the DMHP in the Twelfth Five Year Plan. The revised DMHP is available on the website of mental health policy group (*ibid.*). The primary objective of the new DMHP is to reduce distress, disability and premature mortality related to mental health problems and enhance recovery from mental health problem by ensuring the availability of and accessibility to mental healthcare for all in the Twelfth Five Year Plan period,

particularly the most vulnerable and underprivileged sections of the population.

As per the recommendations of the Policy Group, the new DMHP will be based on following principles:

- i) A life course perspective with attention to the unique needs of children, adolescents and adults.
- ii) A recovery perspective, through provision of services across the continuum of care and empowerment of persons with mental health problems and their care-givers.
- iii) An equity perspective through specific attention to vulnerable groups and to ensure geographical access to mental health services.
- iv) An evidence-based perspective by following established guidelines and experiences on treatments and delivery models.
- v) A health systems perspective with clearly defined roles and responsibilities for each sector from community to district hospital and including a cascading model of capacity building and supervision.
- vi) A rights-based perspective to ensure rights of persons with mental health problems are protected and respected by mental health services.

Shortage of trained human resources across all the levels of care has been one of the major challenges for implementation of DMHP in the past. To address this challenge, one of the major recommendations in the new Plan is to recruit a new cadre of community mental health workers based at the primary health centres (PHCs) level to help in identification of persons with mental health problems, help people access necessary treatment, provide basic counselling and help in accessing social benefits. There is also a recommendation to increase the number of specialists (psychiatrists, psychologists, and psychiatric social workers), by relaxing the stringent educational requirements for their recruitment. The Plan lays down a clear designated structure with adequate funding and trained staff for programme management at central, state and district level to ensure efficient, timely and full implementation of DMHP. Adequate supply of psychotropic medications will be ensured by establishing a close linkage with state-level centralised drug procurement and distribution systems based on the Tamil Nadu model. Key indicators for programme implementation have been identified and the staff in the PHCs and sub-district hospitals will be trained to report on these indicators as part of the Health Management Information Systems (HMIS) to ensure continuous

monitoring of the programme and enable mid-course correction. There is also suggestion for independent programme audit and formal outcome evaluation.

Partnerships with academic institutions and voluntary organisations at district and state level and collaboration with other government departments such as education and social justice is encouraged. There is a strong emphasis on community participation to promote local ownership and accountability of the DMHP and to utilise the existing mechanisms such as the Village Health and Sanitation Committees (VHSCs); Gram Swasthya Samitis; Accredited Social Health Activists (ASHAs); Rogi Kalyan Samitis (RKSs) or Patient Welfare Committees (PWCs). There is also a provision for continuing care services in the community which includes home-based continuing care and institutional continuing care services to address the needs of persons with severe and chronic mental health problems, including the homeless population (*ibid.*). This process led by MoHFW was participatory and the Policy Group consisted of members from diverse backgrounds such as mental health professionals, user and care-giver representatives, public health experts and senior officials of the MoHFW.

National Mental Health Survey

In June 2013, the MoHFW commissioned a national survey for mental health problems to inform policy and to provide a reference for future surveys to evaluate the impact of national initiatives outlined above. The National Institute of Mental Health and Neurosciences (NIMHANS) will lead this survey and it aims to cover all states and union territories (UTs). This survey will take at least a year to be completed and rather than just 'head-counting' it will try to capture all the information required to plan mental health services and ensure their optimal utilisation and impact.

Mental Health Capacity Building Initiatives

Recognising the need for qualified mental health professionals, the MoHFW launched a Manpower Development Scheme in the Eleventh Five Year Plan which proposed to develop 11 Centres of Excellence in Mental Health as well as establish/strengthen 30 Departments of Psychiatry, Clinical Psychology, Psychiatric Social Work and Psychiatric Nursing each in the country. The grant consists of financial support

for developing infrastructure and employment of the faculty. Another major development has been in the field of building the capacity of Primary Care Physicians in providing basic mental health services. A new collaboration in 2013, between the MoHFW, Indian Psychiatric Society and Public Health Foundation of India is being established to develop and implement a competency-based nation-wide training programme for primary care and family physicians.

INNOVATIONS IN IMPROVING ACCESS TO MENTAL HEALTHCARE

Innovative approaches to service delivery are gradually picking up, which include task-sharing approach, providing continuing care in the community, technological innovations and new developments in implementation science.

Task-sharing with Lay and Community Workers

'Task-sharing' is a human resource innovation in which the skills to deliver specific mental healthcare tasks are transferred to appropriately trained and supervised community and lay health workers as has been done in other national health programmes. This helps in improving access to evidence-based interventions in the context of great shortages of specialised staff and leads to more efficient use of these limited resources. In last few years, this approach has been evaluated for mental health service delivery in India and its efficacy established using rigorous evaluation methodology. Task-sharing is implemented through a collaborative care framework with four key human resources: the front-line lay or community health worker; the person with a mental health problem and her/him family; the primary or general healthcare physician; and the mental health professional. Three examples of such task-sharing interventions have now been evaluated through randomised controlled trials, two of which were led by the NGO Sangath (MANAS and COPSI), and one by the Dementia Society of Goa (Dementia Home Care Programme).

MANAS is the largest mental healthcare trial in India and showed that a lay counsellor-led collaborative stepped care intervention for depression and anxiety disorders in primary healthcare led to substantial reductions in the prevalence of these disorders, suicidal behaviours and days out of work compared with usual care (Patel et al.

2010). MANAS study was led by Sangath and was carried out in the state of Goa. The trial also evaluated the economic impact of the intervention and found that the overall health system costs were lower in the intervention arm, despite the intervention costs, because patients recovered sooner and had lower overall healthcare costs. Home Care Programme led by Dementia Society of Goa, for the elderly affected by dementia, evaluated a lay health counsellor-led community-based collaborative care model and showed the benefits in reducing care-giver burden and improving care-giver mental health (Dias et al. 2008). The recently completed Community Care for People with Schizophrenia in India (COPSI) evaluated a community-based worker delivery home-based psychosocial rehabilitation interventions for people with chronic schizophrenia (Chatterjee et al. 2011), which observed significant reductions in levels of disability. There are several other trials, all led by Sangath, which are further evaluating the effectiveness of task-sharing in progress in India, examples include: using community-based workers to support parents to deliver interventions for children with autism (PASS); using peers to deliver psychological treatments for depressed mothers (SHARE-THPP); lay counsellors based in primary health care to deliver psychological treatments for drinking problems and severe depression (PREMIUM); and school health promotion interventions which include a mental health component (SEHER).

Providing Continuing Care in the Community

A major gap in the current services for mental health problems is the lack of continuing care in the community which is often needed to provide psychosocial interventions over the long-term, and to address the needs of vulnerable and homeless persons. A series of studies in rural Madhya Pradesh, led by the NGO Ashagram, evaluated a lay mental health worker delivered community-based rehabilitation intervention for people with chronic schizophrenia and demonstrated impressive benefits in terms of disability reduction and symptom management (Chatterjee et al. 2003, Chatterjee et al. 2009). This intervention was the basis of the COPSI trial mentioned earlier and provides a model for home-based care for people with chronic psychoses (Chatterjee et al. 2011). Banyan, an NGO in Chennai has been in the forefront for providing care for homeless mentally ill women for the last 20 years. They

have established a transit-care centre, 'Adaikalam' for homeless women with mental health problems, living on the streets and nowhere to go. The primary needs of rescued individuals are met in this centre, and then they are enrolled into the programme for rehabilitation and recovery with the help of medicines, psychological therapy, occupational therapy and vocational training. The latest figures available show that Adaikalam has successfully rehabilitated 1,066 women in their families and communities (Adaikalam undated). Similar programmes with focus on rehabilitation of individuals with mental health problems are run by Ashadeep in Assam (Ashadeep undated), Richmond Fellowship which provides a range of day and residential care facilities (Richmond Fellowship Society undated) and ACMI which is a family care-giver support organisation (Action for Mental Illness undated). Other NGOs, such as Iswar Sankalpa, provide community-based care for the homeless persons with mental health problems.

Using Appropriate Technologies

In the aftermath of tsunami which struck the eastern coast of India in December 2004, a community psychiatry programme was launched by the NGO SCARF in two coastal districts of Cuddalore and Nagapattinam in Tamil Nadu. The end of the funding endangered the continuity of care for many individuals with chronic mental health problem receiving treatment in this programme. SCARF decided to apply tele-medicine for psychiatric consultations (Thara et al. 2008). Based on a thorough review of technology options, they decided to use Integrated Services Digital Network (ISDN) as it was a cheaper, reliable and compliant with the guidelines issued by the Government of India. A tele-psychiatry network was established with seven peripheral units in four districts of Tamil Nadu, setup either by SCARF or in collaboration with local NGOs, and these were linked to the central unit at Chennai. In each of the peripheral units, tele-consultations were held on specific days with the frequency ranging from once a week to once a month depending upon the case load. In these tele-consultations, a psychiatrist in Chennai reviewed the patients along with their family members. SCARF's experience suggests that with a clearly outlined process and realistic goal setting, it is now possible to deliver quality mental healthcare through tele-psychiatry (*ibid.*).

Sangath, is combining the task-sharing approach with mHealth platform to address the care gap for Neuro-Developmental Disorders (NDDs) through its recently

launched programme INFORM (a mHealth platform for ImproviNg Functional Outcomes foR children with iMPairments through community health workers). Through improving access to affordable, quality assured, parent-delivered strategies, INFORM's goals are to enable children with diverse NDDs to function to their maximum ability, improving their overall health, development and Independence, as well as social well-being and social participation thereby reducing the care and financial burden for their families and improving the quality of life for all (WHO 2001).

IMPLEMENTATION RESEARCH TO DEVELOP AND EVALUATE MENTAL HEALTHCARE PLANS

There is a huge knowledge gap at the national as well as global level in terms of how the evidence-based packages of care are delivered on various platforms or delivery channels for service provision. There is a strong need to invest in the health policy and systems research to provide guidance on how to increase access to cost-effective treatments to reduce the burden of mental health problems. The mental health systems research could be strengthened by focusing on some of the key research questions related to quantifying the treatment gap for realistic goal setting, capacity building approaches for achieving and maintaining key skills and competencies by health workers to provide mental health care, development and evaluation of mental health interventions delivered using 'task-sharing' approach, and effectiveness of different approaches to improve awareness about mental health problems and reduce stigma against people suffering with mental health problems, ultimately leading to improved help-seeking behaviour.

Two programmes launched in the last two years involving partnerships between Ministries of Health, NGOs (led by Sangath) and the Public Health Foundation of India are aiming to implement evidence-based interventions in the 'real-world setting' with an ultimate goal of scaling-up mental health programmes. PRIME (Program for Improving Mental Health Care) is a multi-country consortium of research institutions and ministries of health in five countries in South Asia and Africa, with partners in the United Kingdom (UK) and the WHO. In India, PRIME has been implemented in Sehore district of Madhya Pradesh (Lund et al. 2012).

VISHRAM (VIDarbha Stress and Health ProGRAM) is a four-year community-based mental

health programme being implemented in the Amravati district in collaboration with Prakriti and in Wardha district in collaboration with WOTR (Watershed Organisation Trust). The primary objective of VISHRAM is to implement and evaluate a comprehensive, population-based, psychosocial intervention to reduce the psycho-social distress and suicide risk, through targeted interventions for the prevention and management of depression and anxiety disorders and alcohol abuse in agricultural communities in Vidarbha region of Maharashtra. Based on a systematic series of participatory research methods, these two programmes have developed mental healthcare plan (MHCP) for implementation and evaluation of mental health services.

The MHCP is broadly divided into core packages and enabling packages. The core packages are related to the delivery of mental health services for three priority disorders—depression, psychosis and Alcohol-Use Disorders (AUDs). The mental healthcare plan for these disorders could be seen as an intervention matrix (see Table 18.2). The columns in this matrix represent the key process or ‘WHAT’ will be delivered while the rows represent the platform of care or ‘WHERE’ and ‘WHO’ will deliver the services. Thus, each cell is an ‘intervention’ which is defined by ‘WHAT’ type of health activity will be conducted, by ‘WHO’, i.e. the service provider and in which setting or ‘WHERE’. The services will be delivered at three different levels of health system or platforms; community level, facility

TABLE 18.2 Intervention Matrix for Priority Mental Health Problems (Depression, Psychosis and AUDs)

	<i>Awareness</i>	<i>Detection</i>	<i>Treatment</i>	<i>Recovery</i>
District Hospital/ Specialist	Awareness and anti-stigma interventions for other specialists Awareness and anti-stigma interventions for patients and their relatives attending district hospital	Specialist diagnosis by psychiatrist	mhGAP-based Pharmacological interventions by psychiatrist PREMIUM adapted counselling Techniques for depression, AUD and Psycho-education to family members of individuals with psychosis, delivered by psychologist Referral care	Relapse prevention for AUD
CHC/PHC	Awareness and anti-stigma interventions for medical officers Awareness and anti-stigma interventions for patients and their relatives attending CHCs/PHCs	Diagnosis by medical officer Identification by para-medical staff	mhGAP-based pharmacological interventions by medical officers PREMIUM Adapted Counselling Techniques for Depression and AUD and psycho-education to family members of individuals with psychosis delivered by Para-Medical Staff in CHC/PHC	Follow-up and adherence management
Community	Awareness and anti-stigma interventions for community members through mass media channels Awareness and anti-stigma interventions for community members in small-group meetings Key-informant networks One-to-one meetings	Identification by front-line workers Self-identification Family identification	Mental Health First Aid by front-line workers Family education for psychosis Brief interventions for AUD	Follow-up and adherence management Livelihood programmes Self-help groups

Source: Authors' compilation based on their research on PRIME and VISHRAM projects.

level (PHCs and community health centres [CHCs]) and district level (specialist setting).

Enabling packages consist of cross-cutting interventions which will ensure smooth implementation of core mental health service delivery packages. There are three enabling packages:

- The programme management package comprises of human and financial resource management, procurement and supply-chain management of essential psychotropic drugs, well-functioning Mental Health Information System, routine monitoring of the programme and evaluation.
- The capacity building package is aimed to ensure that the medical officers and front-line workers are trained in evidence-based interventions and a continuous supportive supervision is provided to maintain and enhance the skills and competencies acquired during initial training.
- The third enabling package aims to promote engagement with the community and mobilising people affected by mental health problems, caregivers and other community members to demand for services and advocate for a rights-based delivery of mental health services.

The implementation of PRIME and VISHRAM will be rigorously evaluated using a suite of methods comprising repeated community cross-sectional surveys to assess the change in coverage of mental health

services, prospective cohort studies of patients treated under these programmes to assess the improvement in individual level health, economic and social outcomes and routine monitoring of indicators for assessment of health system level outcomes.

CONCLUSION

The burden of mental health problems in India, the huge treatment gap for these problems, and violation of human rights of individuals living with these disorders make a compelling case for investing more resources and strengthening mental health services. WHO's Comprehensive Mental Healthcare Action Plan, and the renewed policy attention to mental health in India through the draft Mental Healthcare Bill and a radically redesigned District Mental Healthcare Plan offer a robust policy framework to invest in, expand the coverage and improve the quality of mental health services in this country. We have summarised some of the recent innovative initiatives in task-sharing, continuing care in the community, use of appropriate technology and implementation science which have the potential to achieve the goals of improving access of evidence-based care for people with mental health problems in India. It is now essential to scale-up these innovations by progressively strengthening existing mental health systems.

REFERENCES

- Action for Mental Illness. Undated, <http://acmiindia.wordpress.com/home/>, accessed on 13 October 2013.
- Adaikalam. Undated, <http://www.thebanyan.org/html/rehabilitation.html>, accessed on 13 October 2013.
- Ashadeep. Undated, <http://www.ashadeepindia.org/outreachprogrammes.htm>, accessed on 13 October 2013.
- Chatterjee, S., A. Pillai, S. Jain, A. Cohen, and V. Patel. 2009. 'Outcomes of People with Psychotic Disorders in a Community-based Rehabilitation Programme in Rural India.' *Br J Psychiatry* 195 (5): 433–39.
- Chatterjee, S., V. Patel, A. Chatterjee, and H. A. Weiss. 2003. 'Evaluation of a Community-based Rehabilitation Model for Chronic Schizophrenia in Rural India.' *Br J Psychiatry* 182: 57–62.
- Chatterjee, S., M. Leese, M. Koschorke, P. Mccrone, S. Naik, et al. 2011. 'Collaborative Community-based Care for People and Their Families Living with Schizophrenia in India: Protocol for a Randomised Controlled Trial. *Trials* 12: 12.
- Chisholm, D., K. Sekar, K. K. Kumar, K. Saeed, S. James, et al. 2000. 'Integration of Mental Health Care into Primary Care: Demonstration Cost-outcome Study in India and Pakistan.' *Br J Psychiatry* 176: 581–88.
- Cradock-O'Leary, J., A. S. Young, E. M. Yano, M. Wang, and M. L. Lee. 2002. 'Use of General Medical Services by VA Patients with Psychiatric Disorders.' *Psychiatric Services* 53 (7): 874–78.
- Desai, M. M., R. A. Rosenheck, B. G. Druss, and J. B. Perlin. 2002. 'Mental Disorders and Quality of Diabetes Care in the Veterans Health Administration.' *The American Journal of Psychiatry* 159 (9): 1584–90.
- Dias, A., M. E. Dewey, J. D'Souza, R. Dhume, D. D. Motghare, et al. 2008. 'The Effectiveness of a Home Care Program for Supporting Caregivers of Persons with Dementia in Developing Countries: A Randomised Controlled Trial from Goa, India.' *PloS one* 3 (6): e2333.
- Fineberg, N. A., P. M. Haddad, L. Carpenter, B. Gannon, R. Sharpe, et al. 2013. 'The Size, Burden and Cost

- of Disorders of the Brain in the UK.' *Journal of Psychopharmacology* 27 (9): 761–70.
- Gururaj, G., and M. K. Isaac. 2004. 'Psychiatric Epidemiology in India: Moving Beyond Numbers', in *Mental Health: An Indian Perspective*, eds S. P. Agarwal, pp. 37–61. New Delhi: Directorate General of Health Services.
- Heila, H., J. Haukka, J. Suvisaari, and J. Lonnqvist. 2005. 'Mortality among Patients with Schizophrenia and Reduced Psychiatric Hospital Care'. *Psychological Medicine* 35 (5): 725–32.
- IHME (Institute for Health Metrics and Evaluation). 2013. *India Global Burden of Disease Study 2010 (GBD 2010) Results 1990–2010*. Seattle: IHME, <http://ghdx.healthmetricsandevaluation.org/record/india-global-burden-disease-study-2010-gbd-2010-results-1990-2010>, accessed on 9 June 2014.
- IHME. *GBD Profile: India*, <http://www.healthmetricsandevaluation.org/sites/default/files/country-profiles/GBD%20Country%20Report%20-%20India.pdf> 2012, accessed on 9 June 2014.
- Kessler, R. C., P. Berglund, O. Demler, R. Jin, D. Koretz, et al. 2003. 'The Epidemiology of Major Depressive Disorder: Results from the National Comorbidity Survey Replication (NCS-R)'. *Jama* 289 (23): 3095–105.
- Lawrence, D. M., C. D. Holman, A. V. Jablensky, and M. S. Hobbs. 2003. 'Death Rate from Ischaemic Heart Disease in Western Australian Psychiatric Patients 1980–1998'. *Br J Psychiatry* 182: 31–36.
- Lund, C., A. Breen, A. Flisher, R. Kakuma, L. Swartz, et al. 2010. 'Poverty and Mental Illness in Low and Middle Income Countries: A Systematic Review'. *Social Science & Medicine*.
- Lund, C., M. De Silva, S. Plagerson, S. Cooper, D. Chisholm, et al. 2011. 'Poverty and Mental Disorders: Breaking the Cycle in Low-income and Middle-income Countries'. *Lancet* 378 (9801): 1502–14.
- Lund, C., M. Tomlinson, M. De Silva, A. Fekadu, R. Shidhaye, et al. 'PRIME: A Programme to Reduce the Treatment Gap for Mental Disorders in Five Low- and Middle-Income Countries'. *PLoS Medicine* 9 (12): e1001359.
- MoHFW (Ministry of Health and Family Welfare). 2013. *The Mental Health Care Bill*, <http://www.prsindia.org/administrator/uploads/general/1376983253~~mental%20health%20care%20bill%202013.pdf>, accessed on 9 June 2014.
- . 2012. 'XIIth Plan District Mental Health Programme'. <http://mhpolicy.files.wordpress.com/2012/07/final-dmhp-design-xii-plan2.pdf>, accessed on 9 June 2014.
- Murthy, R. S. 2011. 'Mental Health Initiatives in India (1947–2010)'. *The National Medical Journal of India* 24 (2): 98–107.
- Murray, C. J., T. Vos, R. Lozano, M. Naghavi, A. D. Flaxman, et al. 2012. 'Disability-adjusted Life Years (DALYs) for 291 Diseases and Injuries in 21 Regions, 1990–2010: A Systematic Analysis for the Global Burden of Disease Study 2010'. *Lancet* 380 (9859): 2197–223.
- Patel, V. 2003. 'Where There is No Psychiatrist'. London: Gaskell.
- Patel, V., S. Chatterji, D. Chisholm, S. Ebrahim, G. Gopalakrishna, et al. 2011. 'Chronic Diseases and Injuries in India'. *Lancet* 377 (9763): 413–28.
- Patel, V., R. Araya, S. Chatterjee, D. Chisholm, A. Cohen, et al. 2007. 'Treatment and Prevention of Mental Disorders in Low-income and Middle-income Countries'. *Lancet* 370 (9591): 991–1005.
- Patel, V., C. Ramasundarahettige, L. Vijayakumar, J. S. Thakur, V. Gajalakshmi, et al. 2012. 'Suicide Mortality in India: A Nationally Representative Survey'. *Lancet* 379 (9834): 2343–51.
- Patel, V., A. Rahman, K. S. Jacob, and M. Hughes. 2004. 'Effect of Maternal Mental Health on Infant Growth in Low Income Countries: New Evidence from South Asia'. *BMJ (Clinical Research)* 328 (7443): 820–23.
- Patel, V., J. Pereira, L. Coutinho, R. Fernandes, J. Fernandes, and A. Mann. 1998. 'Poverty, Psychological Disorder and Disability in Primary Care Attenders in Goa, India'. *Br J Psychiatry* 172: 533–36.
- Patel, V., D. Chisholm, B. R. Kirkwood, and D. Mabey. 2007. 'Prioritizing Health Problems in Women in Developing Countries: Comparing the Financial Burden of Reproductive Tract Infections, Anaemia and Depressive Disorders in a Community Survey in India'. *Trop Med Int Health* 12 (1): 130–39.
- Patel, V., H. A. Weiss, N. Chowdhary, S. Naik, S. Pednekar, et al. 2010. 'Effectiveness of an Intervention Led by Lay Health Counsellors for Depressive and Anxiety Disorders in Primary Care in Goa, India (MANAS): A Cluster Randomised Controlled Trial'. *Lancet* 376 (9758): 2086–95.
- Prince, M., V. Patel, S. Saxena, M. Maj, J. Maselko, M. R. Phillips, and A. Rahman. 2007. 'No Health without Mental Health'. *Lancet* 370 (9590): 859–77.
- Rahman, A., Z. Iqbal, J. Bunn, H. Lovel, and R. Harrington. 2004. 'Impact of Maternal Depression on Infant Nutritional Status and Illness: A Cohort Study'. *Archives of General Psychiatry* 61 (9): 946–52.
- Rehm, J., C. Mathers, S. Popova, M. Thavorncharoenap, Y. Teerawattananon, and J. Patra. 2009. 'Global Burden of Disease and Injury and Economic Cost Attributable to Alcohol Use and Alcohol-use Disorders'. *Lancet* 373 (9682): 2223–33.
- Richmond Fellowship Society. Undated, <http://182.71.255.165:8000/rfsindia/>, accessed on 9 June 2014.
- Shidhaye, R., and M. Kermode. 2013. 'Stigma and Discrimination as a Barrier to Mental Health Service Utilization in India'. *International Health* 5 (1): 6–8.

- Shidhaye, R., and V. Patel. 2010. 'Association of Socio-economic, Gender and Health Factors with Common Mental Disorders in Women: A Population-based Study of 5703 Married Rural Women in India. *Int J Epidemiol* 39 (6): 1510–21.
- Thara, R., S. John, and K. Rao K. 2008. 'Telepsychiatry in Chennai, India: The SCARF Experience'. *Behavioral Sciences & the Law* 26 (3): 315–22.
- WHO (World Health Organisation). 2013. *Mental Health Action Plan 2013–2020*. Geneva: WHO.
- _____. 2011. *Mental Health Atlas 2011*. Italy: WHO.
- _____. 2005. *Promoting Mental Health: Concepts, Emerging Evidence, Practice*. Geneva: WHO.
- _____. 2001. *Basic Documents*, 43rd Edition. Geneva: WHO.

19

BARRIERS TO AND INEQUITIES IN COVERAGE AND FINANCING OF HEALTH OF THE INFORMAL WORKERS IN INDIA

*Charu C. Garg**

A healthy workforce is important for the productivity and economic development of a country. An improvement in the health of workers reduces worker absenteeism, loss of income and poverty. Not only does it help the workers themselves, but also their families. In several cases, it prevents the family from incurring catastrophic expenditures thereby averting their getting trapped in a downward spiral of poverty. The lack of prevention of occupational and work-related diseases and injuries causes an annual loss of about 4 per cent of the gross domestic product (GDP) from compensation due to sickness absence and reduced productivity. An estimated 2.02 million die from a wide range of work-related diseases and 160 million cases of non-fatal work-related diseases occur annually (ILO 2013).

Occupational safety and health (OSH) cover for the unorganised informal sector can be said to be non-existent in India. OSH currently focuses on formal workplaces, and not on where the majority of workers really work—on the streets, in shops, in their own homes or homes of employers, at garbage dumps, etc. OSH does not address the question of health of the workers in the context of their living and working in very poor conditions. With the informal

sector providing employment to over 80 per cent of the workers and about 50 per cent contribution to GDP (NCEUS 2008, Kolli 2011), the focus on health and safety of the workers in the informal sectors should be one of the prime responsibilities of the Government of India, especially under the discussion for universal health coverage (UHC). Traditionally, the focus of the OSH programme has been only on the health of the workers in the organised factories and mining, and more recently on safety at port and construction industry. The Twelfth Plan of the Planning Commission has recognised that the legislations for covering the workers in seven sectors—agriculture, construction, shops and establishments, beedi manufacturing, waste management, eating places, and home workers—that cover most of the unorganised labour force—are insufficient to cover the health of these workers. Further, for such a large workforce in the country not much statistics or studies are available for formulating coherent policies for providing effective healthcare (MoLE 2011).

Based on available literature, the first part of this chapter provides some evidence on healthcare coverage and financing available for these sections of the society.

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The second part of the chapter identifies problems in terms of demand and supply of health services to the informal sector workers. Based on recent systematic literature review (Garg et al. 2013), this chapter highlights the barriers to and inequities in access, availability, acceptability, affordability and effective coverage of workers for the entire continuum of care, including promotion, prevention, treatment and management of chronic respiratory diseases (CRDs), one of the most common occupational health hazards (WHO 2013).

In the third section, we highlight the national and international policies for covering the health of the workers belonging to the informal sector. Based on the evidence from coverage, delivery of services and policies to cover the informal workers outlined in the three sections, the final section highlights the areas where the government needs to focus on strengthening the health of the informal sector workers.

COVERAGE AND FINANCING OF HEALTH SERVICES FOR WORKERS

Health Coverage for Workers

In India, as per 2012 estimates, there are roughly 487 million workers,¹ of which over 80 per cent are in the unorganised sector or households and are classified as informal workers (this excludes those in the unorganised sector with social security benefits provided by the employers).² Based on analysis of data in the employment and unemployment survey, 2011–12, of the 450 million usual status workers (based on usual activity in reference period of one year) in the age

group 15–64, only 19 per cent are in the formal non-agricultural employment and earn wages and salaries.³

The health of these regular wage earners in the formal sector is covered under the following programmes/schemes:

1. The Employee State Insurance Scheme (ESIS) scheme is applicable to all employees in the 'notified areas' and their dependents (children less than 25 years of age) from establishments with more than 10 employees who earn up to Rs 25,000.⁴ While the ESI Corporation covered 72 million beneficiaries and 16.5 million employees in 2013,⁵ there is a large number of eligible workers who are not covered under the ESIS due to its presence only in the notified areas with large concentration of employees. The scheme is financed through premiums collected from the employers and employees, and about one-eighth of the contribution comes from the state governments.
2. The Central Government Health Scheme (CGHS) is available to all central government employees (both working and retired), and their families. About 2 per cent of cardholders are from certain autonomous and semi-autonomous government organisations, Members of Parliament (MPs), and accredited journalists. Some of the state governments and public-sector undertakings also follow similar programmes. In 2012, the CGHS had health facilities in 25 cities with 250 allopathic dispensaries and 86 AYUSH (Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homeopathy) dispensaries with 1,025,900 registered cards/families up from 866,687 (or 3 million beneficiaries) in 2009⁶. Employees contribute between Rs 50–500 per month, while the central government provides a major part of the funding for running the scheme.

¹ CIA Factsheet, <https://www.cia.gov/library/publications/the-world-factbook/geos/in.html>, accessed on 27 November 2013.

² The unorganised sector consists of all unincorporated private enterprises owned by individuals or households engaged in the sale and production of goods and services operated on a proprietary or partnership basis and with less than ten total workers. It includes *own account enterprises*, all unlicensed, self-employed or unregistered economic activity such as owner manned general stores, handicrafts and handloom workers, rural traders, farmers, forestry etc. (Jeemol Unni. and R. Naik, http://wiego.org/sites/wiego.org/files/resources/files/Unni-labour-force_india.pdf, accessed on 27 November 2013). Informal workers consist of those working in the unorganised sector or households, and the workers in the formal sector without any employment and social security benefits provided by the employers. Based on this, about 10 per cent of GDP is produced by the unorganised sector, but not by informal workers (Kannan et al. 2008). ILO defines informal employment as those with informal jobs (without employment relationship with the enterprise), whether carried out in formal sector enterprises, informal sector enterprises, or households, during a given reference period. (ILO 2004, <http://ilo.org/public/english/bureau/stat/download/papers/def.pdf>, accessed on 27 November 2013).

³ Computed from Employment and Unemployment Survey, 68th Round, unit-level data, New Delhi: National Sample Survey Organization (NSSO).

⁴ The Hindu, 2013. <http://www.thehindu.com/todays-paper/tp-national/tp-kerala/esic-income-ceiling-limit-increased-to-rs25000/article5644370.ece>, accessed on 10 June 2014.

⁵ See <http://esic.nic.in/coverage.php>, accessed on 10 June 2014.

⁶ See <http://cbhidgbs.nic.in/writereaddata/mainlinkFile/Health%20Infrastructure-2012.pdf>, accessed on 24 February 2014.

3. Employees working in the private sector and earning more than the ESI wage limit or in certain semi-government organisations (e.g. universities), can be covered for their healthcare under: (a) accident and other health-related private insurance schemes, (b) medical reimbursement up to the stipulated upper limit for given conditions, (c) a medical grant or fixed sum payment to employees, or (d) firms/organisations having their own facilities. Often workers in organised plantations are covered by the 'employers own health facilities', and are legally covered by the Plantation Act.
4. Voluntary health insurance provided through four subsidiaries of General Insurance Corporation also covers several workers in the formal sector and some better-off workers (i.e. workers who are paid higher incomes and can afford voluntary health insurance and also have awareness about it) in the informal sector, who purchase these voluntarily. The voluntary health insurance programme typically serves only the better-off sections of the populations and mainly covers them for in-patient care. Although private health insurance has grown at the rate of 40 per cent per annum, but owing to high premiums, very low awareness, and poor backend infrastructure, it has not been able to cover a large part of the population (PHFI 2011).
- India's landscape of coverage through government-sponsored health insurance schemes has undergone tremendous change since 2003. The eligibility criterion under the schemes varies, but the focus is on the rural areas and poor population, and sometimes on informal workers. Some important initiatives are:
1. Rashtriya Swasthya Bima Yojana (RSBY), launched in 2008, covers all the families across India who are recognised as below poverty line (BPL) in the state and central government lists. More recently, new groups such as porters, domestic workers, hawkers, construction workers have been included in this list. While the target population is 300 million individuals, it covered over 70 million beneficiaries in 25 states in 2011. The central government (75 per cent) and state government (25 per cent) provide the main finance for the scheme. Beneficiaries pay Rs 30 as registration fee.
 2. Rajiv Aarogyasri Community (RAC) Health Insurance Scheme, launched in 2007 in Andhra Pradesh, covers all families with a BPL card and those with annual family income below Rs 75,000. In 2009–10, 85 per cent of the state's population or over 22 million families were covered. The state government provides 100 per cent funding for the scheme. These are likely to cover a large number of families with informal employment.
 3. Chief Minister Kalaigner (CMK) Health Insurance Scheme was launched in 2009 in Tamil Nadu and covers the BPL families, i.e. those with an annual family income of less than Rs 72,000 and are members of 26 welfare boards. The scheme is entirely financed by the state government. In March 2011, the scheme covered 36 million individuals for mainly life-saving treatments.
 4. Yeshasvini Co-operative Farmers Healthcare Scheme was launched in Karnataka in 2003, and covers all the members of the rural co-operative society in the state regardless of their poverty status. It covers over 3 million beneficiaries who contribute 58 per cent of the total sources of funds for the scheme. Rest of it is financed by the state government.
 5. Vajpayee Arogyasri Scheme (VAS) was launched in 2009 in Karnataka to primarily cover tertiary care for BPL families across seven districts. It is entirely financed by the state government. In 2009–10, it covered over 1 million beneficiaries. The plan is to roll it to the entire state.
 6. RSBY Plus Scheme was launched in 2010 to cover all RSBY beneficiaries of Himachal Pradesh. It is a top-up scheme to cover additional tertiary services, provide transport expenses and post-hospitalisation medical expenses. About a million individuals were covered in 2011. The scheme is fully financed by the state government completely finances the scheme completely.
 7. Apka Swasthya Bima Yojna is a proposed scheme for Delhi and is similar to RSBY Plus scheme of Himachal Pradesh to cover the RSBY beneficiaries for top-up tertiary care insurance coverage up to Rs 150,000 per family per year.
 8. Under the National Rural Health Mission (NRHM) launched in 2005, and more recently the National Health Mission (NHM) launched in May 2013 to cover urban areas and non-communicable diseases (NCDs), there are several initiatives to cover women and children: Janani Suraksha Yojana (JSY) to reduce maternal mortality among pregnant women by encouraging them to deliver at government health facilities; Janani Shishu Suraksha Karyakarm (JSSK) to provide free to and fro transport, free drugs, free diagnostic, free blood, free diet to pregnant women who come for

delivery in public health institutions and sick infants upto one year; Rashtriya Bal Swasthya Karyakram (RBSK) to screen diseases specific to childhood, developmental delays, disabilities, birth defects and deficiencies. The initiative will cover about 270 million children between 0–18 years of age and also provide free treatment including surgery for health problems diagnosed under this initiative; Mother and Child Health (MCH) Wings with additional beds; Free drugs and free diagnostic service to lower the out-of-pocket (OOP) expenditure on health; District Hospital and Knowledge Centre (DHKC) to provide multi-specialty healthcare including dialysis care, intensive cardiac care, cancer treatment, mental illness, emergency medical and trauma care; National Iron+ Initiative to look at iron deficiency anaemia in which beneficiaries will receive iron and folic acid supplementation. The focus of NHM is universal coverage, but most programmes currently are still for women and children and for general health. It is likely to lead to enhanced access and availability of essential healthcare services, but there are no specific programmes even for women to identify the problems caused due to occupational hazards especially in the informal sector. Women comprise 27 per cent of total work force and almost 30 per cent of total informal sector workforce.

Besides these, some community-based health insurance (CBHI) models to cover poor and informal communities through community-based organisations such as Self-Employed Women Association (SEWA), Karuna Trust, etc. also exist, although their reach, depth and scalability is limited at present, covering less than 1 per cent of the population, and these are mostly funded by the communities themselves.

Along with private health insurance, social insurance programmes and publicly-funded schemes, the number of people covered went up significantly from about 55 million in 2003–04, to 75 million people in 2007 to roughly about 302 million, almost a quarter of the population, in 2010. While the coverage of voluntary private health insurance increased from 24 million in 2007 to about 55 million in 2010, the coverage for ESIS and CGHS increased from about 50 million in 2007 to roughly around 58.3 million in 2010; the biggest increase came from three schemes—RSBY, Rajiv Aarogyasri and Kalaignar in a span of three years to cover roughly 185 million, or over one-fifth of India's population. The commitment to equity and access to poor people is clearly visible, especially in the case of Andhra Pradesh,

as health insurance covers over 87 per cent of the states' population and Tamil Nadu, where coverage is 62 per cent (Reddy et al. 2011). Further, of the 302 million people covered by 2010, more than 180 million of these were people below the poverty line. Given the trends, La Forgia and Nagpal (2012) report project that more than 630 million persons, or about half of the country's population, can be covered with health insurance by 2015 and spending through health insurance is also likely to reach 8.4 per cent of total health spending, up from 6.4 per cent in 2009–10.

Regarding the depth/extent of coverage, except the ESIS and CGHS that allows for comprehensive coverage including out-patient care, preventive/wellness care and hospitalisation, all the other schemes cover mostly chronic diseases and hospitalisation with limits on cash disbursed per unit (family or individual) covered per year and per procedure. The RSBY gives annual in-patient benefits of Rs 30,000 on a floater basis for a family of five, without any conditions on pre-existing diseases and also covers maternity care besides chronic diseases and in-patient care. RSBY Plus, CMK and RAC additionally cover tertiary care procedures, transport expenses, and post-hospitalisation medical expenses up to a maximum insurance coverage of Rs 100,000–175,000 per family. The commercial insurers normally do not provide out-patient coverage, chronic diseases, and excludes all pre-existing diseases even for in-patient care.

The health coverage for informal workers is a major cause of concern. There are no direct programmes for them. While some of the informal sector workers do get covered under RSBY or under the state-specific schemes, there are a large number of workers in the informal sector just above the poverty line who are vulnerable and likely to face impoverishment and catastrophic expenditures when they fall ill and are not covered under any scheme. We estimate this using Tables 19.1, 19.2 and 19.3 and Figure 19.1.

It is clear from Table 19.1 that 23 per cent of the total population is still below the poverty line and almost 49 per cent of the total population is in the marginal and vulnerable group. Those below the poverty line are likely to be covered by the RSBY or some state insurance programme. The marginal and vulnerable group also corresponds to workers in the informal sector. The distribution of informal sector workers by employment status shows that 80 per cent of the total workers are either self-employed or casual. Less than 2 per cent of the workers are regular employees in the informal sector,

TABLE 19.1 Percentage of India's Population and Per Capita Expenditures Per Day by Expenditure Class, 2004–05 and 2011–12⁷

<i>Expenditure Class</i>	<i>2004–05</i> (R+U)	<i>2011–12</i> <i>Rural (R)</i>		<i>2011–12</i> <i>Urban (U)</i>	<i>2011–12</i> (R+U)	
	(%)	%	<i>Per capita per day (Rs)*</i>	%	<i>Per capita* per day (Rs)</i>	(%)
a. Extremely Poor (up to 0.75 of Poverty line (PL))	6	10	<21	4	<25	8
b. Poor (0.75PL to PL)	15	16	21–27	14	25–33	15
c. Marginally Poor (PL to 1.25PL)	19	20	27–34	10	33–42	17
d. Vulnerable (1.25PL to 2PL)	36	34	34–54	30	42–67	33
e. Middle Income (2PL to 4PL)	19	16	54–109	32	67–133	21
f. High Income (>4PL)	4	4	>109	11	>133	6
g. Extremely Poor and Poor (a+b)	22	26	<27	18	<33	23
h. Marginal and Vulnerable (c+d)	55	54	27–54	39	33–67	49
i. Poor and Vulnerable (g+h)	77	80	< 54	57	< 67	73
j. Middle & High Income (e+f)	23	21	>54	43	> 67	27
k. Total/All Exp. classes	100	100	47.6	100	87.7	100

Notes: * For total/All Exp Classes, the average expenditure is given. PL: Poverty Line.

Sources: 2004–05 data is from Report on Conditions of Work and Promotion of Livelihoods in the unorganised sector, NCEUS, MoLE (2009) quoted in Reddy et. al. (2011); 2011–12 are author's calculations based on information in NSS 68th Round consumer expenditure survey, MoSPI (2013).

TABLE 19.2 Percentage of Total Formal and Informal Employment by Usual Status in (Rural + Urban) Areas (15–64 years), 2011–12, India

<i>Employment status</i>	<i>Self-employed</i>	<i>Regular</i>	<i>Casual</i>	<i>All</i>
Formal waged and salaried	0.0	19	0	19
Informal Non-Agriculture	20.2	0.8	13.5	34.5
Informal agriculture	29.6	0.6	16.2	46.5
Total	49.9	20.4	29.8	100.0

Source: Computed from Employment and Unemployment Survey, 68th Round, unit-level data, NSSO.

TABLE 19.3 Percentage of All Non-agricultural Workers (Usual Principle Status & Subsidiary Status) by Location of Work (Rural + Urban), 15–64 years, 2011–12

<i>Location of work</i>	<i>% in non-agriculture</i>
No fixed place	5.2
Own dwelling	10.6
Own enterprises/unit/shop	18.4
Employer's dwelling	3.8
Employer's enterprises/unit/shop	40.1
Street with fixed location	2.3
Construction site	14.8
Others	4.8
Total - (239.1 million)	100

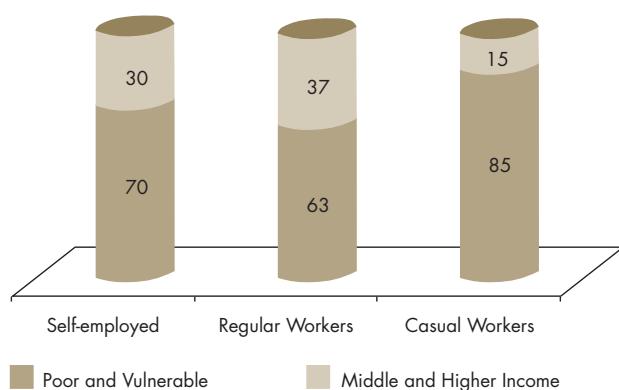
Source: Computed from Employment and Unemployment Survey, 68th Round, unit-level data, NSSO.

whereas all employees in the formal category are regular waged employees (Table 19.2).

The distribution of workforce by expenditure class is shown in Figure 19.1. Informal sector workers, mostly self-employed (50 per cent) and casual (30 per cent), fall in marginal and vulnerable group (60 per cent), and only 20 per cent of these will be in higher income groups. Two-thirds of regular employees are either in higher income category or even if vulnerable, they are likely to be covered either by some form of health insurance scheme such as the ESIS or CGHS. There is insufficient health insurance coverage for informal workers except RSBY and some state insurance schemes more recently, and as public sector is still characterised by well-known deficiencies such

⁷ The per capita expenditure per day is upper limits for specific expenditure class and average for all expenditure classes. Poverty line (PL) is monthly expenditures below Rs 816 in the rural areas and Rs 1,000 in the urban areas for 2011–12 (Government of India 2013).

FIGURE 19.1 Distribution of Workforce Categories by Expenditure Class, 2011–12



Source: Modified from NCEUS, Ministry of Labour and Employment, 2009. Quoted in Reddy et al. (2011). Adjusted for decline in the proportion of poor and vulnerable from 77 per cent in 2004–05 to 73 per cent in 2011–12 as shown in Table 19.1.

as access and quality, they rely on private sector and pay out of pocket.

In terms of the location of work for non-agriculture sector informal workers, we find that almost 55 per cent of them work in employers units or at construction sites (see Table 19.3). Many employers, in order to avoid paying for their employees keep the size of their enterprise below 10 workers (and many a times even use casual workers). For employers keeping 10 or fewer workers or at construction sites, schemes such as ESI could be expanded to cover them with specific interventions. For those with no fixed location or working on their own or in employers' dwellings, it is hoped that the RSBY will become more inclusive and will cater to their needs.

It is clear from the above, that while the health insurance coverage has increased significantly over the last 5 years to cover about a quarter of India's population, there is still a large proportion of the informal population that do not have any form of coverage and even those who are covered, the depth of coverage is still very low and a large proportion of people are still spending a large amount of money out of their pocket. Further, the effective coverage for informal workers is even worse as there is dearth of programmes for risk assessment at workplaces, and screening for any high risk conditions. They often do not seek timely treatment as they are either unaware of their diseases acquired from poor working conditions or find the opportunity costs of

seeking treatment as very high as many of these workers are daily wagers. In a study on sustainable livelihood for unorganised workers in Delhi-NCR, work conditions were often found to be poor with workers facing several health challenges. OSH awareness among the informal workers and employers and was found to be very low (Kumar et al. 2012).

Financing of Health Services for Workers

India spent 4 per cent of their GDP on healthcare, with 58 per cent of total health expenditures still financed through OOP in 2012.⁸ The increased public expenditures under state government health insurance programmes and NHM seems to have helped in reducing the OOP expenditures from 72 per cent in 2004 (MoHW 2009) to 58 per cent in 2012.⁹ In spite of the declining proportion of OOP expenditures in total health expenditures, there are a large number of families that still incur catastrophic health expenditures and fall below the poverty line due to direct healthcare payments. In fact, the percentage share of consumer expenditure towards medical care has increased from 5.7 per cent to 6.9 per cent in the rural areas and from 5 per cent to 5.5 per cent in the urban areas between 2009–10 and 2011–12 (MoSPI 2013). Even though the per capita expenditure on medical care is higher in urban areas at Rs 146 as compared to Rs 95 in the rural areas, the burden on rural households is higher (*ibid.*). At the two ends of income distribution—those in the poorest income quintile and those in 4th and 5th income quintiles, there is some form of health security, but for those above the poverty line in marginal and vulnerable groups and mostly informal workers, there is almost no financial risk protection. Most recent studies show that in the 2nd and 3rd income quintiles, the largest percentage of population falls below the poverty line due to OOP payments (Van Doorslaer et al. 2006, Garg and Karan 2009, Selvaraj and Karan 2009, Berman et al. 2010, Selvaraj and Karan 2009, 2012). Also, these studies show a large percentage of people (mostly hovering just above the poverty line) fall below poverty line due to health expenditures on outpatient care and expenditure on drugs. In rural areas, 10 per cent of households in the 3rd quintile fall below the poverty line due to OOP payments, out of which 8

⁸ WHO NHA database, www.who.int/nha/country/ind/en/, accessed on 31 March 2014.

⁹ *Ibid.*

per cent are due to expenditures on out-patient care and drugs. In urban areas, the peak is at 2nd quintile with almost 12 percent of urban households fall BPL due to healthcare expenditure and again over 8 per cent are due to expenditures on out-patient treatment and drugs (Berman et al. 2010). This implies that those who are in vulnerable and marginal income categories (2nd and 3rd income quintile) are more likely to fall below the poverty line due to large expenditures on drugs and out-patient care. Workers in the informal sector fall mainly in the 2nd, 3rd or 4th income quintiles. They do not have sufficient coverage from any health insurance or tax-based government programmes, and even though some may rely on government provided system for in-patient care, almost all rely on OOP payments for out-patient treatment and drugs.

Recent evidence on the impact of publicly-financed health insurance schemes—RSBY and other state government-based schemes failed to provide financial risk protection, demonstrating that the poorer sections of households in intervention districts of the RSBY, Rajiv Arogyasri of Andhra Pradesh, and Tamil Nadu Health Insurance schemes experienced a rise in real per capita healthcare expenditure, particularly on hospitalisation, and an increase in catastrophic headcount¹⁰ (Selvaraj and Karan 2012). While there is still some debate on the methodology and results of the study, it is clear, most of these public-funded insurance programmes are really the 'disease-specific programmes' and cover tertiary care and are not really 'healthcare programmes' that can prevent the workers to fall very ill, avoid injuries or provide cover to them for out-patient treatment and drugs.

Interventions under NRHM have gone a long way in terms of utilisation of public facilities. Under the Janani Suraksha Yojana, where women are provided cash incentives for seeking care in public facilities, evidence from Odisha shows over 2.5 lakh beneficiaries have availed JSY benefits and Institutional delivery have

increased by 25 per cent in the state in the last one year.¹¹ Recent evidence needs to be analysed to see the impact of NRHM/NHM and state insurance policies for reducing catastrophic expenditures that push workers in the informal sector below the poverty line.

DEMAND AND SUPPLY ISSUES FOR CARE SEEKING AND TREATMENT FOR OCCUPATIONAL DISEASES AMONG INFORMAL SECTOR WORKERS

This section identifies the problems in terms of the demand and supply of health services based on recent systematic literature review completed by the author and her team, on the barriers to and inequities in the treatment and management of NCDs (Garg et al. 2013). The most common occupational health problems are: injuries due to accidents, chronic respiratory/lung diseases (asthma, COPD [chronic obstructive pulmonary disease], pneumoconiosis, silicosis), musculo-skeletal disorders (such as low back pain), skin diseases (contact dermatitis), noise-induced hearing loss, poisonings especially due to pesticides, lung cancer, leukemia, certain infectious, parasitic and mental diseases. CRD is one of the most common occupational diseases¹² among workers (WHO 2013).

In India, 1.1 million persons die due to respiratory diseases every year of which almost a million are due to COPD (WHO 2011a). Age standardised death rates¹³ are 178 per 100,000 among males and 126 per 100,000 among females (WHO 2011b). COPD is often considered an epidemic in India due to its huge burden. In 2010, 24 million adults aged 40+ suffered from COPD, and this number is expected to increase to 32 million by 2020 (Government of India 2011). The National Commission for Macroeconomics and Health has estimated the economic loss due to COPD in India

¹⁰ Catastrophic headcount is the number of households incurring catastrophic health expenditures. Catastrophic health expenditures are incurred when direct payment for healthcare are greater than a certain percentage of the household incomes and forces them to cut on the necessities such as food, clothing, education, etc.

¹¹ Department of Health and Family Welfare, Government of Odisha, http://203.193.146.66/hfw/NRHM_Achievements.asp?GL=7, accessed on 28 November 2013.

¹² Occupational diseases are diseases contracted as a result of an exposure to risk factors arising from work. Recognition of the occupational origin of a disease, at the individual level, requires the establishment of a causal relationship between the disease and the exposure of the worker to certain hazardous agents at the workplace. This relationship is normally established on the basis of clinical and pathological data, occupational history (anamnesis) and job analysis, identification and evaluation of occupational hazards as well as exposure verification (ILO 2013).

¹³ A standardised death rate is a crude death rate that has been adjusted for differences in age composition between the region under study and a standard population.

to be around Rs 35,000 crores per annum. This is even higher than the total budget of the central Ministry of Health and Family Welfare (MoHFW) (Murthy and Sastry 2005, Salvi 2011, MoHFW 2005). The National Institute for Occupational Health (NIOH) study for 2004 shows the prevalence of occupational lung diseases varies from 15 per cent to 54 per cent in different industries (MoLE 2011).

The cause of CRD is often, smoking, unclean environment both at work and home, occupational hazards due to certain chemicals and gases and cooking fuels. Biomass fuels like kerosene, nitrogen dioxide from cooking gas in poorly ventilated kitchens, sulphur dioxide from industrial gases, and occupational exposure to cadmium, etc. all have serious implications in the causation of COPD (Rajan and Balakrishnan 2012). Occupational exposure to chemical toxins and silica dust is an important risk factor for COPD (WHO 2012). Occupational asthma and work exacerbated asthma results or is aggravated from agents that workers are exposed to at workplace. Almost 200 agents have been reported to cause these (Vijayan 2008).

Demand-side Factors

Based on the analysis in terms of the availability, accessibility (physical and financial), acceptability, utilisation and coverage, applied on the continuum of care, the review finds that on the demand side the problems faced is that a large section of the informal sector workers forgo treatment (at least during the early stages) due to a poor knowledge of the disease symptoms, insignificant service availability at primary care level and opportunity cost associated with seeking treatment. Lack of adequate understanding and awareness among patients often delay in seeking treatment. COPD symptoms are either considered inconsequential or insignificant, to the extent that breathlessness is often ignored (Jindal 2012). On the other hand, many patients might hide their condition and do not seek treatment due to the stigma attached to the disease (Aggarwal et al. 2006). They present themselves only at late stages in tertiary care facilities when the cost of treatment becomes astronomical and they often break the continuity of treatment due to high costs associated at the terminal stages. The estimates per patient have enormously risen now with an escalation of costs of medicine, other treatment modalities and of hospitalisation. A large-scale study for Hyderabad shows that on an average a person with COPD spent Rs 23,300 for treatment in 1999 (Government of India

2011), much higher than the annual per capita income (even in 2001, per capita income was only Rs 17,782 [Planning Commission 2014]). Hospitalisations actually amounts to almost 84 per cent of the direct costs associated with COPD in India (Salvi 2011). The high expenditures associated with treatment of NCDs often cause substantial impoverishment among patients (Garg and Evans 2011, Thakur et al. 2011). Further, high cost of rehabilitation and non-availability of treatment options for the poor and in the rural settings often leads to non-adherence (Gothi and Joshi 2011). However, issues related to impoverishing/catastrophic health expenditure of CRD, as well as inability to complete treatment (once initiated) due to costs are not well-researched, and require attention.

Supply-side Factors

While there are general problems related to supply of services especially in the rural and remote areas, there are specific problems of lack of diagnosis or misdiagnosis for occupational diseases. Practitioners in India are often found facing difficulties in differentiating asthma from the rest of the respiratory illnesses, consequently leaving out a large burden of the disease untreated (Van Sickle 2005, Van Sickle and Singh 2008). Similarly, lack of understanding of COPD and its systematic consequence often results into poor satisfaction and treatment outcomes (Rajan and Balakrishnan 2012). Also, clinicians fail to collect information through an accurate history-taking and looking for the harmful exposures (e.g. from tobacco, wood smoke-chullahs, biomass fuels like kerosene, nitrogen dioxide from cooking gas, sulphur dioxide from industrial gases, or occupational exposure to cadmium, silica, asbestos, etc.), which bear tremendous importance in pathogenesis of CRD. Lack of appropriate advice on primary prevention through quitting smoking, reducing risk-factors, or non-recognition of occupational hazards is often observed. Physicians often lack the knowledge to separate the occupational diseases, which are often masked by other diseases.

Tackling COPD critically needs creating education and awareness among clinicians, e.g. about spirometry for early detection of disease. Effective communication on lifestyle modifications can inhibit further worsening of conditions (Salvi and Agrawal 2012). There is often a long time lag for the occupational diseases to become prominent. Special investigations in early stages to find the cause for the disease can go a long way, but this in turn requires better-trained staff at the first point of

contact for the patients. India hugely lacks clinicians specialised in Family Medicine (especially in the public sector), who can devise alternative treatment options that are financially sustainable and affordable for a majority of the poor patients at community level (Abraham 2012). Private physicians, who are often the first point of contact in the community for any ailments, are found to be influenced by patients' perceptions of respiratory disease severely loaded with stigma and ambiguity. Further, in fear of losing their patients, many of the private physicians are found compelled to prescribe only the most popular and widely accepted low cost therapies rather than more cost effective regimens such as inhalation therapies (Das and Hammer 2007). Existing evidences also support the fact that many patients in India seek consultation from pharmacists for advice and medication for treating symptoms, which may often lead to immediate relief but severe complications in the long run. Rehabilitative and promotive health services are often inadequate and need improvement, and alternative approaches. Pulmonary rehabilitation through exercises, nutrition and lifestyle managements recognised as an integral component of care provided to patients with moderate to severe COPD (Gothi and Joshi 2011).

The chronic and progressive nature of CRD makes it expensive and a difficult disease to treat. More cost-effective protocols need to be developed and executed by healthcare providers (Sharma and Singh 2011). Primary as well as secondary prevention becomes the key to cost-effective treatment and can reduce the growing burden of CRD. Primary prevention through education of managers and workers on safe work practices, awareness about permissible exposure levels and use of respirators and other personal protective equipment in specific occupations is required. Secondary prevention through effective diagnosis and treatment options requires involving sound, standard guidelines to associate risk factors with COPD, proper history-taking, patient-centric treatment with better patient communication, and awareness about disease worsening risks and prevent further complications like respiratory failure and hospitalisation. Rehabilitative services and encouraging home-based care through low-cost options can be a viable, long-term strategy to reduce effective disease burden. These interventions for improving the health of the workers at the primary care level can go a long way to reduce the incidence of disease and costs associated with treating them. The effectiveness of these prevention strategies, however, needs to be researched and documented.

NATIONAL AND INTERNATIONAL POLICIES ON OCCUPATIONAL SAFETY AND HEALTH OF WORKERS

National Policy on Workers' Health

In India, safety and health statutes for regulating OSH at work places exist only in respect of the four sectors namely, mining, factories, ports and construction. There are 16 Legislative Acts, which provides for OSH. The Factories Act, 1948 and the Mines Act, 1952 are two major legal provisions for covering work environment, safety and health of the workers. Amended Factories Act, 1987, allows for pre-employment and periodic medical examination and regular inspections of hazardous industries. The ESIS outlined above falls under the Factories Act. Further there are legal provisions for insecticides, dangerous machines, waste management, storage and import of hazardous chemicals, plantation sector, tobacco and *beedi* industry and electricity. All these are legislated by Directorate General Factory Advice Service & Labour Institutes (DGFASLI), which is an attached office of the Ministry of Labour & Employment (MoLE), Government of India, and serves as a technical arm to assist the ministry in formulation of national policies on OSH in factories and ports (MoLE 2011).

The acts above do not cover a vast majority of workers who work in the informal sector. Agriculture, still one of the largest employers of informal workers in India, is considered to be one of the most hazardous industries by the International Labour Organisation (ILO), but workers in this sector have no legal protection. Manufacturing and services sector employing less than 10 workers are not covered. Unorganised mines such as small stone crushers and agate workers often exposed to silica dust—an estimate shows almost 63 per cent incidence of silicosis among them—are not covered under any Act and do not benefit from any compensations available to workers in large mines (Gupta and Patel 2012). Many of the self-employed workers like rag-pickers, street vendors; shop-keepers, those working in home industries often suffer from respiratory diseases, intestinal problems, skin diseases and musculoskeletal problems. They are not covered by any legal requirements. Women working in informal sector face various hardships. Some non-governmental organisations (NGOs) e.g., SEWA have been providing them support for their rights and is trying to get their

CBHI programmes integrated with government health insurance programmes like RSBY, etc.¹⁴

There are several lacunae in implementation of OSH policies under various Acts for workers even in the formal sector (*ibid.*). These vary from non-coordination between different stakeholders responsible for implementation of laws; weak human resource chain with large number of vacant positions; no standard guideline for safe workplace; no regular surveys to measure workplace safety and work environment; poor reporting and inconsistent data from different organisations (Labour Bureau, DGFASLI and ESI corporation) on injury and disease incidents. The ESI Corporation, which works under the Factory Act, makes huge surplus every year, but shows serious lapses in terms of important OSH functions such as education of employees on occupational hazards, occupational surveillance teams, publication of data for monitoring or policy-making, availability of doctors, check-ups and monitoring of employees with chronic problems and several others.

Further, the extent of the problem for the workers' health is not yet fully identified, with poor surveillance system. The number of occupational injuries and deaths are grossly understated even for formal sectors. The DGFASLI reported only 1,509 fatal and 33,093 non-fatal injuries in 2009, using records from registered factories, which employed about 5 per cent of total workforce (Pringle 2012). The data on occupational diseases is even worse. Only 111 cases have been reported for Coal Worker's Pneumoconiosis since 1994 and 123 cases of silicosis since 1994. A large number of cases of silicosis remain undetected, undiagnosed, misdiagnosed and misreported (MoLE 2011). The ESI Corporation, which should have annual estimates of different diseases for workers covered by them, reported 1,576 cases of occupational diseases in 2010—a gross underestimate by any standards. For the informal sector besides a few random surveys, not much of statistics or studies are available for formulating coherent policies or action plan to cover the large informal workforce (Gupta and Patel 2012).

The Twelfth Five Year Plan has recognised that the Legislative Acts that cover most of the unorganised

labour force are insufficient to cover their health. Further, they recognise that not much statistics or studies are available for formulating coherent policies for effective healthcare for informal workers. Hence, the Working Group for the Planning Commission recommended measures for certain segments of the unorganised workforce (MoLE 2011):

1. OSH guidelines needs to be prepared based on the preventive self-management principle taking into account the uniqueness of their cultural contexts and the gender characteristics.
2. Training of agricultural workers in identifying and mitigating workplace hazards along with trainers' training programme.
3. Development of guidelines and trainers training programmes for non-agricultural workers.
4. Strengthening the role of NGOs, institutes, departments working in the field of unorganised sector for creating OSH awareness among the workers.
5. Conduct regular medical check-up for developing national level OSH database.
6. Formation of a board to deal with the national policy on occupational health and safety.

International Policies to Strengthen the Health of Workers

The 60th World Health Assembly in 2007 and the WHO Global Plan of Action 2013–20 urge Member States:^{15,16}

...to work towards full coverage of all workers, including those in the informal economy, small- and medium-sized enterprises, agriculture, and migrant and contractual workers, with essential interventions and basic occupational health services for primary prevention of occupational and work-related diseases and injuries... (Resolution WHA 60.26, 66.10). The focus is on primary prevention and work related diseases.

With the focus on UHC as one of the priorities for the period 2014–19 by WHO, access to services with

¹⁴'Report of the National Workshop on Occupational Health of Women Workers in the Informal Economy,' 4–5 April, New Delhi, India, <http://wiego.org/sites/wiego.org/files/reports/files/Andharia-SEWA-Report-2013.pdf>, accessed on 24 November 2013.

¹⁵ Resolution WHA 60.26, 'Workers' Health: Global Plan of Action,' http://www.who.int/occupational_health/publications/global_plan/en/ and http://www.who.int/occupational_health/Declarwh.pdf?ua=1, accessed on 18 November 2013.

¹⁶ Resolution WHA 66.10, 'Follow-up to the Political Declaration of the High-level Meeting of the General Assembly on the Prevention and Control of Non-communicable Diseases,' http://apps.who.int/gb/ebwha/pdf_files/WHA66/A66_R10-en.pdf, accessed on 18 November 2013.

financial protection is needed to achieve good health (promotion, prevention, treatment and rehabilitation, including those that address health determinants) to guide development and to advance health equity in the coming years.¹⁷ Convention 155, Article 21 of the ILO stipulates that occupational safety and health measures shall not involve any expenditure for the workers.¹⁸ This is especially important in the context of informal sector workers who face financial hardships and are not covered under any social protection programmes. In working towards UHC, it is important to integrate certain essential occupational health interventions and services into the delivery of comprehensive and people-centred primary healthcare and provide all workers, especially those in the informal sector, agriculture, small and medium enterprises, migrant and contractual workers with access to people-centred health services that can respond effectively to their specific health needs and expectations. These include three groups of essential interventions at the primary care level: (1) advice for

improving working conditions and for promoting health at work; (2) early detection of occupational-and work-related diseases; and (3) support for return to work and preservation of working capacity. These provide protection against occupational diseases and injuries, maintaining their working capacity, workforce participation and income-earning potential, and empowering them to promote their physical and mental health and social well-being.¹⁹

Several countries have implemented different interventions and to different extent for managing workers' health at the primary care level (see Table 19.4). The level of intervention varies from one country to other, e.g. in Thailand 65 per cent of workers are covered with all non-treatment interventions listed below. It costs about \$ 30 per worker covered, with major costs being treatment costs. Less than \$ 1 is spent per worker targeted per year for covering them for non-treatment interventions listed below. Learning from their experience can allow for establishing goals

TABLE 19.4 Country Experiences at Implementing Essential Occupational Health Interventions at Primary Care Level

<i>Interventions</i>	<i>Activities</i>	<i>Italy</i>	<i>Thailand</i>	<i>Columbia</i>	<i>Philippines</i>	<i>United Arab Emirates</i>	<i>Republic of South Africa</i>	<i>Islamic Republic of Iran</i>
Workplace visit	Walk through survey		+	+	+		+	+
	Advice and recommendations		+	+	+			+
	Risk communication/ health education		+	+	+			+
Case management of occupational or work-related health problems	In-depth work history	+	+	+	+	+	+	+
	Counselling	+	+	+	+	+		+
	Contact with workplace	+	+	+	+	+		+
	Notification/referral	+	+	+	+	+	+	+
	Treatment	+	+		+			
Preventive medical examinations and return-to-work	Pre-placement	+			+	+		+
	Periodic	+	+		+	+		+
	Medical evaluation	+			+	+		+
	Counselling	+			+			+

Note: '+' represents that the intervention has been implemented at the country level.

Source: 'Global Development in Workers Health'—Presentation by I. Ivanov, Occupational Health Programme, WHO, March 2013 in South Africa. Based on studies conducted in countries on costing essential health interventions. Updated based on personal communication.

¹⁷ Resolution WHA 66.1, 'Twelfth General Programme of Work, 2014–2019', http://apps.who.int/gb/ebwha/pdf_files/WHA66/A66_R1-en.pdf, accessed on 24 February 2014.

¹⁸ ILO, 'Convention 155', http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_INSTRUMENT_ID:312300, accessed on 24 February 2014.

¹⁹ Connecting Health and Labour: What Role For Occupational Health In Primary Health Care?, Executive Summary of the WHO Global Conference, available at http://www.who.int/occupational_health/publications/hague_executive_summary/en/, accessed on 6 March 2014.

for scaling up health coverage of informal workers and for strengthening the capacities of health systems for achieving workers' health objectives.

CHALLENGES AND OPPORTUNITIES TO TACKLE THE HEALTH OF INFORMAL WORKERS

Challenges in Management of Health of Informal Workers

1. One of the major challenges for health of the workers in informal sector is that there are no effective government programmes to cover them for healthcare, even though they may suffer from higher risks due to workplace environment. A large proportion of these workers fall in the marginal and vulnerable expenditure category and are more likely to fall below the poverty line due to direct health care payments. With no legal protection in form of compensations, inadequate public delivery system at the primary care level, or health policies to cover them financially, workers continue working in the same environment (the area of work where they have the skills), get worse to an extent that their productivity reduces, and may even lose their jobs.
2. The health system is inadequate to prevent and manage occupational diseases. Besides infrastructure challenges especially in the rural areas, there is a lack of trained human resources to diagnose occupational diseases. Other diseases often mask them and sometimes the onset takes a long time. Providers lack knowledge and are not able to identify the cause in a timely manner. Workers are often treated like any other patients and the disease is misdiagnosed, does not get cured and tends to get worse, leading to higher costs of treatment.
3. It is often difficult to link the disease with the cause unless the health providers are aware of the work environment of their patients and know about the linkages of the diseases to the work environment. Appropriate tools to take work history and perform preliminary tests are often not available with primary care providers. Special investigations required for understanding the real cause are expensive, and often workers lack the finances for getting the tests done.
4. High workplace pollution and long and odd hours of work can be a severe cause of occupational diseases. The situation is further compounded by over crowdedness and poor sanitary conditions.

Employers often have exploitative tendency to cut costs and improve margins. Awareness among the workers about the workplace risks is missing and even if they know, the informal workers have poor bargaining abilities with their employers to demand better work environment without strict laws on these small establishments. There are serious lapses in implementation of OSH policies even for formal workers; hence any policies for informal workers will need to be strictly enforced.

5. There is a weak monitoring system to capture diseases linked to occupations, especially for those in informal sector. Primary healthcare is weak to diagnose occupational diseases and no surveillance system exists for reporting injuries and diseases, even when diagnosed. Poor availability of information on occupational diseases makes it difficult to make any coherent policies for workers health.
6. The fragmentation of policy and legislative framework to protect the health of the workers falls across several ministries—health, labour, mines, agriculture and industry. There is no effective co-ordination between these ministries.

Implications for Policy

1. *Health security for informal workers needs to be improved.* About 60 per cent of non-agricultural informal workers work for employers (see Table 19.3). It should be made mandatory for the employers to ensure that their employees are covered under some form of health insurance scheme. The ESI coverage could be extended to these workers. RSBY and other state health insurance schemes covering only tertiary care need to cover expenditures on drugs and transportation. Geographical and population coverage for these schemes need to be expanded to cover informal workers that fall mainly in marginal and vulnerable categories. To reduce out-patient and drug costs, one of the major causes of impoverishment among households, subsidised primary care needs to be strengthened for prevention and early detection of diseases in order to reduce disease treatment costs.
2. *Supply side barriers to treatment need to be removed.* The MoHFW needs to come up with broad-based policy measures, aiming to reduce the barriers manifested in the entire continuum of care. For informal sector workers, a public health approach is required beyond the workplace for diagnosis, prevention and promotion, and management of occupational diseases. This requires a multi-pronged strategy of

- improving infrastructure capacity and trained human resource availability at primary care level for screening, diagnosis, and effective referrals for informal workers. There is a need to have well-equipped public facilities particularly in areas where higher proportion of informal workers are at risk. Health providers need to be trained to diagnose if the health problems come from work or otherwise; in taking occupational history for sick workers; identifying the cause of illness early through appropriate tests; and managing the disease. The government and NGOs can support training for health providers to manage the disease effectively for improved quality of life, reduce patients' symptoms, prevent exacerbations and hospitalisations and even improve survival. Treatment costs need to be lowered by making essential drugs for treating occupational diseases available at a lower cost. Rehabilitation services for the poor and in rural settings require innovative approaches such as pulmonary rehabilitation focusing on breathing and lifestyle management for CRD, which can be a cost effective way to enhance the quality of life.
3. *Education and awareness can reduce demand-side barriers to seeking timely care.* Public health activists can play a role in reducing workplace hazards by making risk assessments at workplace and counselling both the employers and employees. Education and awareness about reducing workplace risks should be introduced even for the self-employed or those employed in the household sector (e.g. electricians, plumbers, painters, gardeners, etc.), agriculture, construction, etc. Private sector, NGOs, and media can support better communication for the workers in informal sector for identifying symptoms of occupational diseases and seeking timely care. The role of mobile technology can be explored to educate workers about the risks associated with different occupations and ways to identify symptoms linked to diseases arising out of the occupation. Further, implementation of the policy to use personal protective equipment by workers (such as use of masks and gloves to protect them from pesticides) needs to be improved.
 4. *Safe work practices should be mandatory.* The MoLE needs to work with different government departments, such as agriculture, industry and most importantly with MoHFW to support programmes for preventive measures such as early screening at workplaces, education to reduce workplace risks, etc. Health checklist and walk through surveys are important tools that can be developed to assess the

workplace risks and making workers in different occupations aware about their surroundings and health. This will help workers to seek timely treatment to reduce the burden of the disease and economic costs associated with them. Education and inspection of employers on safe work practices should be mandatory in all informal set-ups to prevent employers to exploit workers and provide them with decent working conditions. Workers should be made aware of their rights through posters, pamphlets, etc. Simple messages targeting specific occupations can go a long way in preventing diseases and incurring large expenditures on cure.

5. *Low cost interventions at primary care level can be cost effective.* Primary and secondary prevention interventions found useful in other countries can be implemented taking the local context into account. These include workplace visits, risk communication, routine collection of data on past and current work, detailed occupational history for those with suspected occupational disease, counselling patients and managing their sickness and disability. Studies on cost effectiveness of these essential interventions are important for advocacy among the policy-makers in India. Quantifying the costs of this burden on health systems would allow for mobilising additional financial resources from other government departments and the private sector. In Thailand, WHO supported the government in determining the cost of primary and secondary prevention interventions at primary healthcare level and to provide evidence to include these as part of its national health insurance package.
6. *Surveillance and notification of occupational diseases need to be improved.* Better implementation is required for the ESIS, CGHS, medical facilities, and workplaces to provide data on occupational diseases. Notification of occupational diseases should be made mandatory. The next National Sample Survey (NSS) on health could collect more information on workers' health estimating both the disease burden and costs associated with them. Databases should be effectively used for making policies for informal workers.

The recommendations above along with the Working Group recommendations highlighted in the National Policy on Workers' Health section of this chapter should be implemented on a priority basis for all informal sector workers taking into account the uniqueness of their occupations, cultural contexts and the gender characteristics. These emphasise

development of tools and trainings and involvement of organisations to mitigate workplace hazards; creation of OSH awareness among workers; conduct of regular medical check-ups for developing national-level OSH database; mitigation of demand and supply-side barriers to the entire continuum of care; consideration of low-cost primary and secondary preventive measures;

and most importantly, provision of health security to informal workers that contribute to half the countries' GDP. Eventually, it is important to integrate OSH into planning and implementation of primary healthcare in both the rural and urban areas, for all levels and age groups of workers, for males and females, and eventually move progressively towards the goal of UHC.

REFERENCES

- Abraham, S. 2012. 'Family Practice among the Urban Poor in India.' *South Asia Journal of Family Medicine* 4 (5), June.
- Aggarwal, A. N., K. Chaudhry, S. K. Chhabra, G. A. D'Souza, D. Gupta, S. K. Jindal, S. K. Katiyar, R. Kumar, B. Shah, and V. K. Vijayan. 2006. 'Prevalence and Risk Factors for Bronchial Asthma in Indian Adults: A Multicentre Study.' *The Indian Journal of Chest Diseases & Allied Sciences* 48, pp. 13–22.
- Berman, P., R. Ahuja, and L. Bhandari. 2010. 'The Impoverishing Effect of Healthcare Payments in India: New Methodology and Findings.' *Economic and Political Weekly* 45 (16): 67, 17 April.
- Das, J., and J. Hammer. 2007. 'Location, Location, Location: Residence, Wealth and the Quality of Medical Care in Delhi, India.' *Health Affairs (Milwood)* 20, pp. w338–w351.
- Garg, C. C., and A. K. Karan. 2009. 'Reducing Out-of-pocket Expenditures to Reduce Poverty: A Disaggregated Analysis at Rural-urban and State Level in India.' *Health Policy and Planning*, March, <http://heapol.oxfordjournals.org/cgi/content/full/24/2/116>, accessed on 20 November 2013.
- Garg, C. C., and D. B. Evans. 2011. 'What is the Impact of Non-communicable Diseases on National Health Expenditures: A Synthesis of Available Data.' Discussion paper no. 3. *Health System Financing*. Geneva: WHO, <http://www.who.int/healthsystems/NCDdiscussionpaper3.pdf>, accessed on 20 November 2013.
- Garg, C. C., S. Mazumdar, P. G. Mazumdar, R. Goyanka, and S. K. Shukla. 2013. 'Equity in Universal Coverage for Select Chronic Diseases in India.' *Population Health and Nutrition Research Programme*, Institute for Human Development. Draft submitted to WHO, India Country Office, March.
- Gothi, D., and J. M. Joshi. 2011. 'Pulmonary Rehabilitation in Resource Poor Settings.' *The Indian Journal of Chest Diseases & Allied Sciences* 53.
- Government of India. 2013. 'Press Note to Poverty Estimates, 2011–12.' Planning Commission, July, http://planningcommission.nic.in/news/pre_pov2307.pdf, accessed on 25 February 2014.
- . 2011. 'Report of the Working Group on Disease Burden for 12th Five Year Plan.' WG-3 (2): Non-communicable Diseases, http://planningcommission.nic.in/aboutus/committee/wrkgrp12/health/WG_3_2non-communicable.pdf, accessed on 20 November 2013.
- Gupta, P., and J. Patel. 2012. 'Status of Occupational Health in India' ANROEV Network and Asia Monitor Resource Center, http://www.amrc.org.hk/system/files/India_0.pdf, accessed on 21 November 2013.
- ILO (International Labour Organisation). 2013. 'World Day for Safety and Health at Work: Questions and Answers about the Prevention of Occupational Diseases,' http://www.ilo.org/wcmsp5/groups/public/-ed_protect/-protrav/-safework/documents/publication/wcms_211463.pdf, accessed on 3 December 2013.
- Jindal, S. K. 2012. 'COPD: The Unrecognized Epidemic in India.' *Supplement to JAPI* 60.
- Kannan, K. P., N. S. Sastry, S. K. Nath, P. K. Ray, G. Raveendran, and S. V. Ramana Murthy. 2008. 'Contribution of the Unorganised Sector to GDP Report of the Sub Committee of a National Commission for Enterprises in Unorganised Sector (NCEUS) Task Force.' Working Paper No. 2, http://nceuis.nic.in/Final_Booklet_Working_paper_2.pdf, accessed on 3 December 2013.
- Kolli R. 2011. 'Measuring the Informal Sector: Case Study of India,' http://cwsc2011.gov.in/papers/sna/Paper_4.pdf, accessed on 20 February 2014.
- Kumar, A., S. Gupta, and S. Bhargava. 2012. 'Work and Livelihoods of the Informal Workers in NCR Delhi.' *IHD-SDTT Study*. New Delhi: Institute for Human Development, [http://ihdindia.org/Work%20and%20Livelihoods%20of%20the%20Poor%20in%20the%20National%20Capital%20Region%20\(NCR\).html](http://ihdindia.org/Work%20and%20Livelihoods%20of%20the%20Poor%20in%20the%20National%20Capital%20Region%20(NCR).html), accessed on 3 December 2013.
- La Forgia, G., and S. Nagpal. 2012. 'Government-Sponsored Health Insurance in India: Are You Covered?' The World Bank, <http://issuu.com/worldbank.publications/docs/9780821396186>. Feature story October 2012 on <http://www.worldbank.org/en/news/feature/2012/10/11/government-sponsored-health-insurance-in-india-are-you-covered>, accessed on 18 November 2013).
- MoHFW (Ministry of Health and Family Welfare). 2009. *National Health Accounts India 2004–05*. New Delhi: Government of India.

- _____. 2005. *Report of the National Commission of Macroeconomics and Health*. New Delhi: Government of India.
- MoLE (Ministry of Labour and Employment). 2011. *Report of the Working Group on Occupational Safety and Health for the Twelfth Five Year Plan (2012 to 2017)*. New Delhi: Government of India, August, http://planningcommission.nic.in/aboutus/committee/wrkgrp12/wg_occup_safety.pdf, accessed on 19 November 2013.
- MoSPI (Ministry of Statistics and Programme Implementation). 2013. *Key Indicators of Household Consumer Expenditures in India: 2011–2012*. National Sample Survey 68th Round. Government of India, June, <http://pib.nic.in/archieve/others/2013/jun/d2013062002.pdf>, accessed on 19 November 2013.
- Murthy, K. J. R., and J. G. Sastry. 2005. 'Economic Burden of Chronic Obstructive Pulmonary Disease'. NCMH Background Papers—Burden of Disease in India.
- NCEUS. 2008. 'Contribution of the Unorganised Sector to GDP: Report of the Sub-Committee of a NCEUS Task Force'. Working Paper No. 2. National Commission for Enterprises in the Unorganised Sector, June, http://nceuis.nic.in/Final_Booklet_Working_Paper_2.pdf, accessed on 31 March 2014.
- PHFI (Public Health Foundation of India). 2011. *High-level Expert Group Report on Universal Health Coverage for India*. Instituted by the Planning Commission of India, November.
- Planning Commission. 2014. Data Tables, <http://planningcommission.nic.in/data/datatable/index.php?data=datatab>, accessed on 6 March 2014.
- Pringle, S. 2012. 'Occupational Safety and Health in India: Now and the Future'. *Industrial Health* 50: 167–71.
- Rajan, S., and R. Balakrishnan. 2012. 'Management of Chronic Stable COPD'. *Supplement to JAPI*, 60: 31–37, February, http://www.japi.org/february_2012_special_issue_copd/06_management_of_chronic.pdf, accessed on 3 December 2013.
- Reddy, K. S., S. Selvaraj, K. D. Rao, M. Chokshi, P. Kumar, V. Arora, S. Bhokare, and I. Ganguly. 2011. 'A Critical Assessment of the Existing Health Insurance Models in India'. Public Health Foundation of India, sponsored by the Planning Commission of India, New Delhi.
- Salvi, S. 2011. 'COPD: The Neglected Epidemic'. *Textbook of Pulmonary and Critical Care Med2*, eds S. K. Jindal. Jaypee Publications, pp. 971–74.
- Salvi, S. S., and A. Agrawal. 2012. 'India Needs a National COPD Prevention and Control Programme'. *Supplement to JAPI*, February 2012, vol. 60.
- Selvaraj, S., and A. K. Karan. 2012. 'Why Publicly-Financed Health Insurance Schemes are Ineffective in Providing Financial Risk Protection'. *Economic and Political Weekly* 47 (11): 60–68, 17 March.
- _____. 2009. 'Deepening Health Security in India: Evidence from National Sample Surveys since 1980s'. *Economic and Political Weekly* 44 (40), 3 October.
- Sharma, B. B., and V. Singh. 2011. 'Pulmonary Rehabilitation: An Overview'. *Lung India* 28 (4): 276–84.
- Thakur, J. S., S. Prinja, C. C. Garg, S. Mendis, and N. Menabde. 2011. 'Social and Economic Implications of Non-communicable diseases in India'. *Indian Journal of Community Medicine*, 36:13–22, <http://medind.nic.in/cgi/ndimj.pl?plrd+MFN-007462>, accessed on 18 November 2013.
- van Doorslaer, Owen O'Donnell, Ravi P. Rannan-Eliya, Aparnaa Somanathan, Shiva Raj Adhikari, et al. 2006. 'Effect of Payments for Health Care on Poverty Estimates in 11 Countries in Asia: An Analysis of Household Survey Data'. *The Lancet* 368 (9544), 14 October, pp. 1357–64.
- Van Sickle, D. 2005. 'Perception of Asthma among Physicians: An Exploratory Study with the ISSAC Video'. *European Respiratory Journal* 26, pp. 829–34, <http://erj.ersjournals.com/content/26/5/829.full.pdf>, accessed on 28 November 2013.
- Van Sickle, D., and R. B. Singh. 2008. 'A Video Simulation Study of the Management of Asthma Exacerbations by Physicians in India'. *The Clinical Respiratory Journal* 2, pp. 98–105, <http://www.ncbi.nlm.nih.gov/pubmed/20298314>, accessed on 28 November 2014.
- Vijayan, V. K. 2008. 'Occupational Lung Diseases in Management of Occupational Health and Safety Delivery: Scopes and Challenges'. A National Workshop, National Institute of Occupational Health (ICMR), Ahmedabad (personal communication).
- WHO (World Health Organisation). 2013. 'WHO Global Plan of Action on Workers' Health (2008–2017): Baseline for Implementation'. *Global Country Survey 2008/2009*, http://www.who.int/occupational_health/who_workers_health_web.pdf, accessed on 28 November 2013.
- _____. 2012. 'Factsheets on COPD', <http://www.who.int/mediacentre/factsheets/fs315/en/index.html>, accessed on 28 November 2013.
- _____. 2011a. 'NCDs Country Profile'. Geneva: WHO, http://www.who.int/nmh/publications/ncd_profiles2011/en/index.html, accessed on 28 November 2013.
- _____. 2011b. 'World Health Statistics'. Department of Measurement and Health Statistics, Global Burden of Disease Death Estimates. Geneva: WHO.

20

HUMAN RESOURCES FOR HEALTH IN INDIA: CURRENT CHALLENGES AND POLICY OPTIONS

Krishna D. Rao and Sudha Ramani

The availability of health workers is closely associated with greater use of health services and better health outcomes (Anand and Bärnighausen 2004, WHO 2006). India is among the 57 countries in the world which facing a crisis in human resources for health (WHO 2006). It faces several challenges in this area. There is an overall shortage of qualified health workers; women physicians are relatively scarce; health workers are concentrated in the urban areas; states with high burden of diseases face a scarcity of health workers and their training institutes; and the skill mix of healthcare workers is not optimal to cater to both the rural and urban healthcare needs of the country. Finally, issues around quality of training and services produced are a source of concern.

In this chapter, we first review the existing state of human resources for health in India. Second, we document some of the strategies that have been undertaken to improve the availability of health workers in underserved areas by the state governments such as compulsory rural service, educational incentives, and task-shifting. We provide evidence for these strategies and discuss their significance in improving the distribution of health workers in India. Finally, we offer direction for the future health human resources reforms.

SITUATION ANALYSIS OF HUMAN RESOURCES FOR HEALTH

Size, Composition and Distribution of Health Workers in India

How many health workers do we have in India? While this is an important question for health policy, counting health workers in India is a challenging task. Some reasons for this are that there is no single database that comprehensively records the number of qualified health workers; there is much diversity among the health workforce and there are several state-specific health worker cadres that are difficult to define and classify; there exist many informal practitioners who may or may not be qualified to practice medicine; and in general, sources of information on health workers are fragmented and not completely accurate. In particular, the lack of live registers renders workforce estimates from professional councils (which are also reported in government sources) unreliable due to unclear accounting for health workers leaving the workforce due to death, migration, change of profession, and retirement.

Efforts to estimate the size and composition of health workers in India have been few. Some of the recent efforts (WHO 2007, Anand et al. 2010, Rao et al. 2012 and Hazarika 2013) have been highlighted in Table 20.1. These studies have used different data sources for health worker estimations—the National Census, National Sample Survey, and data available from registered professional councils.

While Table 20.1 provides an overview of estimates from different studies, we have used the study by Rao et al. (2012) to provide a comprehensive picture of the situation of human resources for health in India. This study uses data from the *Census 2001* adjusted to reflect the population in 2005 and the 61st Round (July 2004–

TABLE 20.1 Health Worker Estimations from Various Studies in India

	All health workers	Allopathic doctors	Nurses/midwives	AYUSH doctors
WHO 2007	–	643,520 (MCI 2005)	GNM: 839,862 ANM: 502,503 (2002 data, registration, Government of India, MoHFW)	717,860 (2005, Government of India, MoHFW <i>Annual Report</i> 2005–06)
Anand et al. (2010)	1,992,576 (Census 2001)	799,550 (Census 2001)	Nurses and midwives: 597,627 (Census 2001)	–
Rao et al. (2012)	2,168,223 (Census 2001 adjusted to 2005) 2,196,821 (NSSO, 2005)	676,756 (Census 2001 adjusted to 2005) 476,694 (NSSO 2005) 660,856 (Government of India, CBHI)	Nurses and midwives: 823,589 (Census 2001 adjusted to 2005) 789,673 (NSSO 2005) 1,422,452 (Government of India CBHI)	196,488 (Census 2001 adjusted to 2005) 287,767 (NSSO 2005) 726,370 (Government of India, CBHI)
Hazarika (2013)	–	761,806 (2009) MoSPI's 2011 Report on Health and Family Welfare	Nurses and midwives: 1,650,180 (MoSPI's 2011 Report on Health and Family Welfare)	–

Source: Authors' compilation.

BOX 20.1 Health Workers in India

- **Allopathic Doctors:** medical graduates with a Bachelor's or Post-graduate specialist diploma or degree registered with the Medical Council of India (MCI).
- **AYUSH Doctors:** stands for practitioners of Ayurveda, Yoga & Naturopathy, Unani, Siddha, and Homeopathy. These are medical graduates with a Bachelor's or Post-graduate degree in Ayurveda, Yoga & Naturopathy, Unani, Siddha, and Homeopathy registered with the Central Council for Indian Medicine (CCIM) or the Central Council for Homoeopathy (CCH).
- **Nurses:** have a diploma in General Nursing and Midwifery (3–5 year course) or a 4-year Bachelor's degree. They may also have a 2–3-year post-graduate degree registered with the Indian Nursing Council.
- **Dentists:** graduates with a bachelor's or post-graduate degree in dentistry registered with the Dental Council of India (DCI).
- **Auxillary Nurse Midwives (ANMs):** have a diploma in Auxillary Nursing and Midwifery (2-year course).
- **Pharmacists:** have a Bachelor's degree or a diploma in pharmacy.
- **Technicians:** includes laboratory technicians, radiology technicians, dental assistants, and other technical staff.
- **Allied Health Professionals:** includes dieticians, nutritionists, opticians, physiotherapists and administrators.
- **Community Health Workers:** members of the community who are given some basic training in health-related issues and can provide limited essential primary care in the population.
- **Accredited Social Health Activists (ASHAs):** community health volunteers who reside in a village, have completed 8 years of formal education, and are preferably aged 25–45 years.
- **Rural Medical Practitioners (RMPs):** unlicensed health practitioners who give allopathic treatment and work in rural areas. They may have little or no formal medical training.
- **Traditional Medicine Practitioners and Faith-healers:** treat illnesses with the help of selling talismans and charms, and by performing special rites.

Source: Adapted from Rao et al. (2011).

June 2005) of the National Sample Survey Organisation (NSSO) on 'Employment and Unemployment'. Using Census data provides a more comprehensive and reliable estimate of the health workforce. All figures discussed from this study are with respect to the year 2005.

India's health workforce is characterised by great diversity in terms of health worker type, qualification, and the system of medicine practised (see Box 20.1).

India is estimated to have around 2.2 million health workers which roughly translates to a density of 22 health

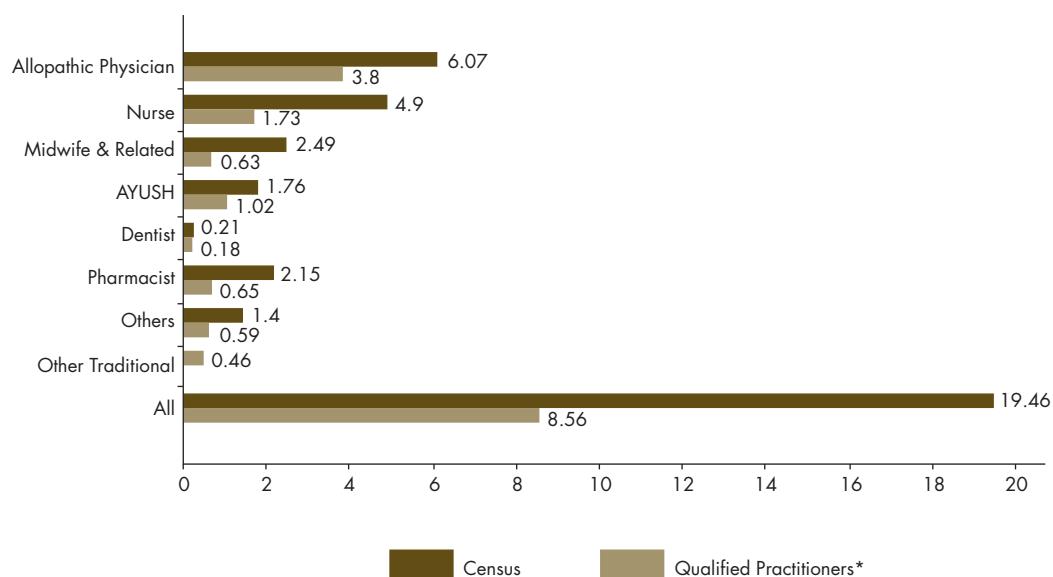
workers per 10,000 population (excluding Accredited Health Social Activists [ASHAs]). Further analyses reveals that among the 2.2 million health workers in India, there are about 6.8 lakh allopathic doctors and 2 lakh AYUSH (Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homeopathy) practitioners. Allopathic doctors constitute a majority of the health workforce in India (31 per cent), followed by nurses and midwives (30 per cent), pharmacists (11 per cent) and AYUSH practitioners (9 per cent) and others (9 per cent ophthalmic assistants, radiographers and technicians) (Rao et al. 2012). Community health workers are not included in these estimates.

The combined density of allopathic doctors, nurses and midwives (11.9) is about half of the WHO benchmark of 25.4 workers in these categories per 10,000 population for achieving 80 per cent of births attended by skilled personnel in cross-country comparisons (WHO 2006, Rao et al. 2012). When adjusted for qualification, the density falls to around one-fourth of the WHO benchmark. There are 3.8 allopathic doctors per 10,000 population (Figure 20.1). The nurse (1.7) and midwife (0.6) densities are also low leading to a skewed mix of nurses and allopathic

doctors. There is approximately one nurse and nurse-midwife per allopathic doctor and the qualification adjusted ratio falls further to 0.6 nurses per doctor (Rao et al. 2012). Although there is no gold standard for a nurse–doctor ratio, a higher ratio is generally desirable. The *World Development Report* (1993) indicates that, as a rule of thumb, the ratio of nurses to doctors should exceed 2:1 as a minimum with 4:1 or higher considered more satisfactory for cost-effective and quality care (World Bank 1993).

In addition to numerical shortages, India also faces multiple challenges with respect to distribution of health workers. Health workers are unevenly distributed between the rural and urban areas, and across states. Figure 20.2 shows the distribution of allopathic doctors across states of India. Similar patterns are seen in the distribution of other health worker cadres. States in northern and central India with poorer health outcomes and service use have fewer doctors for a given population; the southern states, where health outcomes are much better, tend to have a higher concentration of doctors and better population health (Rao et al. 2012). The distribution of medical schools also appears to follow this pattern, which suggests that the mal-distribution

FIGURE 20.1 Health Worker Density Per 10,000 Population in India (2005)



Notes: * Estimates based on self-reported occupation in NSSO.

Others = Dietician & Nutritionist, Opticians, Dental Assistant, Physiotherapist, Medical Assistant & Technician and Other Hospital Staff.

Other Traditional = Traditional Medicine Practitioner, Faith Healer.

Source: Rao et al. (2012), based on Census 2001 data.

FIGURE 20.2 Distribution of Allopathic Doctors Per 10,000 Population across States (2005)



Source: Rao et al. (2012).

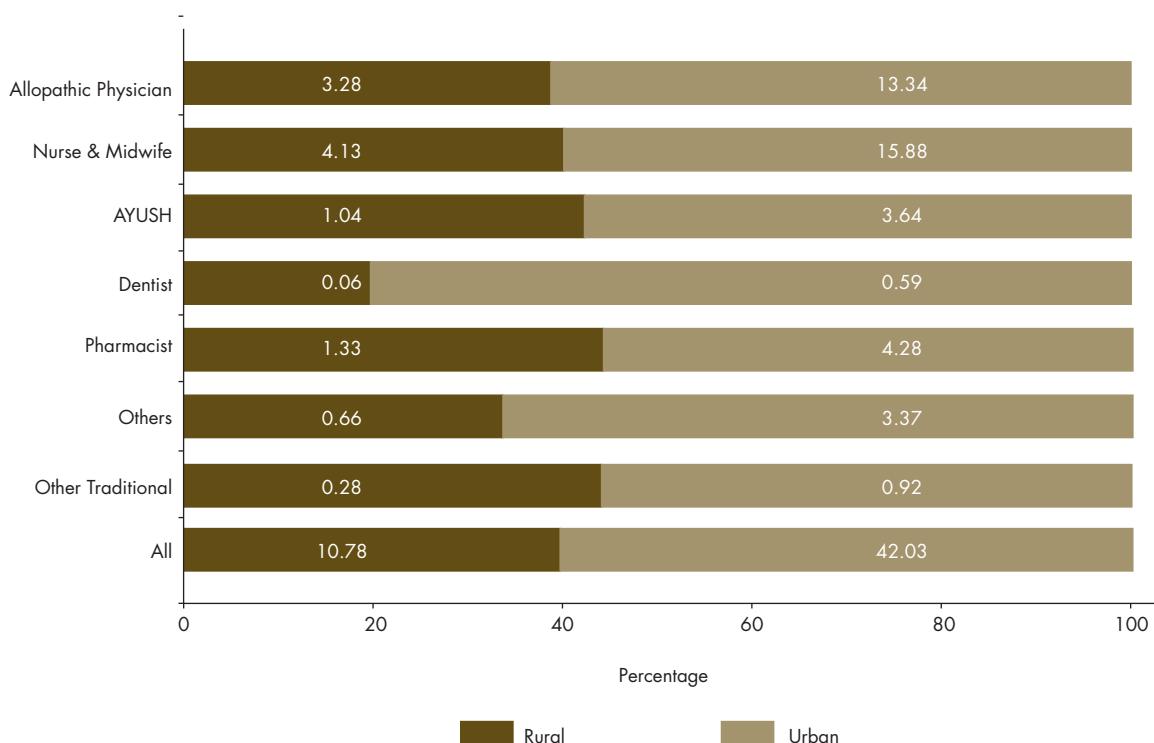
of health workers across states might be linked to state differences in health worker production capacity.

Across states, health workers in both the public and private sectors are concentrated in the urban areas even though more than two-thirds of Indians live in the rural areas. The density of health workers per 10,000 population in urban (42) is nearly four times that of rural (10.8) areas (see Figure 20.3). There are 11.3 (1.2) allopathic doctors per 10,000 population in urban (rural) areas. Put another way, there is one qualified doctor per 8,333 (885) people in rural (urban) areas of India. Also, there are 1.7 (4.3 in urban and 0.7 in rural) nurses per 10,000 population (Rao et al. 2012).

NSSO 61st Round (July 2004–June 2005) data shows that upto 70 per cent of all health workers in India are employed in the private sector (see Figure 20.4). About 80 per cent of allopathic and AYUSH doctors and 90 per cent of dentists work in the private sector. Remarkably, only 50 per cent of the nurses and midwives are employed in the private sector (Rao et al. 2012). It is important to note that the distinction between the public and private sectors is often not clear, and doctors often practice in both the sectors simultaneously.

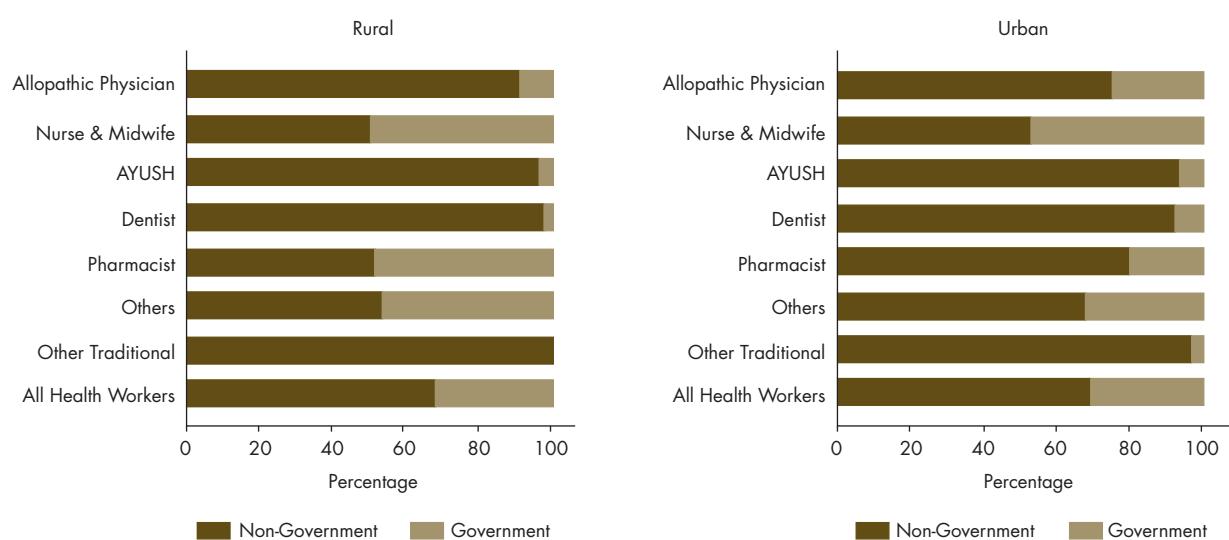
Another important point to consider is the gender distribution of the health workforce. In India, it is

FIGURE 20.3 Rural-Urban Distribution of Health Workers in India (2005)



Notes: Numbers on the Bars Indicate Density (per 10,000 Population); Census data for 2001 has been adjusted to 2005.
Source: Rao et al. (2012).

FIGURE 20.4 Distribution of Health Workforce by Sector (2005)



Source: Rao et al. (2012).

estimated that there are 7 female health workers per 10,000 population, which translates into women comprising one-third of the total health workers in the country. Approximately 70 per cent of nurses, midwives, and community health workers are female. However, female doctors comprise only 17 per cent of the doctors and account for only 6 per cent of the rural doctors in the country (*ibid.*). Especially considering societal norms in India that restrict women from seeking healthcare for obstetrical and gynecological issues from male health workers, the presence of female health workers in health institutions becomes important.

Health Worker Production in India: Doctors and Nurses

The opportunities for medical education have expanded rapidly in India, especially over the last 20 years. At the time of Independence, there were 19 medical colleges in the country, with a total of 1,200 doctors graduating each year (Rao et al. 2011). As of March 2014, the MCI reports that there are 381 colleges in India offering the MBBS course, having a capacity for 50,068 seats (MCI 2014). Of these, 287 colleges are recognised by the Council and 86 are permitted by the Council to offer MBBS course (*ibid.*). Traditionally, medical education in India was largely provided by colleges funded by state governments, municipal corporations, as well as a few central government-funded institutions. However, the rapid increase in the number of medical college seats, particularly in the last few decades has been fuelled by the expansion of the private sector in medical education (Rao et al. 2011). In 1990, about one-third of all medical colleges were privately run (*ibid.*). Currently, as of March 2014, there are 176 government colleges (recognised: 143, permitted: 33) and 205 private colleges (recognised: 144, permitted: 53) in India (MCI 2014). Clearly, the number of private colleges is increasing in the country.

The expansion of the private sector in medical education is particularly notable in the states of Maharashtra, Andhra Pradesh and Karnataka. As of March 2014, in Andhra Pradesh, only 15 of the 43 medical colleges are in the public sector, in Karnataka the proportion is even lower with only 12 of the 46 medical colleges being run by the government (*ibid.*).

The increase in the share of private medical colleges has implications for efforts to increase the supply of rural doctors. Medical graduates from these private

institutions often take large loans to finance their education, and have an understandable need to recover their investment by seeking high-paying jobs which are in the private sector. Consequently, though the supply of doctors has increased with the presence of private medical schools, ultimately this is unlikely to make a difference to increasing the presence of doctors in rural public service.

The geographical distribution of medical colleges in India also puts states with higher disease burden at a disadvantage. The four southern states of Andhra Pradesh (43 colleges), Tamil Nadu (45 colleges), Karnataka (46 colleges) and Kerala (25 colleges), along with Maharashtra (44 colleges) have 53 per cent of the medical colleges in the country (*ibid.*), although they account for around 30 per cent of the population as per *Census 2011*. These are also among the healthier states in the country. On the other hand, the states of Bihar, Madhya Pradesh, Rajasthan, Odisha and Uttar Pradesh—that have poorer health indicators—and possess more than 40 per cent of the Indian population as per *Census 2011*, have only 19 per cent of medical colleges between them (*ibid.*).

Statistics from the Indian Nursing Council for the year 2012 indicate that there are 2,670 institutions (public: 209, private: 2,461) offering the General Nursing and Midwifery (GNM) nursing degree programme, 1,578 institutions (public: 93, private: 1,485) offering the BSc degree in nursing, and 535 institutions (public: 31, private: 504) offering the Master's degree in nursing (Indian Nursing Council 2012). The Ancillary Nurse and Midwifery (ANM) programme is being offered by 1,642 institutions (*ibid.*). Private sector teaching institutes are predominant in this sector, and to a much greater extent than in medical education. There is some anecdotal evidence that many of these private training institutes are focused on training nurses for jobs abroad.

Regional disparities in the presence of nurse training institutes are similar to those observed in medical education institutes. The four southern states have about half of the GNM schools and nursing schools in the country (*ibid.*). By contrast, the states of Bihar, Madhya Pradesh, Rajasthan, Odisha and Uttar Pradesh have only 25 per cent of the GNM institutes and 20 per cent of the BSc nursing institutes in the country (*ibid.*). This imbalance is leading to a crisis in nursing education in several states across the country.

STRATEGIES TO IMPROVE AVAILABILITY OF HUMAN RESOURCES IN UNDERSERVED AREAS

The shortage of qualified human resources in India, especially in rural and underserved areas, is a problem that policy-makers have recognised. Over the years, several strategies have been tried to address this issue. At the national level, the National Rural Health Mission (NRHM) has supported initiatives to reduce the shortage of rural health workers (Government of India 2005). An evaluation of the Mission has shown additional appointments of 8,624 doctors with an MBBS, 2,640 specialists, and 26,793 staff nurses through contracts in the public health system in the years 2005–10 (Government of India 2010). In addition, the government has committed itself to expanding medical education. Recently, the Cabinet has approved 10,000 additional medical seats in central and state government medical colleges—with the intention of improving supply of allopathic doctors. Most of these seats are to be accommodated in existing medical colleges (*Times of India* 2014). In addition to these, 58 new medical colleges

are to be set up in various states with central assistance through the upgradation of the district hospitals.

In addition to the national-level strategies, several states in India have actively experimented with different local-level strategies for improving the presence of health human resources in underserved areas. These include offering incentives such as monetary benefits or preferential admission to post-graduate programmes in exchange for a few years of rural service (Sundararaman and Gupta 2011, Shroff et al. 2013). Most states in India have now trained and deployed AYUSH doctors as second medical officers at primary health centres (PHCs) (Government of India 2005). Two states—Assam and Chhattisgarh—have experimented with doctors who have 3 years of medical training (instead of the usual 5-year MBBS degree) for the provision of primary care (Rao et al. 2011). Unfortunately, few of these local strategies have been documented. Further, there is little information available on specific aspects of performance and effectiveness of the local strategies/experiments. Hence, in this chapter, we use evidence from both local and international studies to discuss some of these strategies (see Table 20.2).

TABLE 20.2 Strategies for Rural Retention of Health Workers

Strategy	Potential strengths	Challenges/grey areas
Post-graduate seat reservation for rural service	<ul style="list-style-type: none"> ♦ Appealing to candidates ♦ Some evidence of success in filling rural posts in primary care 	<ul style="list-style-type: none"> ♦ Need for close monitoring, which is difficult in weak governance structures ♦ Fresh graduates may need orientation to rural service
Compulsory rural service	<ul style="list-style-type: none"> ♦ Success in filling rural posts (from opinions of government authorities) 	<ul style="list-style-type: none"> ♦ Not appealing to candidates ♦ Short-term solution ♦ Need for close monitoring ♦ Fresh graduates may need orientation to rural service
Monetary incentives	<ul style="list-style-type: none"> ♦ Appealing to candidates ♦ Commonly employed strategy, easy to implement 	<ul style="list-style-type: none"> ♦ Likely to work better in combination with other incentives ♦ Play a limited role if the amount of incentive is nominal
Workforce management practices	<ul style="list-style-type: none"> ♦ Evidence of need for such practices 	<ul style="list-style-type: none"> ♦ Practices not widely attempted/evaluated in India ♦ Likely to work best in combination with monetary or post-graduation incentives
Employment of rural medical assistants (RMAs)	<ul style="list-style-type: none"> ♦ Can be a good alternate resource to primary care doctors ♦ Some evidence of competency and willingness towards rural service 	<ul style="list-style-type: none"> ♦ New cadres need careful planning and political acceptance ♦ Career pathways and mechanisms for integration of RMAs need to be designed
Employment of alternate medicine practitioners (AYUSH)	<ul style="list-style-type: none"> ♦ Provisions for their contractual recruitment exist (through NRHM) ♦ Some evidence of need for training in allopathic primary care 	<ul style="list-style-type: none"> ♦ Need for clearly defined roles within the system ♦ Some evidence of willingness to work in rural areas

Source: Authors' compilation.

TABLE 20.3 Organisational and Contextual Issues that are Important to Health Workers

<i>Organisational issues</i>	<i>Contextual issues</i>
Facilities <ul style="list-style-type: none"> ♦ Clinic infrastructure (drugs, equipment, laboratories) ♦ Work environment (cleanliness, availability of water electricity, toilet, good furniture) ♦ Support staff and mentoring staff ♦ Workload (fixed working hours, shift systems, number of patients) 	<ul style="list-style-type: none"> ♦ Living facilities (housing, electricity, water, access to the market, hygiene) ♦ Proximity to family (near hometown) ♦ Children's development (availability of good schooling) ♦ Family's well-being and comfort ♦ Security (physical security, legal protection against political interference)
Culture and policies <ul style="list-style-type: none"> ♦ Policies on leave ♦ Transfer policies and promotions (transparent, no political interference) ♦ Job security (permanency of job, pensions) ♦ Management (administration, bureaucracy) 	<ul style="list-style-type: none"> ♦ Connectivity (transport availability, no sense of isolation) ♦ Social life (entertainment facilities, social circle) ♦ Community type (comfort and connect with the community, no language barriers)
Growth opportunities <ul style="list-style-type: none"> ♦ Learning opportunities on the job ♦ Training opportunities 	

Source: Ramani et al. (2013).

Studies from different parts of the world offer insight into what strategies might be effective in attracting health workers to the rural areas. Research shows that while financial incentives are important, it is not adequate to recruit or retain health workers in rural jobs (Blaauw et al. 2010, Chomitz et al. 1997). Several studies have reported that the interaction between factors, such as career growth, organisational set up, bureaucracy, the work and living environment influences the choices health workers make regarding job location (Lindelow and Serneels 2006, Schofield et al. 2009, Stephen 2007). Recently, there has been some literature on factors affecting rural retention from the Indian context (Saini et al. 2012, Shewade et al. 2012, Sheikh 2012, Ramani et al. 2013). One recent study from India identified several factors that are important for health workers to consider working in a rural area (see Table 20.3) (Ramani et al. 2013). This study found that in India, financial and educational incentives can attract doctors and nurses to rural postings. However, frustration among rural health workers often stems from the lack of infrastructure, support staff, and drugs, local political interference, and lack of security. Mundane quality of life issues such as lack of water, electricity, education facilities for children, and connectivity increase dissatisfaction. In addition, a primary care job generally commands little respect in the medical community.

In the sections below we review strategies that state

governments in India have attempted to remedy the scarcity of health workers in rural areas.

Post-graduate Seat Reservation for Rural Service

Several states in India reserve post-graduate seats for in-service doctors who complete some years of rural service. These include states like Assam, Chhattisgarh, Kerala and Tamil Nadu. Linking post-graduate programmes to rural service appears to be a particularly attractive incentive for attracting doctors to rural posts (see Table 20.4). There is a strong desire for specialisation among doctors after their under-graduate medical degree. This coupled with the intense competition for a few available post-graduation seats is central to what makes this scheme attractive.

A case study of the post-graduation incentive scheme in Andhra Pradesh provides insights into the effectiveness of this scheme (Shroff et al. 2013). To be eligible for this scheme, a doctor serving in the public sector currently has to work for 2 years in a tribal area, or 3 years in a rural area, or be employed with the government for 5 years. In 2010, 30–50 per cent of total post-graduation seats in public medical colleges, and 50 per cent of post-graduation seats that are filled through the post-graduate entrance examinations in private medical colleges were reserved for candidates competing through the scheme. Students availing this scheme have to serve the state government for 5 years after completing

TABLE 20.4 Examples of Diverse Schemes Related to Post-graduation in India

<i>Post-graduation schemes</i>	<i>States—Some examples</i>
All students are mandated to complete 2–3 years of rural service before getting admissions for post-graduation	Arunachal Pradesh, Maharashtra and Tamil Nadu (since 15 years)
A percentage of the post-graduation seats (10–30 per cent) are reserved for in-service candidates who serve in the rural areas for 2–3 years. These candidates give the usual entrance exams, but complete for only the reserved seats thereby having a better chance of admission.	Andhra Pradesh, Assam, Chhattisgarh and Gujarat
Additional marks given to candidates who serve in rural areas for 2–3 years. These marks can be added to the total obtained in the entrance exams.	Kerala, Mizoram and Uttarakhand
On completion of certain years of rural service, medical officers are eligible for state-sponsored post-graduation. For this, medical officers are selected based on seniority (not entrance exams).	Arunachal Pradesh (total 5 years with 3 years rural service)
After PG, all specialists have to serve in rural areas compulsorily for a certain period against a bond.	Tamil Nadu (government college candidates: 5 years, private college candidates: 3 years, Rs 5 lakh bond), Kerala (1 year, Rs 5 lakh bond)
New post-graduation course for in service candidates	Nagaland has introduced the Diplomate of National Board, Family Medicine course equivalent to post-graduation for in-service doctors.

Source: Authors' compilation.

their post-graduation education against a financial bond. The scheme appears to have led to reducing vacancies in the public health system; as recent as 2007, there were 209 PHCs across the state without a doctor, which has now reduced to zero (*ibid.*). Further, only 2 per cent of the sanctioned posts are vacant. Moreover, there appears modest improvement in the vacancies of specialists, which government officials attribute largely to the post-graduation scheme.

The case study in Andhra Pradesh shows proof of the scheme's appeal and potential effect. However, such schemes work well only in certain situations. First, it is feasible only in states that have a substantial number of medical schools so that reserving an adequate number of seats for government doctors is possible. If too few seats are reserved, the competitiveness for these seats will be comparable to that of general seats, and the scheme will have few takers. Second, the eligibility criteria for the scheme, like the required number of years of rural service before and after completion of specialist training, need to be finely tuned so that the scheme remains attractive.

Compulsory Rural Service

Several states in India—Assam, Arunachal Pradesh, Chhattisgarh, Gujarat, Manipur, Meghalaya, Odisha, Tamil Nadu and West Bengal—have made it compulsory for all fresh medical graduates to serve in

rural areas. Usually, students are mandated to do rural service for upto 5 years against a financial bond (Gupta et al. 2010).

While there is little evidence from India on the effectiveness of compulsory rural service schemes, international evidence, in general, has not been favourable. At best, such schemes are seen to address health worker mal-distribution in the short term (WHO 2009). A recent review of compulsory rural service schemes recorded that such schemes did not get support from health workers. Health workers rarely continued on the same job after the compulsory stint was over, thus affecting continuity of care provided to communities (Frehywot et al. 2010). Forced service can be regarded as a human rights violation of individuals. Many international studies also point out that compulsory rural service programmes need to be accompanied by support and incentives given to the health personnel (Liaw et al. 2005, Omole et al. 2005).

The level of opposition to compulsory rural service schemes in international literature suggests that we should be careful in the use of such schemes. In India, it has been seen that the implementation of such schemes is a huge challenge. There is anecdotal evidence to show that in the states where the scheme is practised, it is difficult to monitor the scheme. Whether such schemes have any effect at all in filling rural health posts (except on paper)—and improving rural healthcare provision—

is questionable. Yet, many states in India have currently resorted to this scheme.

Monetary Incentives

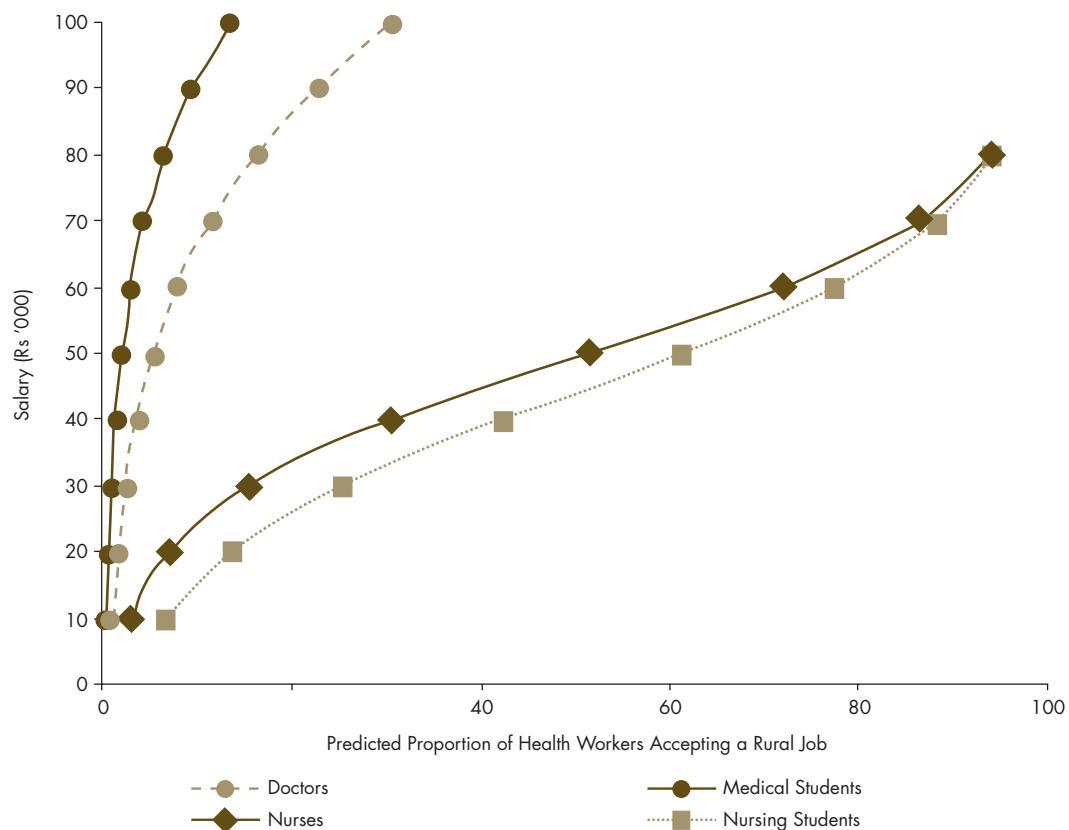
Monetary compensation for rural service is one of the most commonly used strategies in India for attracting doctors to underserved areas. States often differ in their categorisation of areas that are underserved—this categorisation is based on distance from the urban areas, geographical terrain, accessibility, tribal areas or areas of conflict. A recent article that tabulated monetary incentive schemes in different states found that around 18 states in India compensate doctors for service in underserved areas (Sundararaman and Gupta 2011). Interestingly, monetary incentive schemes seem to be mainly focused on allopathic doctors.

Some studies from India suggest that monetary incentives are important but need to be combined with other kinds of incentives. Qualitative studies show that better remuneration for difficult postings is critical to motivate doctors to serve in underserved areas

(Ramani et al. 2013). However, there are two important considerations. First, the value of the additional monetary benefit provided needs to be viewed as substantially lucrative; second, monetary incentives need to be combined with other incentives like better living environment, housing and schooling.

Monetary incentives have not been evaluated in India widely for their effectiveness. However, international experience has shown that these play a limited role, especially if the amount increased is only nominal. One study from India attempted to quantify the effect of higher salary on uptake of rural jobs by trainee and in-service doctors and nurses (Rao et al. 2013c). It found that, overall, for every salary level, a considerably higher proportion of nursing students and nurses were willing to accept a rural job compared to medical students and doctors (see Figure 20.5). The supply of both students and in-service doctors for rural posts was not responsive to increases in salary, particularly at lower salary levels. In contrast, the supply of nursing students and nurses is much more responsive to increases in salaries,

FIGURE 20.5 Supply of Trainee and In-service Doctors and Nurses



Source: Rao et al. (2013c).

particularly at lower levels, relative to medical students and doctors.

Improving Workforce Management Practices

A few countries have employed workforce management practices to improve rural recruitment of health workers (WHO 2009). In India, an important organisational constraint is the lack of a formal transfer and posting policy within the state health services. Transfer policies are often not clearly specified. One consequence of this is that in-service health workers posted in a rural area can remain there indefinitely or have to negotiate their way to a better posting. Anecdotal evidence shows that often getting a desirable post requires a long waiting time and can be determined by political influence and/or bribery.

The process of recruiting health workers is another area where better management practices can help to improve rural recruitment. Typically, recruitment of health workers is a centralised process with long time lags (upto 2 years in some cases) between the time a post is advertised and when appointment letters are issued. The state of Haryana adopted a policy of directly recruiting doctors to permanent positions through walk-in interviews (Gupta et al. 2009). This removed the long delays experienced through the normal process—advertising for positions, conducting state public service commission exams, establishing a list of candidates, and sending acceptance letters. Now interested doctors simply presented themselves at the health ministry on a designated day, completed an interview, and if successful, were issued their appointment letter. This process, state officials claim, has led to fewer vacancies in the public sector health centres in Haryana (*ibid.*), and is still being followed in the state.

Non-physician Clinicians

In many areas of the world, clinical care providers with shorter duration of medical training perform clinical functions normally expected of physicians. Non-physician clinicians (NPCs) are now increasingly viewed as a cost effective means of delivering primary health services (Huicho et al. 2008, Kurti et al. 2011, Mullan and Frehywot 2007). Where physicians are scarce they offer a way to continue clinical services. In several countries such as Bangladesh, Nepal, Sri Lanka and 25 out of 47 countries in Sub-Saharan Africa, NPCs have become the main providers of primary care, and in some instances, even provide specialist services (Abegunde

et al. 2007, McCord et al. 2009, Warriner et al. 2011).

Two states in India, Assam and Chhattisgarh have experimented with NPC cadres. In Chhattisgarh, the RMA course was started in 2001 as a three-and-a-half-year diploma (the under-graduate medical degree in India is five-and-a-half-years in duration). Graduates from this course are employed at PHCs. However, the RMA course has been discontinued at present.

Currently, the central ministry in India is in the process of creating an NPC cadre. In 2009, a three-and-a-half-year course named Bachelor of Rural Healthcare was proposed, graduates of which were meant to provide primary care in rural areas (Sachan 2013). The initiation of this course faced much opposition. There have been some academic debates on the introduction of a new NPC cadre (Sharma and Sharma 2011, Bhaumik and Biswas 2012, Mudur 2013). Some concerns that have been raised about the development of a new cadre are that these clinicians cannot be forced to serve in the rural areas; and further, there is no mechanism to ensure that they will remain in the rural areas and reduce the current mal-distribution of health workers. Since their training duration is short (3.5 years instead of 5.5 years that MBBS doctors receive), they are perceived as doctors whose competency levels are inadequate. One strong argument against the cadre has been: Why should rural Indians get care from doctors who are less qualified?

However, many of these concerns seem to go against the substantial international evidence about the effectiveness of such cadres. Many countries like Bangladesh, Nepal, Sri Lanka and 25 out of 47 countries in Sub-Saharan Africa employ NPCs. One study in Chhattisgarh that evaluated the competence of RMAs found them to be equally competent to doctors for managing conditions commonly seen in primary care settings (Rao et al. 2013a). Satisfaction of households with clinical care provided by RMAs has been found to be equal to that of doctors (Rao et al. 2013b). Findings from these two studies in Chhattisgarh support the claim that clinicians with three years training can be effective providers of primary healthcare.

The Bachelor of Rural Healthcare course has been a subject of much controversy and faced much opposition in the government. In November 2013, the union cabinet finally approved a 3-year course named Bachelor of Science (Community Health) (*The Hindu* 2014). This course is a variation of the former course, and the graduates of this course are meant to provide primary care in the rural areas.

Under the NRHM, another type of NPCs, AYUSH physicians, who are trained in alternate systems of medicine, are posted at PHCs to mainstream Indian systems of medicine. These postings are contractual and have taken place in almost all states of India now. However, there is scarce information on the competence and effectiveness of co-located AYUSH.

A comprehensive report from the Department of AYUSH, Ministry of Health and Family Welfare (MoHFW) highlights the need for strengthening the integration process as a whole (Chandra 2012). The report points out that while integration has occurred at policy level and AYUSH providers have been physically placed in PHCs, there are few operational guidelines and frameworks within which AYUSH providers can function. One important issue the report alludes to is the fact that AYUSH doctors are often the only clinicians available in a PHC; and are hence forced to take on allopathic roles. Despite this, policies are unclear on whether AYUSH providers are legally allowed to 'cross-practice' allopathic medicine, and if so, to what extent. An important related question is whether AYUSH providers are competent to take on allopathic roles. Preliminary studies in Chhattisgarh have shown that difference in competencies between AYUSH providers and allopathic providers were not huge with respect to the provision of allopathic primary care (Rao et al. 2013a). However, it is important to make provisions for additional training of AYUSH doctors in allopathy.

CONCLUSION

Human resources for health in India is in a dismal situation. For one, there is an overall deficit in the number of qualified health workers. Further, a large number of unqualified health workers operate in the sector, particularly in areas where formal service delivery systems are weak. While several factors drive health outcomes, having few health workers profoundly influences the health system's ability to deliver preventive and curative services. The geographic mal-distribution of the qualified health workforce in India is another cause for concern. States with few health workers are observed to have poor health indicators. Moreover, the large disparity in workforce availability between the urban and rural areas is alarming. The rural deficit confirms the difficulty rural Indians report in accessing healthcare from qualified health workers and thus their reliance on unqualified providers. Findings from this study also draw attention to the sub-optimal mix

of health workers in the workforce—the nurse-doctor ratio is approximately 1:1. Having similar number of nurses and physicians is internationally seen as an inefficient human resource skill mix.

The reasons behind the geographic mal-distribution of qualified health workers needs to be better understood by examining supply-side (e.g. training production capacity of health workers) and demand-side (e.g. incentives to recruit and retain, institutional factors and policy environment) factors. It is essential, of course, to increase production of health workers, given the overall numerical deficit India faces. However, the sort of growth witnessed in medical and nursing training institutions is not going to help improve the situation. First, this growth in training institutions is concentrated in a few states and is hardly there in states that have the largest human resource and health deficits. Second, the essentially private nature of this growth makes it less likely for graduates from these institutions to take up government service or live and serve in rural areas. Finally, the personal and professional ambition of medical graduates is incompatible with the life of a rural doctor. The ambition of medical graduates is to become specialists—once they specialise, there is little likelihood of them serving as a rural doctor.

While increasing production of health workers is important, doing this alone will not improve the great rural deficit in health workers. This, however, can be addressed by specific rural recruitment and retention strategies. These include the monetary incentives, reserving seats for specialist training in lieu of rural services, better management practices, and providing better living conditions for rural postings. Some of these strategies work well. For instance, the reservation of post-graduate seats for doctors on the completion of a rural tenure appears to be a powerful motivator for attracting doctors to rural areas. For governments, the additional cost of implementing this strategy is low since it takes advantage of existing educational facilities. Monetary incentives can be a powerful tool for attracting or retaining doctors in the rural areas if they are sufficiently high. However, at the levels they are currently offered they are not so effective. On the other hand, the salary levels required for attracting large number of doctors to the rural areas might ultimately be unaffordable to the government. Other strategies are also important; the provision of better housing, education for children, access to transport, better work facilities, and clear and transparent transfer policies that guarantee rotation between hardship and non-hardship

posts. Since multiple factors play a role in the job choices health workers make, we emphasise that any successful rural recruitment and retention strategy should be an optimal 'package' of pecuniary and non-pecuniary incentives rather than singular incentives (e.g. better salary) that are tailored for specific contexts.

While strategies to recruit and retain doctors to rural posts can be successful, a more fundamental question is whether one is focusing on the 'right' type of health worker. It appears that the professional and personal ambitions of medical graduates are not compatible with the life of a rural doctor. Their ambition is to become a specialist. However, after specialisation there is even less likelihood that rural service will be attractive. So while there will always be some doctors who will choose a government

job and work in the rural areas, for the vast needs of this country it would appear that alternatives in the form of NPCs might offer a more lasting solution. Two states in India have successfully used three-year trained clinicians to provide primary healthcare in the rural areas. Nurse-practitioner trained to deliver basic clinical care is another alternative. They have been found to be more amenable (more than allopathic doctors) to join government service, and can be more easily placed in underserved areas. Evidence from many countries in Sub-Saharan Africa, Bangladesh, Nepal and India indicates that such non-physician clinicians can provide basic health services as well as fully qualified doctors. This places them in an important position for delivering quality health services in the rural areas.

REFERENCES

- Abegunde, D., B. Shengelia, A. Luyten, A. Cameron, F. Celletti, S. Nishtar, and et al. 2007. 'Can Non-physician Health-care Workers Assess and Manage Cardiovascular Risk in Primary Care?' *Bulletin of the World Health Organization* 85: 432–40.
- Anand, S., M. D. Poz, N. Gupta, and A. Sousa. 2010. 'Measuring Health Workforce Inequalities: Methods and Application to China and India.' Geneva: World Health Organization.
- Anand, S., and T. Bärnighausen. 2004. 'Human Resources and Health Outcomes: Cross-country Econometric Study.' *Lancet* 364: 1603–09.
- Bhaumik, S., and T. Biswas. 2012. 'India's "Rural Doctor" Proposal Stirs Criticism.' *Canadian Medical Association Journal* 184: 637–38.
- Blaauw, D., E. Erasmus, N. Pagaiya, V. Tangcharoensathien, K. Mulle, and S. Mudhune. 2010. 'Policy Interventions that Attract Nurses to Rural Areas: A Multicountry Discrete Choice Experiment.' *Bulletin of the World Health Organization* 88: 350–56.
- Chandra S. 2012. 'Status of Indian Medicine and Folk Healing with Focus on Integration of AYUSH Medical Systems with Healthcare Delivery Part II'. *Ayu* 33 (4): 461–65.
- Chomitz, K. M., G. Setiadi, A. Azwar, N. Ismail, and Widiyarti. 1997. 'What Do Doctors Want? Developing Incentives for Doctors to Serve in Indonesia's Rural and Remote Areas?' *World Bank Working Paper Series* 1888. Washington DC: World Bank.
- Census. 2011. 'Office of the Registrar General and Census Commissioner'. Ministry of Home Affairs, Government of India.
- Frehywot, S., F. Mullan, P. W. Payne, and H. Ross. 2010. 'Compulsory Service Programmes for Recruiting Health Workers in Remote and Rural Areas: Do They Work?' *Bulletin of the World Health Organization*: 88: 364–70.
- Government of India. 2010. 'National Rural Health Mission: Meeting People's Health Needs in Partnership with States. The Journey So Far. 2005–2010'. New Delhi: Ministry of Health and Family Welfare, Government of India.
- . 2007. 'Accredited Social Health Activists'. New Delhi: Ministry of Health and Family Welfare, Government of India.
- . 2005. 'National Rural Health Mission (2005–2012): Mission Document'. New Delhi: Ministry of Health and Family Welfare, Government of India.
- Gupta, G., T. Sundararaman, and K. D. Rao. 2010. 'Human Resources for Health in India: Strategies for Increasing the Availability of Qualified Health Workers in Underserved Areas'. June, http://nhsrcindia.org/index.php?option=com_content&view=article&id=170&Itemid=643, accessed on 12 March 2014.
- Gupta, G., T. Sundararaman, and S. Raha. 2009. 'Improving Work Force Management Practices in Haryana to Attract and Retain Medical Professionals in Public Health Service', http://nhsrcindia.org/thematic_human_resources_for_health.php. http://nhsrcindia.org/index.php?option=com_content&view=article&id=170&Itemid=643, accessed on 12 March 2014.
- Hazarika, I. 2013. 'Health Workforce in India: Assessment of Availability, Production and Distribution'. *WHO South-East Asia J Public Health* 2: 106–12.
- Hindu, The. 2014. 'Cabinet Approves B.Sc. Community Health Course in State Universities'. 14 November 2014, <http://www.thehindu.com/news/national/cabinet-approves-bsc-community-health-course-in-state-universities/article5348436.ece>, accessed on 12 March 2014.

- Huicho L., R. W. Scherbier, A. M. Nkowane, and C. G. Victora. 2008. 'How Much Does Quality of Child Care Vary between Health Workers with Differing Durations of Training? An Observational Multicountry Study'. *Lancet* 372: 910–16.
- Indian Nursing Council. 2012. <http://www.indiannursingcouncil.org>, accessed on 13 March 2014.
- Kurti L., S. Rudland, R. Wilkinson, D. Dewitt, and C. Zhang. 2011. 'Physician's Assistants: A Workforce Solution for Australia?' *Australian Journal of Primary Health* 17: 23–28.
- Liaw, S. T., B. McGrath, G. Jones, U. Russell, L. Bourke, and B. Hsu-Hage. 2005. 'A Compulsory Experiential and Inter-professional Rural Health Subject for Undergraduate Students'. *Rural and Remote Health* 5: 460.
- Lindelow, M., and P. Serneels. 2006. 'The Performance of Health Workers in Ethiopia: Results from Qualitative Research'. *Social Science and Medicine* 62: 2225–35.
- McCord, C., G. Mbaruku, C. Pereira, C. Nzabuhakwa, and S. Bergstrom. 2009. 'The Quality of Emergency Obstetrical Surgery by Assistant Medical Officers in Tanzanian District Hospitals'. *Health Affairs* 28: 876–885.
- MCI (Medical Council of India). www.mciindia.org, accessed on 12 March 2014.
- Mudur, G. 2013. 'Indian Plan for Rural Healthcare Providers Encounters More Resistance'. *British Medical Journal*. 346: 1967.
- Mullan, F., and S. Frehywot. 2007. 'Non-physician Clinicians in 47 Sub-Saharan Countries'. *Lancet* 370: 2158–63.
- Omole, O., G. Marincowitz, and G. A. Ogunbanjo. 2005. 'Perceptions of Hospital Managers Regarding the Impact of Doctors' Community Service'. *South African Family Practice* 47: 55–59.
- Ramani S., K. D. Rao, M. Ryan, M. Vujicic, and P. Berman. 2013. 'For More than Love or Money: Attitudes of Student and In-service Health Workers Towards Rural Service in India'. *Human Resources for Health* 11: 58.
- Rao, M., K. D. Rao, A. K. Kumar, M. Chatterjee, and T. Sundararaman. 2011. 'Human Resources for Health in India'. *Lancet* 377: 587–98.
- Rao, K. D., A. Bhatnagar, and P. Berman. 2012. 'So Many Yet Few: Human Resources for Health in India'. *Human Resources for Health*. 13: 19.
- Rao, K. D., T. Sundararaman, A. Bhatnagar, G. Gupta, P. Kokho, and K. Jain. 2013a. 'Which Doctor for Primary Health Care? Quality of Care and Non-physician Clinicians in India'. *Social Science & Medicine* 84: 30–34.
- Rao, K. D., E. Stierman, A. Bhatnagar, G. Gupta, and A. Gaffar. 2013b. 'As Good as Physicians: Patient Perceptions of Physicians and Non-physician Clinicians in Rural Primary Health Centers in India'. *Global Health: Science and Practice*.
- Rao, K. D., Z. C. Shroff, M. Ryan, M. Vujicic, S. Ramani, and P. Berman. 2013c. 'Rural Clinician Scarcity and Job Preferences of Doctors and Nurses in India: A Discrete Choice Experiment'. *Plos One* 8 (12): e82984.
- Sachan, D. 2013. 'India Looks to a New Course to Fix Rural Doctor Shortage'. *Lancet*. 382: 10.
- Saini, N. K., R. Sharma, R. Roy, and R. Verma. 2012. 'What Impedes Working in Rural Areas? A Study of Aspiring Doctors in the National Capital Region, India'. *Rural and Remote Health* 12: 1967.
- Schofield D., S. Fletcher, J. Fuller, H. Birden, and S. Page. 2009. 'Where Do Students in the Health Professions Want to Work? *Human Resources for Health* 7: 74.
- Sharma, V., and A. Sharma. 2011. 'Rural Doctors: A Solution, Or Yet Another Problem in the Making?' *Indian Journal of Medical Ethics* 8: 64–65.
- Sheikh, K., B. Rajkumari, K. Jain, K. D. Rao, P. Patanwar, G. Gupta, K. R. Antony, and T. Sundararaman. 2012. 'Location and Vocation: Why Some Government Doctors Stay On in Rural Chhattisgarh, India'. *International Health* 4: 192–99.
- Shewade, H. D., K. Jeyashree, and J. P. Tripathy. 2012. 'Attracting Doctors to Rural Health Services of India'. *National Medical Journal of India* 25: 374.
- Shroff, Z. C., S. Murthy, and K. D. Rao. 2013. 'Attracting Doctors to Rural Areas: A Case Study of the Post-Graduate Seat Reservation Scheme in Andhra Pradesh'. *Indian Journal of Community Medicine* 38: 27–32.
- Stephen, E. 2007. 'Attracting Generation Next to the Rural Health Sector'. *National Medical Journal of India* 20: 46.
- Sundararaman, T., and G. Gupta. 2011. 'Indian Approaches to Retaining Skilled Workers in Rural Areas'. *Bulletin of the World Health Organization*: 89: 73–77.
- Times of India, The. 2014. 'Cabinet Clears Addition of 10,000 More MBBS Seats'. 10 January 2014. www.timesofindia.com, accessed on 2 February 2014.
- Warriner, I. K., D. Wang, N. T. My Huong, K. Thapa, A. Tamang, I. Shah, and et al. 2011. 'Can Midlevel Health-care Providers Administer Early Medical Abortion as Safely and Effectively as Doctors? A Randomised Controlled Equivalence Trial in Nepal'. *Lancet* 377: 1155–61.
- WHO (World Health Organisation). 2009. 'Increasing Access to Health Workers in Remote and Rural Areas Through Improved Retention'. Background paper for the first expert meeting to develop evidence-based recommendations to increase access to health workers in remote and rural areas through improved retention. Geneva: World Health Organisation.
- _____. 2007. 'Not Enough Here ... Too Many There—Health Workforce in India'. New Delhi: World Health Organisation, Country Office for India.
- _____. 2006. 'Working Together for Health—A World Health Report'. Geneva: World Health Organisation.
- World Bank. 1993. *World Development Report 1993: Investing in Health*. New York: Oxford University Press.

21

CAPACITY BUILDING EXERCISE FOR HEALTHCARE SERVICE WORKFORCE FOR TWENTY-FIRST CENTURY INDIA: CHALLENGES AND OPPORTUNITIES FOR RADICAL REFORMS

Gautam Sen

Well into the twenty-first century, India is faced with an ever-increasing demand for healthcare providers both in the public and in the private sector. The challenge is to provide quality healthcare services, evenly distributed across the population, and preferably at an affordable price. The road to universal health coverage (UHC) will meet a dead-end unless there is political will to meet these challenges in a time-bound manner.

The challenges, however, are enormous. There is an acute shortage of trained manpower, as well as in the facilities and resources to provide education and adequate training of the additional manpower that will be required to meet the needs of a twenty-first century community. Not only is there a challenge of meeting the quantity of healthcare providers, the need to improve the quality of the services provided and need to ensure their equitable distribution throughout the country are significant sources of concern. In order to ensure that any improvement is sustainable, the career development of healthcare workers is another challenge that needs to be addressed.

The new millennium also opens up a window of opportunity for our healthcare service planners to take a fresh look at these chronic problems and to *not* fall back upon old solutions of either increasing the number of educational institutions, or increasing the number of intakes in these training institutions. Radical reforms are needed in our planning process and regulatory requirements, in our curriculum and career planning

of these professionals. We also need to refocus on societal and professional obligations and aspirations of healthcare workers.

In order to achieve these, we need to develop a systematic approach and address all these issues *simultaneously*, rather than working in silos.

CHALLENGES

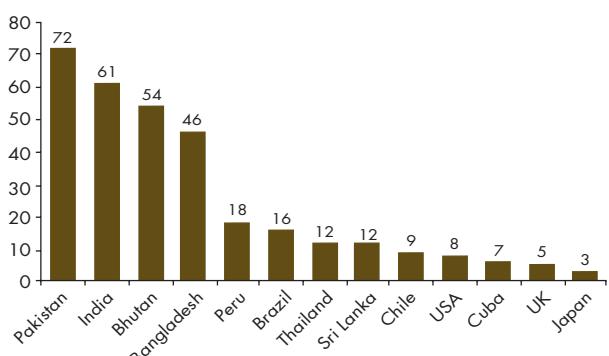
Despite significant improvement in general health outcomes since Independence, when compared with countries with similar socio-economic background worldwide, we are found to be lagging behind. Almost all these countries, with a few exceptions in the sub-Saharan region, have overtaken us in terms of national health outcomes.

Grim Health Scenario

Poor Outcomes in Health Parameters: U5MR and Maternal Mortality

As of 2011, our under-five child mortality (U5MR) (the expected number of children dying before reaching age of 5 years per 1,000 live births) is 61, as compared to 50 for Nepal, 54 for Bhutan, 46 for Bangladesh, 18 for Peru, 15 for Maldives, 15 for China, 16 for Brazil, 12 for Thailand, 12 for Sri Lanka, 9 for Chile, 8 for the United States of America (USA), 6 for Cuba, 5 for the United Kingdom (UK), and 3 for Japan. India's figure is only slightly better than Pakistan which stands at 72. All the

FIGURE 21.1 Under-five Mortality Rate Per 1,000 Live Births (2011)

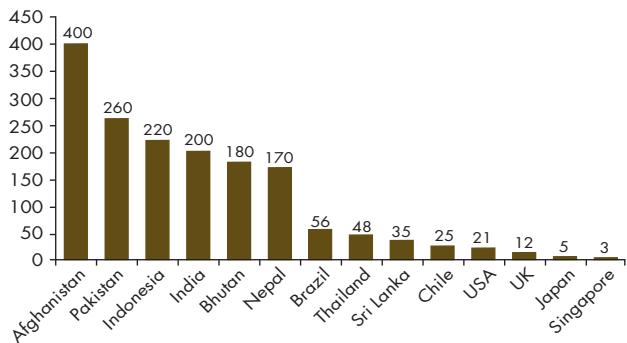


Source: WHO (2013).

European Union (EU) countries have U5MR in single digits, a majority of them being below 5 (WHO 2013) (see Figure 21.1).

The maternal mortality ratio (MMR) figures are even worse for India and stands at 200 per 100,000 live births, while it is 180 for Bhutan, 170 for Nepal, 56 for Brazil, 48 for Thailand, 35 for Sri Lanka, 37 for China, and 25 for Chile as compared to 21 for the USA, 12 for the UK, 5 for Japan, and 3 for Singapore (*ibid.*) (see Figure 21.2).

FIGURE 21.2 Maternal Mortality Ratio Per 100,000 Live Births (2011)

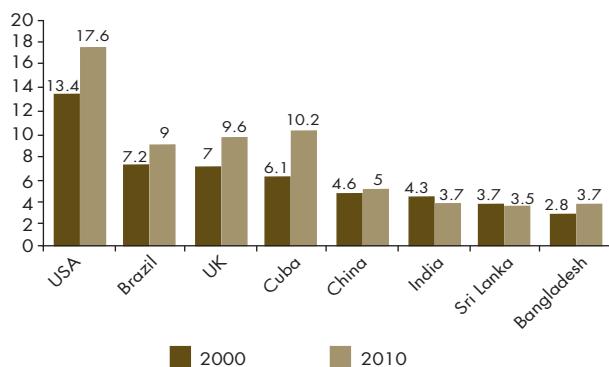


Source: WHO (2013).

HEALTH EXPENDITURE: PUBLIC AND PRIVATE

In India, over the years, the total expenditure on health as a percentage of gross domestic product (GDP) has actually decreased from 5 per cent during the post-Independence years to 4.3 per cent in 2000 and 3.7 per cent in 2010 (*ibid.*) when it should have been the other way round for a nation which has arrived on the world

FIGURE 21.3 Total Healthcare Expenditure as % of GDP



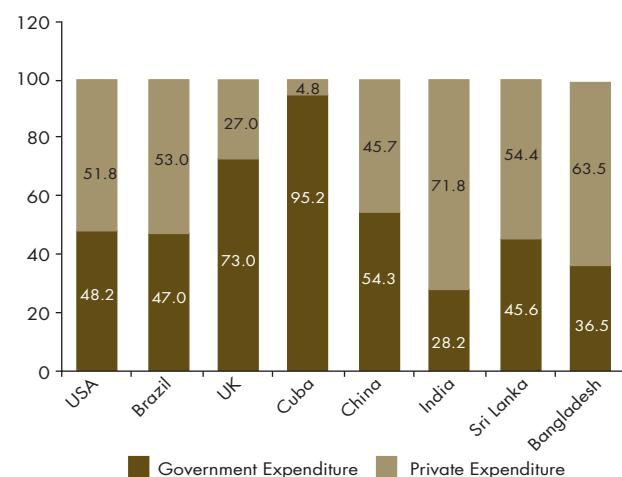
Source: WHO (2013).

stage as a potential economic power. Similar economies show a significantly higher percentage of expenditure on health—Brazil is at 9 per cent, China is at 5 per cent, Cuba is at 10 per cent, and the developed countries where India aspires to be, are at 9.6 per cent for the UK and 17.6 per cent for the USA (*ibid.*) (see Figure 21.3).

The government's percentage share in this already meager expenditure is a shameful 28.2 per cent, while the remaining 71.8 per cent of this is private expenditure (Planning Commission 2011) (see Figure 21.4).

The High-Level Expert Group (HLEG) constituted by the Planning Commission looked into the total planned government expenditure on health, and recommended to raise public expenditure to 2.5 per cent of GDP by 2017 and to 3 per cent of GDP by 2022 (*ibid.*).

FIGURE 21.4 Expenditure as % of Total Healthcare Expenditure in 2010



Source: WHO (2013).

The Government of India has left its citizens to fend for themselves in matters of health, where as high as 70 per cent of expenditure is out of pocket. This has led to impoverishment of as many as 47 million people on account of expenditure on their health in 2004–05 as compared to 35 million who have been pushed to below the poverty line in 1993–94 (Chatterjee 2012).

Government Schemes

The various government schemes, though well-intentioned, have been enacted only recently and continue to be either poorly implemented or grossly misused. These measures, when implemented half-heartedly are condemned to be partially effective and in certain cases detrimental to the interests of the people they pertain to serve—in many cases, the patients are offered unnecessary treatment when none is required for the financial benefit of the service providers. In any case, these government schemes only address the issues of healthcare financing of people below the poverty line and only to take care of expensive tertiary care treatment when it is too late to be of use to the patient. Worse, many unscrupulous healthcare providers exploit the government largesse in connivance with the supposed beneficiaries.

ISSUES OF HEALTHCARE WORKFORCE PLANNING

It is necessary to look at our healthcare workforce in this background of grim reality.

Unfortunately, in the last 66 years since Independence, there has never been a scientific and in-depth study on, according to the needs of our society, what constitutes the quantitative and qualitative requirements of our healthcare workforce. The questions that need to be answered are: what constitutes *appropriate* background knowledge as well as *appropriate* training and skill sets to ensure that the healthcare professional is fit to practice at the end of the training? What *regulatory* and *governance* mechanisms should be put in place for the *safety* and *protection* of the society? What is the *financing mechanism* necessary to sustain this workforce? And last but not the least, what *career plans* should be instituted for the *reward* and *recognition* of this workforce?

The capacity building exercise for human resources in health in our country needs to address these issues and from it, the answers and solutions will evolve.

Societal Obligations

Unlike professionals in other disciplines, healthcare professionals have an additional burden of *societal obligations*. This is because their training and their fitness to practice has a *direct impact* on the well-being of the society at large. Similarly, to attract the right talent for taking up this responsibility, one must address the issue of obligations of society and the nation as a whole towards the profession as well (see Table 21.1).

TABLE 21.1 Societal Obligations

<i>Societal Obligations</i>	<i>Solutions</i>
Serves the needs of the society/nation	Need-based curriculum
Enough numbers and even distribution	Involve corporate hospitals, autonomous hospitals, and district hospitals for training of students rather than depend only on Medical Colleges
Professional is safe, dependable and up-to-date	Audit, continuing medical education, continuing professional development, and re-validation of license to practice

Source: Author's illustration.

The Need

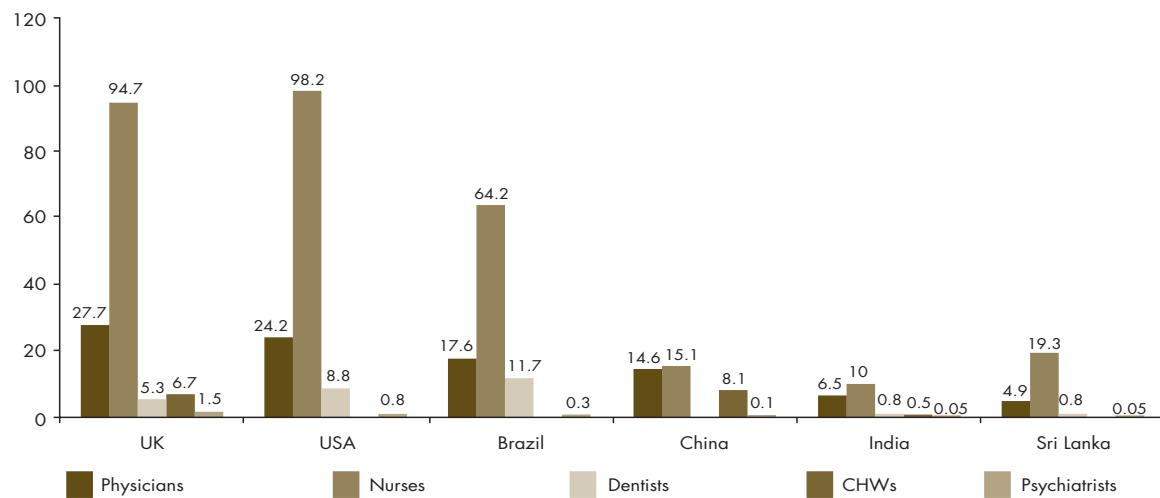
The first thing to determine is what is the *present* need of the society in terms of sheer numbers and also what will be required in the future. In our country, the needs vary and so do the delivery mechanism as there is a tremendous disparity in the economic status, urban-rural status, and state-to-state variation in different parameters of ethnicity, economic disposition and development of infrastructure.

The number and type of specialty training in the respective segment of healthcare workforce and their distribution, education and training and assessment for fitness to practice, therefore, should be *demand-driven* and *not supply driven*. Traditionally, till now, the exercise of augmenting capacity by filling the vacant posts or creating new institutions of delivery, and new financing patterns for cost of delivery—have all been on the principles of being 'supply' driven.

The Numbers: The Gross Mismatch

If we compare ourselves to global norms for number of doctors, nurses, midwives and community health workers supporting a given population, we have a

FIGURE 21.5 Healthcare Workers Per 10,000 Population (2005–2012)



Notes: CHW: Community Health Worker; The number of psychiatrists for India and Sri Lanka are less than 0.05 per 10,000 population.
Source: WHO (2013).

significantly low figure. If we look at the nations in the developed world, the comparison is far worse.

Our doctors per 10,000 population during the period 2010–12 is 6.5, as compared to Brazil (17.6), China (14.6), the UK (27.7), and the USA (24.2) (WHO 2013). Not only are we deficient in numbers as compared to global norms, but also the doctors that do exist are of variable standards and often trained in totally different systems of medicine (see Figure 21.5).

Different Systems of Medicine

Doctors in India are a mixture of allopathic practitioners (modern western medicine) and practitioners of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homeopathy (collectively known by the acronym AYUSH).

It is perhaps the only country where the ancient medicines participate in main healthcare delivery and play a major role in providing basic healthcare needs at primary care level to its teeming masses mainly due to shortage of allopathic practitioners and to some extent due to high cost of modern medicine.

World over these systems are grouped under alternative medicine which has no place in main health care delivery system which is the present evidence based modern medicine based on hard scientific rigueur and discipline—with its standards of education and training and standards of practice.

The danger of these differently trained practitioners of ancient medicine with no proven scientific basis at worse and empirical evidence at best, is their forays in modern medicine practice for which they are not trained.

Our political masters took the popularity route riding on false national pride and encouraged these disciplines based on empirical evidence, to fill in the gap of acute shortages of well-trained modern healthcare workforce. The recent Bill passed in some of the States e.g., Maharashtra, which allows AYUSH doctors to prescribe modern allopathic medicine, in spite of the High Court judgment to the contrary, is a clear case of political vote bank policy, public safety be damned. Modern medicines though effective could be dangerous if applied injudiciously.

Uneven Distribution

There is an uneven distribution of healthcare workforce in numbers and in quality, not only between rural and urban India, but also between different regions and states. Several publications and policy statements on health by the Ministry of Health and Family Welfare (MoHFW) have recognised this grim reality. This late realisation has prompted a spate of measures—notably the National Rural Health Mission (NRHM) (MoHFW 2005) and the National Urban Health Mission (NUHM).

Shortages of healthcare workforce in the rural region has also prompted several measures like the creation of Accredited Social Health Activist (ASHA) (see MoHFW 2013a), which was conceived in 2005, but launched in 2012 with an ambitious plan of having one such activist in each and every village of India (Shirodkar 2014).

Shortages of allopathic doctors at the primary care level in the rural region, prompted the Government of India to a diluted three-year BSc course, named initially

as Bachelor of Rural Medicine and Surgery (BRMS), to a now agreed BSc in Community Health, known as Bachelor of Rural Health Medicine (BRHM) in November 2013 (*ibid.*) (also see MoHFW 2013b). Even here, there seems to be a lot of confusion as to which course curriculum to be taught by the state universities and whether the course is approved by the Medical Council of India (MCI) or by the National Board of Education, or directly controlled by the MoHFW.

Disease Burden

India is burdened with a double burden of both infectious diseases as well as non-communicable diseases, while in most of the developed world the former has receded completely. While India has become the diabetic capital of the world and people have begun having heart attacks at a much earlier age decade than westerners, we still have the highest number of leprosy cases in the world, malaria is prevalent and endemic, we have the largest number of drug-resistant tuberculosis (TB) cases in the world and even today, 1.5 million children below 5 years die of dysentery and diarrhoea every year. To this we can add the high number of preventable deaths due to accidents on the road and rail tracks! (see Figure 21.6)

What Type of Doctors?

This grim reality being the situation in India, we must re-think what type of doctors are needed most in the country—generalists or super-specialists? Granted there is a need for both in good numbers but in what the correct proportion of the two so that a large swathe of

population is appropriately served—so that it is possible to take care of 90 per cent of the needs of the populace effectively and leaving only a 10 per cent that needs a specialist's attention? What should the curriculum be and what should be the methods of learning and skill development?

It is also necessary to ask what other workforce apart from doctors and nurses are required and what should their skill-acquisition training be so that they can effectively serve the population irrespective of urban-rural divide, irrespective of economic status and irrespective of geographical distribution, so that an equitable system of healthcare delivery can be accomplished?

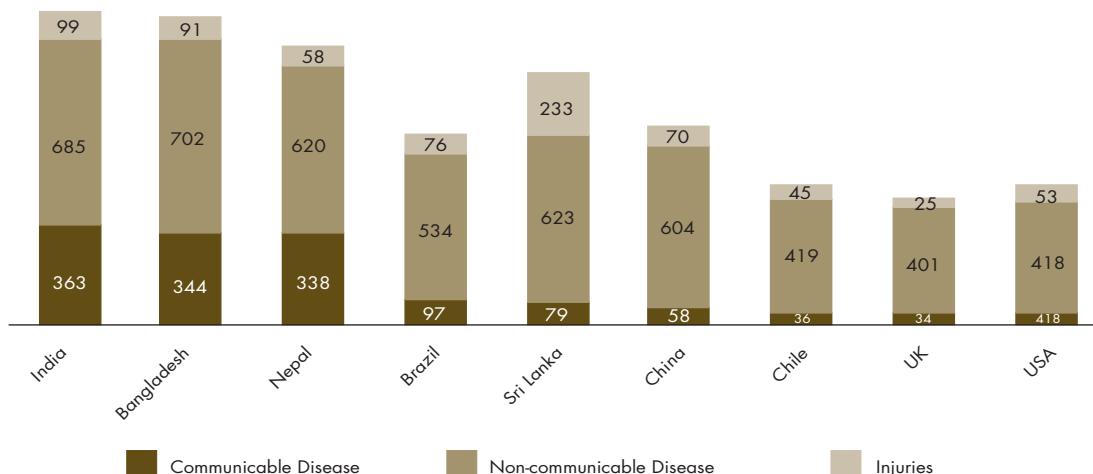
Public Health Workforce

Unfortunately public health issues have never received the necessary prominence or priority from our healthcare planners.

Even in the twenty-first century, 65 per cent of the population in India live without access to proper sanitation, while in Sri Lanka this proportion is only 9 per cent, in Thailand 7 per cent, in Brazil 19 per cent, and in China 35 per cent, and in the developed world this is, of course, close to 0 per cent (WHO 2013) (see Figure 21.7).

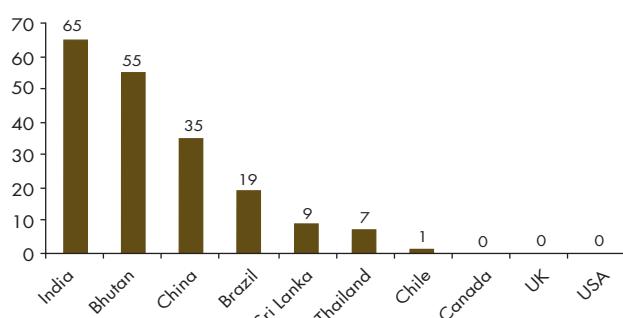
Public health issues, the foundation on which good health can be built upon, has taken a back-seat with the government's obsession with latest diagnostic and therapeutic measures to be available in citadels of tertiary care super-specialty hospitals like the All-India Institute of Medical Sciences (AIIMS). The Government of India has decided to establish four more

FIGURE 21.6 Cause Specific Mortality Rate Per 100,000 Population (2008)



Source: WHO (2013).

FIGURE 21.7 Proportion of Population without Access to Improved Sanitation (%) (2011)



Source: WHO (2013).

AIIMS-like institutions at the cost of Rs 2,000 crores as per the 2013 Union Budget.

We need a well-trained public health workforce and regional public health institutions, directly funded by the government with equal if not more enthusiasm than establishing more tertiary care super specialty hospitals.

Professional Obligations

Not only society and the nation as a whole, but also the profession itself needs to address its obligations towards the healthcare workforce for establishing equitable and just entry-level assessment for respective professional

TABLE 21.2 Professional Obligations

Professional Obligations	Solutions
Right selection process	Common Entrance Examination (CEE) which is uniform and standardised throughout the country
Enough number of posts for training	Newer methods of training; increase number of training institutions including district hospitals
Newer methods of teaching, learning and assessment	Adult learning methods, work-based training, competence-based training, 360° assessment, regular in training assessment (RITA)
Training in newer disciplines	Communication skills, patient safety, competence-based skill training
Working conditions	Working hours norm, residential environment while training
Career structures	Career in both public sector and private sector with proper salary structure and career opportunity

Source: Author's illustration.

education, for training for competence, for ensuring appropriate working condition during training, and for ensuring an attractive career path and last but not least, for providing appropriate rewards and recognition in the society, for having taken up the this onerous service of the society (see Table 21.2).

HEALTHCARE WORKFORCE PLANNING IN INDIA

Till now, the approach of healthcare planners has been that of knee-jerk reaction—building more medical colleges, inviting private players to take a major share of building medical colleges and thus booking profit, encouraging hospitals and private players to build nursing colleges—a majority of which are of dubious standards, and developing a cadre of minimally trained workforce (BRHM), or employing AYUSH-trained doctors to make up for the shortage of doctors in rural India, to make up for the shortage of nurses by developing a cadre of ANM (Auxiliary Nurse Midwife) and ASHA workforce—thus providing a mere *minimum level of care* rather than a *high level of care* at the primary level—what has been proven to be the cornerstone of better health outcomes of an individual, community and the nation.

RADICAL REFORMS: INTERLINKING ISSUES

Meeting Doctor Shortages: Radical Reforms in accreditation process of training institutions and Faculty development

Increasing just the number of medical colleges with archaic rules and regulations that were created in the pre-Independence era of 1937–47 and with some superficial amendments in 1953, 2001, 2002 and 2003, did not help the situation even from achieving pure numbers perspective. The archaic rules only promoted license-permit raj and helped the corrupt practices of unscrupulous members of the society.

Prior to Flexner Reforms in the USA which was published in 1910 at one time in the nineteenth century the USA boasted of an incredible 414 medical colleges. Post-Flexner Reforms, this number reduced to 79 schools by 1924. Over the years since then, the number has grown to a modest 171 with the USA having far

superior health parameters as compared to ours with 381 medical schools. Similarly, the 32 medical schools in the UK provide the nation with a far greater doctor population ratio and of course a far better health outcome for its citizens (Sen 2013).

We certainly do not need more medical colleges in some of the states like Maharashtra and the southern states, but we do need more in some states where there is an acute shortage (for example, in the North-east region) and in areas nearer to the districts. District hospitals need to be the first to begin functioning as medical colleges.

Training outside Medical College

What we certainly need, however, is the *inclusion of capable and accredited hospitals* in the public and private sector, district hospitals and community health centres (CHCs) to participate in this training process—thus solving at one go the shortages of training posts by increasing the number of training institutions outside the conventional medical college hospitals, by *four to six folds*, the present poor quality of care at the district and rural region by providing *better patient care* due to academic activities and by also solving the perennial problem of vacant posts in the district hospitals and community health centres. We can thus upgrade the standards of care for our urban and rural poor and not downgrade the care further by providing them with poorly trained medical professionals.

As this is the system followed across the world, it is necessary for us to adopt a similar system instead of persisting with an age-old model.

Reforms in Medical Education

Reforms in the accreditation process, in the teaching method, in the learning process where it becomes competence-based, and development of various skill courses required for various specialties should be carried out simultaneously to educate and train healthcare professionals for the needs of a twenty-first century India. The curriculum and teaching process which had its origin in pre Independence days and which has been only slightly modified over the years is no longer suitable for present healthcare needs of the nation.

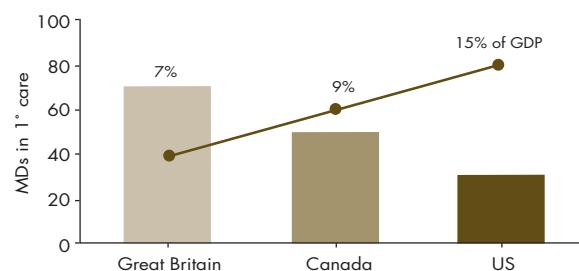
Training of Primary Care Physicians (Family Medicine/General Practice)

It has been established that in order to get better health outcomes of the nation as a whole, it is necessary to have a highly trained primary care physician workforce

providing robust preventive, routine and acute care for 90 per cent of illnesses. Better outcomes of chronic lifestyle diseases can only happen if they are well taken care of at this level (Starfield 1992).

The entry level of care has to be of high standard, not of lowest level of care, however, well intended it may be. In the UK where almost 65 per cent of medical graduates opt for primary care training, the cost of health expenditure is 7 per cent of the GDP, while in Canada where 55 per cent opt for primary care training and practice, the cost is 9 per cent, and in the USA where only 30–35 per cent opt for primary care training and practice (internal medicine), the cost is 15 per cent (see Figure 21.8)! The higher the number of primary care physicians who are well-trained and better paid, the better are the outcomes of health and lower the cost of providing healthcare to the populace. Sri Lanka and Thailand are great examples.

FIGURE 21.8 Inverse Relationship between Per Cent of Primary Care Physicians and Cost of Healthcare



Source: OECD (2005).

In the UK and USA and in most of the developed economies, primary care physician training is as rigorous and highly rewarding as the post-graduate training. In India, no such training is available (see Table 21.3). There is a tendency for most medical students in India, after completing the MBBS degree, to rush into specialty training, so much so that there is an acute shortage of good general physicians/family physicians/primary care physicians in allopathic medicine.

In 2010–11, the first Board of Governors of MCI, when it took over from the dissolved previous form of the MCI, revealed its *Vision 2015* document, where a specialty of Family Medicine MD degree course was proposed. Since then, in the last three years, only two seats have been made available for MD in Family Medicine, across 381 medical colleges! The National Board has a 3-year course in Family Medicine. There

TABLE 21.3 General Practitioners/Primary Care Physicians/Family Medicine Training

Country	Course	Specialty	Duration of Training post MBBS
India	MBBS	Not a specialty	None
	DNB (National Board)	Family Medicine	3 years
UK	MRCGP	Specialist Grade	6 Years
USA	MD (Internal Medicine)	Board Certified Specialist Family Physician	8 Years

Note: Primary care physician training in the UK and USA is as rigorous as any other specialty.

Source: Author's compilation.

are only a few seats available and even then there are no takers for this course.

We need medical colleges, exclusively training primary care specialists, and general specialists in each major disciplines of medicine so that they can effectively take care of 90 per cent healthcare needs of our population in both rural and urban areas.

We have examples of such medical colleges in our neighbouring country Nepal and also in the UK, one of the most advanced healthcare delivery countries in the world.

Need-based Curriculum

We need many more generalists rather than *only* specialist training, considering the need to cover a vast population and a large territory with poor infrastructure. The *Vision 2015* (MCI 2011) document did address the issue and suggested some radical reforms. The 'Vision' document recommended *different tier* of training for medical graduates to fulfill different needs of the society. But then, as is the case with most of our recommendations/white paper/government policy documents, they remain unimplemented.

Re-training AYUSH Doctors

AYUSH doctors are nevertheless a reality in India. They can legitimately occupy the position of practitioners of alternative medicine provided they restrict their practice

to their discipline. If we are to utilise their services beyond what they have been trained for, we need to seriously think of how they can be re-trained to become competent primary care physicians in modern medicine or to be trained to become managers in healthcare administration. An intensive competence-based training with judicious mixture of skill development in skill centres, and training in protocol-based care which is based on evidence-based medicine, can easily be worked out for such re-training to deliver modern, high quality primary care service.

Training of Nurses and Paramedics

For the size of its population, the number of nurses in India is lamentable. While India has 10 per 10,000 population, the corresponding number in Brazil is 64.2, in Sri Lanka 19.3, in China 15.1, in the UK 94.7, in the USA 98.2, in Australia 95.9, in Cuba 90.5, in Canada 104.3, and in Denmark 160.9 (WHO 2013) (see Figure 21.5)

Given the paucity of nurses, it is no wonder we have poor outcomes in under-5 child and maternal mortality. Instead of addressing the problem and strengthening the training of nurses and ensuring better career prospects for nurses, we have taken the easier route of enrolling minimally trained ASHA and ANM workers. While there is no denying of their usefulness or the great job they are doing in absence of well-trained nurses, this should have been implemented side-by-side along with a nation-wide emergency campaign of increasing and strengthening the education of nurses with *modern* curriculum and skill-based training.

Modern child care and maternal care need well-trained healthcare professionals with skills required to provide pre-natal and postnatal care in the community, and easy access to obstetricians and gynaecologists supported by modern equipments to monitor development of foetus and child birth. We need to constantly re-train our base-line healthworkers in acquiring competency-based skills. Almost 70 per cent of CHCs at one time or the other does not have the services of obstetricians or gynaecologists and almost none have non-invasive imaging facilities to monitor pregnancy, progress in foetal growth and equipment required to diagnose gynaecological problems of women.

Nurse Practitioners

Increasingly the world over, nurses are taking over more and more responsibilities from physicians. For example,

in the USA and in the UK they even man some health centres independently in the absence of primary care physicians or even to augment their service. Their training is need-based and skills training is tailored to the need of the community they serve.

Paramedics: Development of a New Cadre

Paramedics—medical technicians of various specialties, serve an equally important role at every level of healthcare delivery—from primary to tertiary level—often playing a far greater role than tertiary care providers.

In the developed world, it has been acknowledged that better outcomes in road traffic accident trauma victims or those having heart attacks in the past three decades has been *solely* due to the development of this most important cadre of healthcare workforce.¹

Paramedic training, in India, so far, has been ‘on-the-job’ training—there being no standard curriculum nor career planning, let alone any governance structure. There are national standards and rules and regulations to practice safely in the society set in almost all the developed nations in the world. These national councils are set up in the same manner as for medical professionals through various legislations.

Innovative Financing

The government needs to seriously review its trend of spending less and less on health expenditure. Not only it should boost expenditure on health considerably but also utilise the funds innovatively on building up systems and processes for universal healthcare in an innovative manner, and in providing financial reward for preventive medicine and focusing their attention on strategies that provide better health outcomes.

In the UK, EU and Australia, as much as 70–90 per cent of government expenditure on health is spent on primary care service delivery. In the National Health Services (NHS) in the UK, there is incentive financing for preventive medicine and better outcomes in healthcare delivery.

It has been seen that the current strategy of focusing on expensive tertiary care treatment only improves the financial status of the provider, which in most cases is private provider, and does not improve national healthcare outcomes.

THE PROCESS OF PLANNING

Workforce planning in healthcare, therefore needs to have a systematic approach, forecasting the desired numbers and their equitable distribution in various geographical areas at various level of care, with emphasis on network of robust primary care, and integrating it with their education and training. The workforce also needs a careful career planning, to attract the right talent and a satisfying career with appropriate reward and recognition in the society.

India needs a robust workforce planning process to ensure we have staff in the right number, with the right skills and the right values and behaviour to deliver high quality care.

For this to happen, we must develop a National Healthcare Workforce Planning Commission (NHWPC); under it simultaneously develop two independent but *interdependent* bodies—National Healthcare Workforce Information Commission (NHWIC) and National Healthcare Workforce Education and Training Commission (NHWETC)—which should work together in a *collaborative* way.

All the three commissions should be under the MoHFW. The members of the Commission should be experts in their respective fields with representation from stakeholders, including eminent citizens from the public and respective professional bodies.

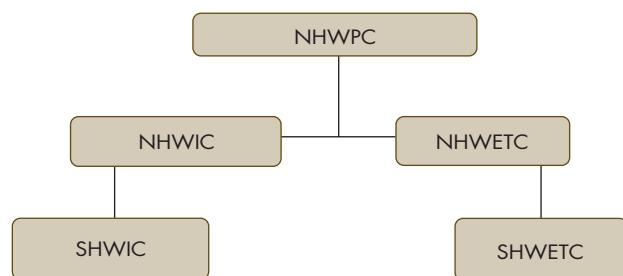
All the NHWIC and NHWETC should have presence in the states through the State Healthcare Workforce Information Commissions (SHWICs) and State Healthcare Workforce Education and Training Commission (SHWETCs). It is proposed that the ultimate responsibility of providing adequate workforce based on workforce information, and the responsibility of educating and training the workforce will rest with the individual state (see Figure 21.9).

The National Planning Commission in particular should address the following issues and develop a time-bound national strategy for better health outcomes of our nation.

- Reforms in the regulatory process for setting up training institutions for doctors, nurses, paramedics and other healthcare professionals,
- Reforms in the governing process (licensing) of healthcare professionals so that public safety and

¹ See <http://www.healthspring.in/wp-content/uploads/2012/04/FAQ-about-EMS-Service-of-Healthspring.pdf>, accessed on 12 June 2014.

FIGURE 21.9 Structure of the Proposed National Healthcare Workforce Planning Commission (NHWPC)



Notes: NHWIC: National Healthcare Workforce Information Commission, NHWETC: National Healthcare Workforce Education and Training Commission, SHWIC: State Healthcare Workforce Information Commission, SHWETC: State Healthcare Workforce Education and Training Commission.

Source: Author's illustration.

- concerns are protected foremost (*Good Medical Practice* [GMC], UK),
- Reforms to develop need-based curriculum for healthcare professionals for twenty-first century India,
 - Focus on development of primary care workforce,
 - Focus on the development of the community workforce,
 - Development of accredited skill centres regionally and locally,
 - Ensure social care and public health linkages,
 - Public-Private Partnership (PPP) and encouragement of the independent sector,
 - Development of a national database of information, analysis and use of evidence,
 - Accountable care mechanism,
 - Wider workforce dimension in local planning,
 - The interface with education providers: medical colleges, training institutions, professional organisations representing various stakeholders and the public forum.

The NHWIC should be in charge of gathering information nationally and locally, and providing the data base of healthcare workforce.

The NHWETC, which will include education and training requirements of doctors, nurses, paramedics and other healthcare professionals, should be based on the larger needs of the society, both in terms of quality and in numbers required at state level, and should be guided by the National Policy on Health.

In the developed economies with better national health outcomes, like the USA, the UK, and the EU, similar national bodies have been created, which are responsible for healthcare workforce planning, which

integrates planning with information on needs and appropriate training requirement for the workforce.

CONCLUSION

Twenty-first century India has lagged behind in its healthcare delivery and outcomes, as compared to similar developing economies. Healthcare workforce planning is different from any other discipline workforce planning—as its number per defined population and its quality of workforce, has direct impact on the well-being of the nation.

Healthcare workforce planning has its obligations towards the society and the nation in its turn has obligations to the profession, for their training needs and career perspectives. All effort should be made to fulfill the needs of the society and hence the planning should be *demand* driven, rather than only supply driven. In all this effort, a robust primary care network, with integrated referral system to secondary or tertiary care for the few who need it, should be the national focus. Health outcomes will only improve if we have a robust high quality primary care. We certainly need more doctors who are generalists rather than only super specialists, more nurses who are trained with higher skills and thus whose skills have been *upgraded* and not *downgraded*, and a well-trained paramedic workforce with a proper training and career structure.

Healthcare workforce planning has to be integrated with appropriate curriculum and training. Competency-based training, adult learning process and various skills acquisitions courses required in skills centres, should replace the age-old didactic lecture and memory-driven learning process. For all this to happen, radical reforms are needed the way we educate and train, the way we govern the profession so that the society's interests are safeguarded, and the way we maintain standards in all aspects of healthcare delivery.

Healthcare workforce planning *must* be the responsibility of the government with appropriate funding as one of its serious commitments towards its citizens. For far too long, health has been neglected by our respective governments who have been satisfied with shortcut measures and a policy of meeting the exigency.

We need a well-structured institution of NHWPC. Whatever be the nomenclature, the central body must have state participation and together with all the three elements—planning, constant monitoring of needs, and education and training—should work collaboratively in an integrated way.

Only when we have implemented all these steps we stand a chance to catch up with the rest of the world

and take a committed step towards providing universal healthcare for our people.

REFERENCES

- Chatterjee, Patralekha. 'Protecting India's Poorest from Unaffordable Medical Bills', published on 8 November 2012, BMJ 2012; 345, doi: <http://dx.doi.org/10.1136/bmj.e7554>, accessed on 12 June 2014.
- MoHFW (Ministry of Health and Family Welfare). 2013a. *Rural Health Statistics 2012*. New Delhi: MoHFW, Government of India.
- _____. 2013b. *National Rural Health Mission Training Strategy 2012*. New Delhi: MoHFW, Government of India.
- Planning Commission. 2011. 'High Level Expert Group Report'. New Delhi: Planning Commission.
- Sen, Gautam. 2013. 'Primary care-the Neglected Orphan in Healthcare Delivery in India'. White Paper on State of Primary Care, submitted to MoHFW, October.
- Shirodkar, Suja Nair. 2014. 'Medical fraternity wants Govt to look beyond BRHM to address shortage of doctors in rural areas'. Pharmabiz, 11 June, <http://www.pharmabiz.com/NewsDetails.aspx?aid=82366&sid=1>, accessed on 12 June 2014.
- Starfield, Barbara. 1992. *Primary Care: Concept, Evaluation and Policy*. New York: Oxford University Press.
- MCI (Medical Council of India). 2011. Vision 2015. *Vision 2015 Document on UG and PG Studies*, MCI, BOG 2010–2011. http://www.mciindia.org/tools/announcement/MCI_booklet.pdf, accessed on 10 June 2014.
- OECD (Organisation for Economic Cooperation and Development). 2005. 'Inverse Relationship between Number of Generalists and Cost of Health Care in the United Kingdom, Canada, and the United States', cited in *Lecture: Managed Care Healthcare's Changing Landscape: A View from Inside the Insurance Industry*, by Jay Feldstein, Christopher Drummond and Eric J. Berman, http://www.acofp.org/UploadedFiles/ACOFP/CME_Center/Conventions/2014/2014HandartsFri%201030_Berman_Drumm_Feldstein_Managed%20Care.pdf, accessed on 12 June 2014.
- WHO (World Health Organisation). 2013. *World Health Statistics, 2013*. Italy: WHO.

FURTHER READINGS

- AAMC Physician Workforce Policy Recommendation, USA, September 2012, <https://www.aamc.org/download/304026/data/2012aamcworkforcepolicyrecommendations.pdf>, accessed on 10 June 2014.
- MoHFW 2005. *National Rural Health Mission 2005–2012*. New Delhi: MoHFW, Government of India.
- NHS (National Health Service). 2012. HEE Strategy for Workforce Development Plan, NHS, UK, <http://hee.nhs.uk/work-programmes/workforce-planning/>, accessed on 10 June 2014.
- 'Patient Protection and Affordability Care Act of 2010, USA', <http://www.gpo.gov/fdsys/pkg/PLAW-111publ148/pdf/PLAW-111publ148.pdf>, accessed on 10 June 2014.
- Sheldon, George F. 2007. 'Surgical Workforce since 1975'. *Annals of Surgery* (246) (4): 541–45.
- WHO. 2013. *Global Atlas of Healthcare Workforce*. Geneva: WHO.
- _____. 2005. 'Preparing a Healthcare Workforce for the 21st Century: The Challenge of Chronic Conditions'. France: WHO.

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The Indian population today has little or no access to good quality healthcare at affordable prices. Not surprisingly, on several of the basic health indicators India ranks amongst the lowest in the world. The health crisis is aggravated by a rising incidence of chronic and non-infectious diseases. The public health system is in jeopardy, due to decades of appallingly low public investments; inadequate and antiquated infrastructure; severe shortage of human resources; and inadequacies in government policies. Failed public health systems have forced people to turn to the private sector, which is costly and unregulated, with services often being provided by unqualified medical practitioners. As a result, people seeking healthcare services have the agonising choice between poor quality public facilities and costly, yet undependable private services. Preventive and primary healthcare have been marginalised, with the focus having shifted to curative tertiary care, higher importance of clinical medicine, and extremely high dependence on clinical investigations. Health expenditures can be prohibitively high with the rural population and the urban poor being the worst sufferers. India is thus faced with the daunting challenge of providing Universal Health Coverage (UHC) and ensuring that all people receive good quality healthcare without facing significant financial difficulty.

Twelfth in the series, *India Infrastructure Report 2013/14* looks at the challenges for ensuring availability, accessibility, affordability and quality of comprehensive healthcare to all, and explores strategies to overcome the impediments along the road to UHC. In this process, it also discusses whether initiatives taken to reduce the burden of people's health expenditure has yielded desirable results, how to leverage the strengths of the private sector in healthcare delivery, role played by the non-state entities in rural healthcare, imperatives of engaging with the community, and the high impact of preventive care at low cost. The Report draws the readers' attention to some of the emerging issues in the health sector such as rising burden of non-communicable diseases and mental health, human resource crisis in health sector, and health concerns of informal sector workers, and steps required to attend to them within the UHC framework.

The result of a collaborative effort led by the IDFC Foundation, this Report brings together a range of insightful perceptions of academics, researchers and practitioners committed to improving healthcare practices. It will be an extremely useful resource for policy-makers, academics, researchers and corporates engaged in this sector.

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