IMMUNIZATION PROGRAMME AND PREVENTIVE IMMUNIZATION

- **Immunization**, or **immunisation**, is the process by which an individual's immune system becomes fortified against an agent (known as the immunogen)
- **Immunization** is the process whereby a person is made immune or resistant to an infectious disease, typically by the administration of a vaccine. Vaccines stimulate the body's own immune system to protect the person against subsequent infection or disease.

Vaccine Types

- Live-attenuated vaccines
- Inactivated vaccines
- Subunit, recombinant, polysaccharide, and conjugate vaccines
- Toxoid vaccines

- **Live vaccines** use a weakened (or attenuated) form of the germ that causes a disease.
- Measles, mumps, rubella (MMR combined vaccine)
- Rotavirus
- Smallpox
- Chickenpox
- Yellow fever

- **Inactivated vaccines** use the killed version of the germ that causes a disease.
- Hepatitis A
- Flu
- Polio
- Rabies

- **Subunit, recombinant, polysaccharide, and conjugate vaccines** use specific pieces of the germ — like its protein, sugar, or capsid (a casing around the germ).
- Because these vaccines use only specific pieces of the germ, they give a very strong immune response that's targeted to key parts of the germ. They can also be used on almost everyone who needs them, including people with weakened immune systems and long-term health problems.
- Hib (*Haemophilus influenzae* type b) disease
- Hepatitis B
- HPV (Human papillomavirus)
- Whooping cough (part of the DTaP combined vaccine)
- Pneumococcal disease
- Meningococcal disease
- Shingles

- **Toxoid vaccines** use a toxin (harmful product) made by the germ that causes a disease. They create immunity to the parts of the germ that cause a disease instead of the germ itself. That means the immune response is targeted to the toxin instead of the whole germ.

Diphtheria
Tetanus

UNIVERSAL IMMUNIZATION PROGRAMME

Launched on 19 Nov 1985 in remembrance of then Prime Minister, Indira Gandhi.

MILESTONES IN THE IMMUNIZATION PROGRAM

1978 : Expanded Program of Immunization (EPI) introduced after smallpox eradication:

BCG, DPT, OPV, Typhoid.

Limited to mainly urban areas

1985 : Universal Immunization Program (UIP) introduced

Expanded to entire country; Measles added.

1986 : National Technology Mission

Objectives

Monitoring under PMO's 20 point programme

Improve coverage with existing antigens

Develop self sustainability in vaccine production

1990 : Vitamin-A supplementation.

1992 : Child Survival and Safe Motherhood Program.

1995:- India 1st conducted national immunisation day for polio eradication.

1997:- Reproductive and Child Health Programme

National Polio Surveillance Project launched as WHO & GOI collaboration.

2001:- National Technical Advisory Group On immunisation formed

2005:- National Rural Health Mission

OBJECTIVES

1) To increase immunization coverage.
2) To improve quality of service.
3) To achieve self sufficiency in vaccine production & manufacturing of cold chain equipments.
4) To establish reliable cold chain equipment and establish a good surveillance network.
5) To introduce a district wise system monitoring & evaluation
6) To train health personnel.

- India has one of the largest Universal Immunization Programs (UIP) in the world in terms of the quantities of vaccines used, number of beneficiaries covered, geographical spread and human resources involved.

- Under the UIP, all vaccines are given free of cost to the beneficiaries as per the National Immunization Schedule.

- All beneficiaries can get themselves vaccinated at the nearest Government/Private health facility or at an immunization post (Anganwadi centres/ other identified sites) near to their village/urban locality on fixed days.

- The UIP covers all sections of the society across the country with the same high quality vaccines.

COMPONENTS OF UIP

1. Immunization of pregnant women against tetanus.

2. Immunization of children in their first year of life against 6 VPDs.

2 COMPONENTS OF UIP

Aim/ Target :-

- To achieve 100 % coverage of pregnant women with 2 doses of TT.
- At least 85% coverage of children under one year (with 3 doses of DPT, OPV & one dose of BCG, One dose of Measles) by march 1990.
- Target was increased to cover 100% of infants as the vaccination programme became universalised in geographical coverage
- UIP was first started in 31 selected districts with plan of scale up to additional districts.

Goal 1

Districts will provide efficient and safe immunization services to all infants and pregnant woman

Objectives

- Regular quality immunisation sessions are planned and held
- Adequate trained staff are empowered to provide quality immunisation services
- Annually upgrade cold chain inventory according to levels of network
- Implementation of safe injection practices & waste disposal

Strategies

- Coordination between national and state level
- Printing & supply of normal operational guidelines
- Strengthening of supervision
- Prioritization of under served populations within districts
- Strengthening Training of all categories of staff
- Timely supply of vaccines and ensuring quality control of vaccines

Goal 2

Contribute global polio eradication, measles mortality reduction and neonatal tetanus elimination

Objectives

- Polio eradication certification by 2007
- Elimination of neonatal tetanus by 2009
- Reduction in measles mortality by 2/3 compared to 2000 estimates by 2010
- Achieve and maintain 70% coverage of 2 doses of vitamin A to children < 3 yrs

Strategies

- Routine immunisation for polio
- Supplementary immunisation activities
- AFP (acute flaccid paralysis) surveillance
- Increasing the reporting and action on cases
- Safe delivery practices
- Strengthening measles vaccination and surveillance and response to outbreaks

Goal 3

UIP will have sufficient and sustainable funding with established adequate, accountable, efficient fund flows

Objectives

- Adequate & reliable financial resources at national, state and local levels for the UIP to achieve goals & objectives
- Political commitment for adequate annual funding at all levels

Strategies

- Strengthening national financial planning
- Building partnership

Goal 4

Sustain demand & reduce social barriers to access immunisation services

Objectives

- Widespread support by families and communities
- All eligible children & pregnant woman are immunised
- High level political and administrative support

Strategies

- Coverage with print, electronic media,etc.
- Improve interpersonal communication

Goal 5

Accelerated introduction of licensed new and under utilized vaccines against diseases with significant mortality and morbidity in India

Objectives

- Institutional mechanisms in place to adequately obtain, review and utilize information for deciding on introduction of new and under utilized vaccines
- Review need for MMR or MR vaccines in India's immunisation program
- Phased introduction of Hepatitis B

Strategies

- Improve coordination between MoHFW, research institutes, NRI, development partners, surveillance & training.

Goal 6

To monitor & use accurate, complete & timely data on vaccine preventable disease , AEFIs (Adverse event following immunization), antigen coverage & drop out rates by district

Objectives

- Institutional surveillance for VPDs & early detection of any outbreaks
- Strengthened vaccine quality and injection safety by developing monitoring system for reporting & responding to adverse events following immunisation by 2009
- Effective, efficient complete and timely immunisation, local recording and area monitoring system by 2009

CHANNEL s OF SERVICE PROVISION

Immunization services are provided through the existing Health Care Delivery System. (MCH centers, PHC, CHCs, Hospitals, Dispensaries).

Additional national efforts

- Launch of immunization strengthening project (ISP)
- Urban measles campaign
- Border district cluster strategy (BDCS)
- Celebration of immunization weeks
- The national technical advisory group on immunisation (NTAGI) was formed in 2001 .
- The adverse events following immunisation reporting has been made a part of UIP since 1985.
- 1st documented AEFI report & guidelines published in 1988
- Guidelines revised and widely disseminated in 2005-06

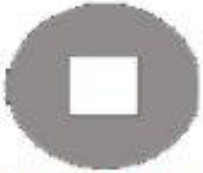
- To strengthen post marketing surveillance for vaccines in India
  - Manufacturers are required to submit periodic safety update reports (PSURs) for all newly licensed vaccines to Central Drug Standard Control Organisation (CDSCO) every 6 months in 1st two years and then Annually for next 2 years

- India adopted policy of use of auto disable syringes only for UIP in country starting in 2005-06

- India adopted policy for procuring all vaccines with Vaccine Vial Monitor (VVM) to monitor potency of the vaccines in field situation

- India released 1st National Vaccine Policy in 2011. policy provides guiding principles for functioning & strengthening of immunisation programme in country.

Vaccine Vial Monitor



Stage 1 = good:
Utilize

Stage 3 = bad:
Don't Utilize

Stage 2 = good:
Utilize

Stage 4 = bad:
Don't Utilize

The central square is lighter than the surrounding circle

The central square is equal to, or darker than the surrounding circle

- The year 2012-13 was declared as **"Year of Intensification of Routine Immunisation"** in India.

- There was increased focus on improving coverage in identified 239 poor performing districts in India.

Table 3.1: Components of the Immunization Microplan

Sub-center

- An estimation of beneficiaries
- An estimation of vaccines, and logistics
- A work plan, including:
  - Who will provide the services?
  - Who will assist in provision of the services (AWW, ASHA, Social mobilizers, Gram Panchayat members, NGOs etc)
  - Where will the services be provided (selection of sites)?
  - When will the services be provided (planning of sessions)?

SC/PHC

- An Area Map (with villages, hamlets, hard to reach areas, etc. at the SC-level. For the block level, the map includes SC boundaries, with alternate vaccine delivery routes and vaccine storage points.

PHC/District

- A plan for Supervision
- A budget that includes the costs of transport, meetings, social mobilization and other activities.
- IEC and Training Plans

EXPANDED PROGRAMME ON IMMUNISATION (EPI)

- EPI launched in 1974
- Targeted 6 diseases
- EPI progressively adopted by all countries

  Universal by early 1098s

EPI IN INDIA

- The Govt of India launched it's EPI in 1978.
- Introduced BCG, OPV, DPT, & Typhoid-paratyphoid vaccines

Objectives

- To reducing mortality, morbidity resulting from VPDs.
- To achieve a self sufficiency in vaccine production.

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 & 3	At 6 weeks, 10 weeks & 14 weeks (OPV can be given till 5 years of age)	2 drops	Oral	Oral
Pentavalent 1, 2 & 3	At 6 weeks, 10 weeks & 14 weeks (can be given till one year of age)	0.5 ml	Intra-muscular	Antero-lateral side of mid-thigh
Rotavirus#	At 6 weeks, 10 weeks & 14 weeks (can be given till one year of age)	5 drops	Oral	Oral
IPV	Two fractional dose at 6 and 14 weeks of age	0.1 ml	Intra dermal two fractional dose	Intra-dermal: Right upper arm
Measles /MR 1st Dose$	9 completed months-12 months. (can be given till 5 years of age)	0.5 ml	Sub-cutaneous	Right upper Arm
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-Rubella	1 ml (1 lakh IU)	Oral	Oral

- Target :- at least 80% coverage in infancy.
- As vaccination was offered through major hospitals & largely restricted to urban areas so coverage remained low.

- In 1981 Typhoid-paratyphoid vaccine was dropped from EPI due to
  --- Considered higher reactogenicity and low efficacy of the vaccines
  --- Perceived reduced burden of typhoid disease in the country.

- In 1983 tetanus toxoid vaccine for pregnant woman added in EPI

National Immunization Schedule

Age	Vaccines
Birth	BCG, OPV-O, Hep B
6 weeks	DPT -1, OPV -1, Hep B
10 weeks	DPT -2, OPV -2, Hep B
14 weeks	DPT -3, OPV-3, Hep B
9 months	Measles with vitamin A
16-24 months	DPT booster 1st , OPV – Booster,
5 years	DPT Booster 2nd
10 years	TT
16 years	TT

AGE	VACCINES
16-24 months	Measles 2nd dose
16-24 months	Japanese Encephalitis
18 , 24, 30, 36, 42, 48, 54, 60 months	Vitamin A

AGE	VACCINES
TT-1	Early in pregnancy
TT-2	4 weeks after TT-1
TT booster	if received 2 TT doses in last pregnancy within last 3 years

Vaccines added

- On 2nd July GOI introduced 4 new vaccines on recommendations given by NTAGI
  - ROTAVIRUS
  - INJECTABLE POLIO
  - RUBELLA
  - JAPANEASE ENCEPHALITIS

1) If a dose is missed……..

- Give the dose at the next opportunity irrespective of the time gap
- Do not start the schedule all over again

?????

What next ??

Table-7: Vaccination schedule of an Unimmunized Child		
Age	**Less than 5 years**	**More than 5 years**
First Visit	BCG, OPV, DPT, HB	TT/ Td, HB
2nd visit (1 month later)	OPV, DPT, HB	TT/ Td, HB
3rd visit (1 month later)	OPV, DPT, MMR, Typhoid	MMR, Typhoid
1 Year later	OPV, DPT, HB	HB
Every 3 years	Typhoid booster	Typhoid booster

3) Immunisation in preterm infants

- All vaccines except Hepatitis B
- If BW < 2Kg & mother HBsAg negative :- postpone till baby attaines 2kg wt or 2 mths of age.
- If BW < 2Kg & mother HBsAg positive :- give vaccine + immunoglobulin.

3) Immunisation in preterm infants

- All vaccines except Hepatitis B
- If BW < 2Kg & mother HBsAg negative :- postpone till baby attaines 2kg wt or 2 mths of age.
- If BW < 2Kg & mother HBsAg positive :- give vaccine + immunoglobulin.

Tetanus toxoid

- Intramuscular – upper arm – 0.5 ml
- Pregnancy – 2 doses - 1st dose as early as possible and second dose after 4 weeks of first dose and before 36 weeks of pregnancy
- Pregnancy – booster dose (before 36 weeks of pregnancy) – If received 2 TT doses in a pregnancy within last three years. Give TT to woman in labour, if she has not received TT previously
- TT booster for both boys and girls at 10 years and 16 years
- No TT required between two doses in case of injury

BCG

- At birth or as early as possible till one year of age
- 0.1 ml (0.05ml until one month of age)
- Intra-dermal
- Left upper arm

Hepatitis B

- Birth dose – within 24 hours of birth
- 0.5 ml
- Intramuscular
- Antero-lateral side of mid-thigh
- Rest three doses at 6 weeks, 10 weeks and 14 weeks

OPV

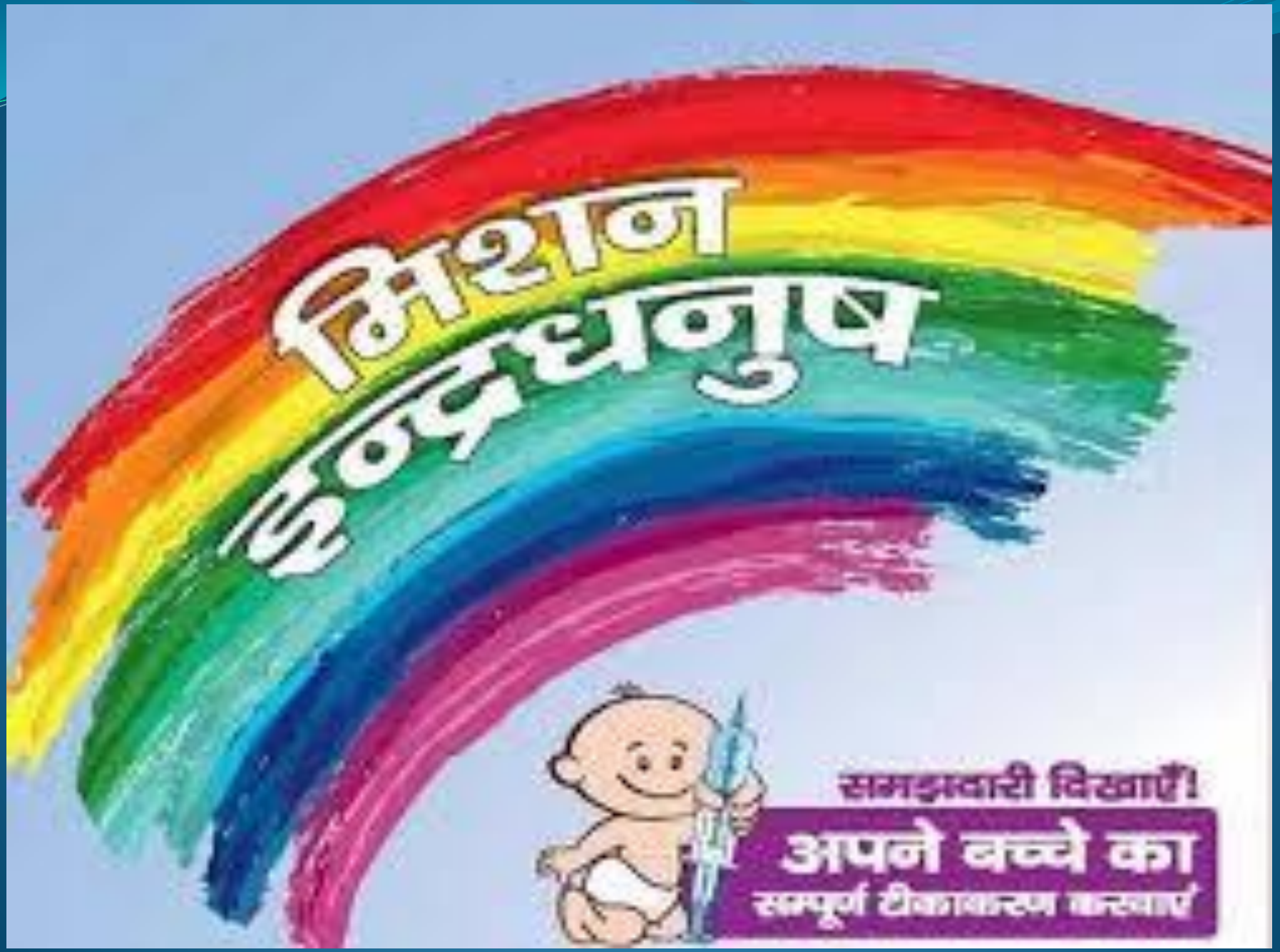
- Zero dose – within first 15 days of birth
- 2 drops
- Oral
- First, second and third doses at 6, 10 and 14 weeks with DPT-1, 2 and 3
- OPV booster with DPT booster at 16-24 months

DPT

- Three primary doses at 6, 10 and 14 weeks with OPV-1, 2 and 3
- 0.5 ml
- Intra-muscular
- Antero-lateral side of mid-thigh
- One booster at 16-24 m with OPV booster (antero-lateral side of mid-thigh) and second booster at 5-6 years (upper arm)

Measles

- At 9 completed months to 12 months
- Give up to 5 years if not received at 9-12 months age
- Second dose at 16-24 months (select states after catch-up campaign) – Measles Containing Vaccine
- 0.5 ml
- Sub-cutaneous
- Right upper arm
- Along with Vitamin A (1^{st} dose) – 1ml (1 lakh IU) -


मिशन इन्द्रधनुष
समझदारी दिखाएँ!
अपने बच्चे का
सम्पूर्ण टीकाकरण करवाएँ

Mission Indradhanush

- Launched on 25th dec 2014 by GOI.
- Aim :- To immunise all children against 7 preventable diseases by 2020
- Why?
- Where?

- **Mission Indradhanush** is a health mission of the government of India. It was launched by Union Health Minister J. P. Nadda on 25 December 2014.[1] The scheme this seeks to drive towards 90% full immunization coverage of India and sustain the same by year 2020. Vaccination is being provided against eight vaccine-preventable diseases nationally, i.e. Diphtheria, Whooping Cough, Tetanus, Polio, Measles, severe form of Childhood Tuberculosis and Hepatitis B and meningitis & pneumonia caused by Haemophilus influenza type B; and against Rotavirus Diarrhea and Japanese Encephalitis in selected states and districts respectively.

- 201 districts will be covered in the first phase. Of these, 82 districts are in the states of Uttar Pradesh, Bihar, Rajasthan, and Madhya Pradesh. The 201 districts selected have nearly 50% of all unvaccinated children in the country.The mission follow planning and administration like PPI (Pulse Polio Immunization)

HISTORY

- Immunization Programme in India was introduced in 1978 as ‘Expanded Programme of Immunization’ (EPI) by the Ministry of Health and Family Welfare, Government of India. In 1985, the programme was modified as eas under National Health Mission (NHM) since 2005. Despite being operational for many years, UIP has been able to fully immunize only 65% children in the first year of their life.

THANK YOU