National Department of Health

Ministerial Taskforce on Maternal Health in Papua New Guinea

Report

May 2009

Forward

The health of our mothers is important to us all. Strong mothers mean strong children, families, communities and a strong Papua New Guinea. It is unacceptable that nearly 2000 mothers die each year in Papua New Guinea while bringing their children into the world. This is something we must change.

I established the Ministerial Taskforce on Maternal Health to report on the current situation in Papua New Guinea so that we can all know the impact maternal death is having on our country. I also asked the Taskforce to report on ways that the National Department of Health and the Government of Papua New Guinea can respond to the needs of mothers and reduce the maternal death rate in Papua New Guinea.

The Taskforce has clearly identified that Papua New Guinea is currently failing its mothers and that there is a crisis in maternal health. The Taskforce has presented 7 key recommendations to show us a way forward and guide us in our response to this crisis. With these recommendations we can build a stronger health system that better meets the needs of our mothers. We can reduce the maternal death rate and we can educate young women and men on how they can stay healthy when starting a family.

The Government of Papua New Guinea and the National Department of Health are committed to improving the health of our mothers. I am pleased to present the Report of the Ministerial Taskforce on Maternal Health, which will be our guide to improving maternal health in Papua New Guinea.

The Report of the Ministerial Taskforce on Maternal Health will be used to guide the development of the 2011-2020 National Health Plan with Maternal Health as a key policy focus for the next decade. As part of the National Health Plan, maternal health services will be strengthened through the introduction of the Community Health Post concept with dedicated midwifery staff to assist with antenatal care and referral. This will be complimented by a comprehensive maternal health program aimed at increasing the maternal health workforce, strengthening antenatal care and referral services and improving outcomes for mothers and new born children.

Hon. Sasa Zibe MP
Minister for Health and HIV and AIDS

Acknowledgements

Task Force Membership:

Chairperson: Chief Obstetrician and Gynaecologist	Dr L. Augerea
Dep. Chair: Prof. Obstetrics & Gynaecology, UPNG	Prof. G. Mola
Dep. Secretary, Services & Standards, NDoH,	Dr. P. Dakulala
Director, National Research Institute	Dr. T. Webster
Secretary, Department of Education	Mr J. Pagalio
Secretary, Dept. National Planning & Rural Development	Mr J. Lelang
WHO Country Representative	Dr. E. Sorensen
UNFPA Country Representative	Dr A. Ryhl
A/Prof. Faculty of Health Sciences, DWU	Dr R. Kaul
Sen. Tech. Adviser, NDoH	Dr. M. Whittaker

Secretariat:

Members of the Sexual and Reproductive Health Technical Advisory Committee including:

Executive Manager, Public Health	Mr E. Posanai
A/Director, Health Improvement Branch	Dr W. Lagani
Principal Adviser, Family Health Services	Dr. H. Polume

Secretariat Working Group:

Dr William Lagani, HIB, NDoH
Prof Glen Mola, SMHS, UPNG
Prof Bediako Amoa, PMGH
Dr Norbert Rehlis, WHO
Dr Aham Isika, UNFPA
Dr Maxine Whittaker, NDoH
Dr Miriam O'Connor, NDoH
Mrs. K. Milliken, NDoH

Editing:

Mr Tony Kiessler, NDoH
Mr Geoff Clark, WHO

Table of Contents

Abbreviations and Glossary of Terms

AIDS	Acquired Immune Deficiency Syndrome
BEmOC	Basic Emergency Obstetric Care
CBO	Community based Organization
CEmOC	Comprehensive Emergency Obstetric Care
DP	Development Partners
DWU	Divine Word University
EOC	Essential Obstetric Care
EmOC	Emergency Obstetric Care
FBO	Faith-Based Organization
FHS	Family Health Services
FP	Family Planning
GBV	Gender Based Violence
GoPNG	Government of PNG
HIB	Health Improvement Branch
HIV	Human Immunodeficiency Virus
HR	Human Resources
HRM	Human Resources Management
IMR	Infant Mortality Rate (Children under 1 yr of age)
LARC	Long Acting Reversible Contraception
MDGs	Millennium Development Goals
MMR	Maternal Mortality Rate
MTFMH	Ministerial Task Force on Maternal Health
NDoE	National Department of Education
NDoH	National Department of Health
NGO	Non-Government Organization
NSV	No-Scalpel Vasectomy
p.a.	Per annum
PNG	Papua New Guinea
PPPA	Public Private Partnership Agreement
PPPD	PNG Parliamentarians for Population and Development
SMHS	School of Medicine and Health Sciences
S&RH	Sexual & Reproductive Health
SRHTAC	Sexual and Reproductive Health Technical Advisory Committee
TL	Tubal Ligation
TFR	Total Fertility Rate
UNFPA	United Nations Population Fund
UPNG	University of PNG
WHO	World Health Organization

Background Context and Rationale

Women play a significant role in Society and, therefore, as a Government there is a moral obligation to safeguard their health and well-being (and thereby that of their families, particularly their young children). Unhappily, maternal health is always the first to suffer when things are not going as they should: it requires a fully functional Health Service to ensure good outcomes in the face of sudden and unexpected complications.

> *"Women are an inseparable part of community and our family life. They share our lives as mothers, wives, daughters, nieces and friends. Women work in markets. They sell fish, rice or buai. Women work in villages, they grow rice, vegetables, and they make sago and bilums. They dance when we have celebrations and they cry when there is a death in the village. Community life would be unthinkable without them."*
>
> **The Prime Minister, the Rt. Hon. Sir Michael Somare,**
> Post Courier March 11th 2009 (before the Vote re Women Reps in Parliament on March 10th 2009)

The doubling of PNG's MMR as measured by the Demographic Health Surveys (DHS) of 1996 and 2006 is a clear reflection of the failure of access to and the delivery of quality health services over the last 10-15 yrs. PNG, as a signatory to the Millennium Development Goals (MDGs), has pledged to reduce maternal mortality by two-thirds between 1990 and 2015. This goal is clearly under significant threat while an average of 1,500 PNG women and girls die each year in relation to pregnancy and childbirth alone.

Delivery of social services in PNG has always been a challenge: access related to roads and transport; seasonal variation in conditions; issues around law and order; community education and literacy; challenges related to logistics of supply and re-supply; and issues related to human resource management, including performance management (good and poor). In delivering services related to maternal health all of these things come into play and are further weighted by the challenged status of women and the relative lack of knowledge and involvement of men regarding Sexual and Reproductive Health issues (including their own).

The Minister for Health and HIV/AIDS, the Hon. Mr Sasa Zibe, convened a Ministerial Task Force as a way of exploring the reasons for the deterioration in maternal health and establishing a way forward to protect the future health of PNG girls and women.

Executive Summary

i.i Overview of the Maternal Health Situation in PNG

Papua New Guinea has a **Maternal Mortality ratio of 733 per 100,000 live births**[1], the second highest Maternal Mortality Ratio in the Asia Pacific Region and high in comparison to the rest of the world.

The National Department of Health should, as an immediate priority, develop the cadre of community midwife, ie. a Community health worker who has received at least 6 months of competency based training and certification in midwifery.

Most complications are not in pregnant women assessed as higher risk, but in those who are considered low risk. 15% of antenatal women will develop complications, 15% will develop some level of complication in labour or delivery and 15% will develop some level of problem in the post-partum period (which lasts 6 weeks). Of these cases, only 15% are considered to have been predictable based on case history.

The causes of maternal mortality in PNG are the same proportion as the rest of the world. Obstetric haemorrhage is the main medical cause of maternal death. Local variation can be important, with unsafe abortion carrying a huge risk in some populations, and indirect causes, such as malaria or HIV/AIDS, featuring prominently where background prevalence is high[2]. A substantial proportion of maternal deaths take place in hospital[3]. "**88–98% of maternal deaths are preventable**"[4]

Various international reports estimate that, for every woman who dies in pregnancy or childbirth, another 30 sustain significant disability, much of it life-lasting. The death or chronic ill-health of a mother increases the probability of death and the poor growth and development of her children[5]. Improvements in financial and geographical access to good quality intrapartum care based in health centres is therefore important in any poverty eradication strategy, as well as a means of reaching MDG-5[6]. Women develop physical or mental disabilities every year as a result of complications or poor management.

PNG people's confidence in the existing health system is poor – "people do not express high esteem for the existing health system, although a clear distinction is made between the much preferred church based health care system and the much criticized government service[7]". Their concerns included closed facilities, lack of personnel, drugs and supplies, charges for health

[1] PNG DHS 2006 preliminary data, accounting for the 12 year period 1994 - 2006
[2] Ronsmans et al 2006
[3] Ronsmans et al 2006
[4] WHO 1986
[5] WHO 2006
[6] Gwatkin 2005
[7] Decock, Hiawalyer and Katz 1997

services and rude and disrespectful staff. **Women do not trust the health system to look after them respectfully and safely.** Maternity care can be disrespectful and contingent upon payment of fees. Offensive and demeaning language by health personnel, and ridiculing of women's poverty, clothing, parity, smell, hygiene, cries of pain, or desire to remain clothed is not only disrespectful, but abusive. Throughout the public submissions to the Taskforce, experiences of this disrespectful and abusive behaviour were discussed.

There are many groups in the population of PNG who are marginalized and/or have special needs. As well as the general population, the government of PNG must take into account various special groups (and especially marginalized and higher risk groups) if we are to achieve significant development and a stable population for our future. These include:

- Women who have children when they are at the "extremes" of their reproductive age range – that is too young or too old;
- Women who have more than 5 pregnancies – that is too many
- Women who have their pregnancies less than 2 years apart – too close together
- Women who are too sick to safely be pregnant – for example, those with anaemia, cardiac disease, TB, HIV and other people who suffer from chronic serious illness
- Women who are, for whatever reason, too far from services
- Those challenged by circumstances through no fault of their own – for example low or no literacy or extreme poverty (whatever cause)
- Those challenged by geography and circumstances through no fault of their own
- Women who are socially vulnerable – for example young women, People Living With HIV and AIDS[8], survivors of Sexual & Gender Violence and the disabled (physically, mentally and intellectually)

Prevention services being provided in PNG are not being utilized or accessed - antenatal coverage rates are low, supervised delivery rates are low, little postpartum care is offered or utilized and contraceptive use is low. There has been little positive change in the levels of utilization of these services over the past 10 years. The rate of outreach is low and static in most provinces. **Coverage of these prevention and promotion services is unequal throughout PNG[9].** Local issues that affect coverage must be addressed in any strategy.

It is clear that people in PNG are having more children than they either want or have the capability to look after. Fewer than half of the Papua New Guinean women with 2 children want any more and the number of women wanting more children who already have 3 children drops very dramatically from 30.1 (31.7)% [1996,2007] to 13.5 (14.5)%[10]. Despite this desire to have smaller families, fewer than 35.7% of women of reproductive age are using a modern method of family planning.

In PNG "Rural health has improved very little in the last 30 years and is at the core of the problem of low maternal health status[11]" - as demonstrated by:

- A decrease in the proportion of delivery rooms with running water and sinks;
- Perennial drug supply problems;

[88] Mola G 2007
[9] NHIS 2008
[10] NSO 1996, NSO 2008
[11] ADB, AusAID and World Bank 2007

- Reduced doctor supervisory visits;
- Closure of aid posts (in 2000 only 63% of the original aid posts were still open);
- Decline in the number of health staff in rural facilities, especially community health workers, of 25% between 1987 and 2000;
- Much lower antenatal coverage (and especially for the lowest asset quintile);
- Low contraceptive use (especially in the lowest 2 quintiles of income);
- Poor TB control;
- Shortage of antimalarial drugs ;
- Decreased access to ambulatory care;
- Declining health infrastructure; and
- The rate of supervised deliveries, which remains low and has not greatly altered in the last decade.

The decentralization of government roles and responsibilities and financing under the Organic Law has seriously compromised the quality and functionality of health services, including maternal health. The integration of hospital, health centre and community level services- "required for safe motherhood programs' was not achieved in PNG – as hospitals were made autonomous, further exacerbating the "conflict" between provincial health and hospital CEOs"[12].

The NDoH, as the national steward and policy maker in the health sector, has not had the capacity to meet its new role under decentralization and **Reproductive health has been eclipsed by the disease control programmes** funded by the Global Health Initiatives[13]

There is growing awareness in international health groups that weak national health systems limit the gains that can be made in many areas of health. A systems approach to reduce maternal mortality does not necessarily delay progress. A World Bank study showed how, in the second half of the 20th century, the coverage, quality, and use of maternity services in Malaysia and Sri Lanka were systematically improved[14]. **The report concluded that maternal mortality could be halved in developing countries every 7–10 years with this approach.** These experiences show us a clear road to success, if we have the perseverance to follow it, and resist the temptation of shortcuts[15]. **Medical supply logistics, procurement and management** are poor in PNG, and this has been well document in several reviews, including the recent Ministerial Taskforce on Medical Supplies. Several recommendations have been made, reinforcing those of previous reviews, and a road map provided to the NDoH for implementation. Disappointingly slow progress has been made to date on implementing these recommendations and this must be urgently addressed.

i.ii Policy Setting for Maternal Health

The deterioration of the health services in PNG has contributed directly to the worsening of the maternal health status in the last decade. Maternal mortality is an indicator of disparity and inequity between men and women and its extent is a sign of women's place in society and their access to social, health and nutrition services and to economic opportunities.

[12] Aitken 1999
[13] IMRG 2008
[14] Pathmanathan et al 2003
[15] Maine 2007

Women's participation in economic activities & control of their own income is more important to improvement of maternal health than household socioeconomic status[16]. The low status and empowerment of women negatively affects their access to, and use of, health services. **The lack of a PNG national gender policy** creates a vacuum for implementation, enforcement, monitoring and evaluation of gender development policies including gender equality and the rights of men and women to equal opportunity and safety. Poor implementation and monitoring/enforcement of the laws relating to **gender based violence** create poor maternal health outcomes for many women and violence in pregnancy is associated with many negative consequences for maternal and foetal health. The negative effect of **unsafe abortion** on maternal health is well researched and documented – including complications such as haemorrhage, infection, pain, infertility and death[17]. The present laws regarding termination of pregnancy increase the risk for many women of unsafe and often fatal abortions, poor access to safe abortion and post-abortion care, and often confused health workers regarding the management of septic abortion – resulting in women's deaths and disability.

Access to, quality of, and acceptability of, health services in PNG has deteriorated in the last 10-15 years – and in this context, maternal health services have been affected most severely. Trickle down approaches to health disparities, of which maternal health is a major one, are not good enough, inequities must be explicitly addressed[18]. The poorest women in the poorest parts of PNG are likely to be the worst affected by maternal health and have least access to services. Progress and investment in maternal health have lagged far behind estimates of what is needed to achieve the MDG in PNG, and globally[19] . Scaling up towards universal access to, and utilisation of, maternal health services requires tackling social, economic and political conditions[20].

Papua New Guinea has joined 189 other nations in committing to support the Millennium Development Goals. **Millennium Development Goal 5** demands a reduction in the maternal mortality ratio by three-quarters between 1990 and 2015. **However, in the present demographic, economic, and political context, Papua New Guinea has no hope of making this commitment**.

Additionally, improved maternal survival assists in the achievement of other **Millennium Development Goals:**

- MDG-1: poverty reduction: improved maternal health services , which are available equitably can not only help to reduce the gap in numbers of maternal deaths between rich and poor people, but also reduce the economic effect on poor families
- MDG-3: women's empowerment: maternal mortality is high where women's status is low, especially with regard to educational level.
- MDG-4: child survival: intrapartum and early postpartum strategies will reduce the overwhelming burden of neonatal deaths, and improved maternal survival will also enhance the survival and well-being of young children.

[16] Gill et al 2007
[17] (Gill et al 2007).
[18] Freedman et al 2005
[19] Gill et al 2007
[20] Freedman et al 2005

- MDG-6: infectious diseases: good maternity care services provide opportunities to prevent and treat malaria in mothers and babies, and prevent mother-to-child transmission of HIV and other sexually-transmitted infections.

Maternal health in PNG is affected by the nutrition, education levels and equity of opportunity of girls and women in PNG; by the level of expenditure on and accessibility of health services; by access to information, education and services on reproductive health at all ages; and by laws and policies relating to gender based violence, access to safe termination of pregnancy, family planning services; and broad development policies regarding population policy, poverty alleviation and gender and development. **Maternal mortality is an indicator of disparity and inequity between men and women and its extent is a sign of women's place in society and their access to social, health and nutrition services and to economic opportunities**. The social determinants of health must be addressed in making pregnancy safer.

Changes in human resource policies are necessary to deliver the maternal health intervention package to scale[21]. These include providing mid-level health workers the necessary training to perform procedures presently restricted to obstetricians and gynaecologists, and changing the salary, career structures and working conditions of health workers. The policies and standards for basic and post-basic training for health workers, especially those directly linked to maternal health services – such as CHWs, nurses, midwives, HEOs and doctors – need review and strengthening – to ensure every health worker is trained in, and remains competent to provide, the essential health services required. Attention to accreditation and continual professional development is poor in the present system. Better liaison and cooperation between the **Office of Higher Education, the National Department of Health and Medical Board and Nursing Council** is required to support these actions.

Mechanisms to **strengthen the voice of the poor and marginalized to make claims[22] must be supported.** This requires a dynamic relationship between people and their government in the areas of entitlement and obligation, which becomes a building block for functioning health systems, and can be enhanced by well designed and implemented decentralized health services. As can be seen with the AIDS movement, this requires building and supporting of the capacity of communities, civil society organizations, and government staff in planning, setting priorities, reviewing how services are delivered and the provision of information.

The National Population Policy in PNG has been neglected for several years in its implementation and monitoring. The quality and implementation of a national population policy affects maternal health directly though its promotion of a limited number of children per household (high numbers of birth and closely spaced births decrease a woman's chance of a safe pregnancy) and its policy on voluntary access to free quality family planning services for men, women and couples, and sexually active adolescents, as well as its policies on parental care, breastfeeding at the workplace, proposed population growth rates etc. **A new Population Policy and reinvigorated oversight body** is required to ensure the right environment for planning sustainable population growth and link to resource availability (financial, environmental, services), as well as voluntary access to safe family planning services.

[21] Freedman et al 2005
[22] Freedman et al 2005

Health service location and access (affordable local transport, good quality roads or water transport systems) are important determinants of health services utilisation. Thus **policies about where to locate and upgrade transportation routes and health services, affect maternal health.** The fees charged to obtain medical care in Papua New Guinea is another barrier to access that particularly impacts the poorest and most vulnerable women, families and children.

International evidence shows even the poorest countries, ones with political instability or very high HIV prevalence can still, if all partners are committed politically and financially, implement a successful primary health care approach and achieve the MDG 4 and 5 targets. To attain and maintain political momentum and commitment needs to address 4 interconnected political challenges[23]:

1. Build cohesion in the policy community to speak with authority and unity to the political leaders;
2. Create an enduring guiding institution/partnership to sustain the initiative
3. Develop convincing themes of the importance of maternal health
4. Develop strong links between other national initiatives and civil society organisations

(Recent inaugural meeting of Parliamentarians on Population and Development)

In PNG, a low level of completion of primary school education by boys and girls has a negative effect on access to health information and health services. The 2006 DHS showed lower rates of access to services and use of family planning and access to antenatal care amongst people who have not completed primary education than other groups of Papua New Guineans. Statistics indicate that for each additional year of education achieved by 1,000 women, two maternal deaths will be prevented[24]. Research shows that maternal mortality is also reduced by better knowledge about health-care practices, expanded use of health services during pregnancy and birth, improved nutrition and increased spacing between births – all factors that are fostered by girls' education[25]. Women and girls are empowered when they have adequate knowledge about reproductive health, sexuality and HIV and AIDS, and can make decisions regarding these issues. **Universal primary education is recommended as one strategy to address maternal health** in all the international literature. In addition, policies in the **education sector** that support the provision of population and sexual health education are poorly implemented – resulting in many young Papua New Guineans having limited levels of knowledge about these issues.

There is globally a longstanding lack of funds for maternal health. Evidence suggests that scaling up coverage of skilled deliveries will have the consequent impact of halving the number of maternal deaths by 2015 at between US$ 0.22 - $1.18 per person[26]. But despite this, the levels of investment in maternal health, both by governments and development partners goes nowhere near reaching the requirements[27]. Based on the analysis of international evidence on costs of maternal health services it can be seen that **scaling up coverage of maternal health services will require substantial increases in overall funding, specifically in drugs and medical supplies**. Despite

[23] Shiffman and Smith 2007
[24] World Bank 2002
[25] UNICEF 2003
[26] Only 2% of donor funding goes to maternal health globally.
[27] Berer M 2007

this evidence, **PNG Government funding on health has decreased** by 9.4% in real terms between 1997 and 2004, but development partner funding increased by 109.7% in the same period.

Not only is the low amount of health financing a problem, so to is **the lack of funding at the operational level.** The failure to get resources to the operational level, either via health centre grants, or larger tranches of HSIP funds to the provincial level is a major problem. **Provincial/district budgets for personnel are exceeded in real expenditure** in most instances. Closure of aid posts has in part resulted from the reduction in money for staff positions, and a contraction of staff from the periphery[28]. In the meantime, hospitals account for about 30.1% of government expenditure but primarily service the needs of the richest quintile of income. Despite this percentage of the total health budget being spent on hospitals, there remains serious service quality concerns; reduced inpatient capacity; and regular shortages of essential medical supplies – all exacerbated further by the increasing HIV burden[29]. Absolute levels of health financing must be increased, as well as the efficiency and effectiveness of that expenditure.

i.iii Health Systems and Maternal Health

Within a health facility there is a well defined minimum requirement for the physical environment to support provision of quality maternal health services. Very few health facilities in PNG meet these requirements, according to the level of maternal care they should provide. The sheer absence of adequately trained, maintained and supervised staff *and* facilities is the most substantial barrier to progress when discussing Maternal Death and Disability in PNG.

Full access to, and utilisation of, proven effective interventions would avert ¾ of maternal deaths[30].

Twenty percent of maternal deaths are due to an underlying disease that is aggravated by pregnancy – such as malaria, iron deficiency anaemia, hepatitis, tuberculosis or heart disease[31].Therefore a strong primary health care and prevention program is a necessary foundation for maternal health. **The district is the basic unit for planning and implementing strategies aimed at improving maternal health outcomes.** There is a need to shift focus to the challenges of effective implementation of services with districts and strengthening of the district health system capacity[32]. Major reductions in MMR have occurred in developed and developing countries with an evidence based cost effective health system and social interventions.

[28] IMRG 2008
[29] ADB, AusAID and World Bank 2007
[30] Freedman et al 2005
[31] WHO 1994
[32] Freedman et al 2007

Maternal mortality rates are contributed to by health systems and service delivery constraints[33].

These include the broad health systems building blocks of:

- Information systems: underreporting and lack of use of data leads to poor planning for maternal health services[34]
- Models of care and referral protocols: too many referral layers, as well as haphazard referrals, means families may waste time and resources accessing many providers – causing delays to access –See Briefing paper 4.
- Human resource management, such as supporting health workers, supervision, ensuring rational use of evidence based treatment
- Logistics management: ensuring drugs, supplies and basic diagnostic sets are available
- Policy framework: ensuring treatment standards are available, as well as other policy support
- Financial management including accountability, equity and implementing the right priorities and interventions
- Community participation including accountability of services to communities

To effectively address maternal health deaths and disability in PNG requires a trained, competent and willing workforce to deliver the relevant 32 interventions that can save women's lives. **Worker density is an important determinant of maternal health.** There is a critical shortage of health care professionals across all cadres in PNG. Facility-based births with skilled midwives and assistants working under their supervision can effectively increase the number and proportion of women with professionally assisted births. For a maternal death to be prevented, the health system must meet a minimum level of functionality in terms of human resources, infrastructure, supplies, and management.

Skilled providers require **facilities with intact infrastructure, functional essential equipment, supplies and drugs, communications equipment and transport options in order to practice their skills and deliver useful interventions that can save women's lives.** These facilities need to be distributed within the walking reach of the majority of the target population. The sheer absence of adequately trained, maintained and supervised staff *and* facilities is the most substantial barrier to progress when discussing Maternal Death and Disability in PNG. The NDoH and the Provincial and Local Level health authorities must address health facility minimum standards, design, distribution, building and maintenance. As such, **monitoring** indicators of maternal health is a highly effective way for countries to monitor the basic capacity of their health systems. For maternal death to be prevented, health systems must meet a minimum level of functionality in terms of human resources, infrastructure, supplies, and management.

[33] George A 2007
[34] Cecatti et al 2007

i.iv Evidence Based Health Interventions to Address Maternal Health

Effective health interventions for Making Pregnancy Safer are relatively cheap and well known, but they are not reaching those in need in PNG. A broad international, expert and evidence-based consensus has emerged with particular emphasis on what works in developing countries as the minimum demanded focus. The three core strategies of:

1. Comprehensive, integrated reproductive health services, with an emphasis on strong **family planning** services, plus
2. Skilled care for all pregnant women by trained providers[35] with strong midwifery skills during pregnancy and especially during childbirth i.e. **Supervised Delivery**, plus
3. **Skilled Emergency Obstetric Care** (EmOC) for all women (and infants) with life-threatening complications supported by timely referral

These strategies are the basic elements that **must** be in place if any country with high maternal mortality is to bring its rate down significantly, but are by no means exclusive. They must be Acceptable, Accessible, Appropriate, Affordable and Available; Evidence-based, Effective, Efficient; and able to be applied Equitably and Safe, client-focused and timely.

Countries with the lowest proportions of skilled health attendants at birth, lowest use of contraceptives, and the weakest health systems have the highest numbers of maternal deaths. The challenge in PNG is to bring the required resources together so that services can be provided to the people who need them most. To reduce MMR we need to have functioning hospitals and other health facilities. To reduce MMR we need to have midwives practicing closer to the communities.

The patterns of maternal mortality in PNG requires prioritization of

1. **the pre-pregnancy period,** where *those who wish to avoid pregnancy* can seek the means to safely do so: implementation of an adequate National Family Planning Policy with 'reach' to the communities being targeted, and
2. **the intrapartum period**: 50% of all women who become a maternal mortality statistic do so within the first 24 hours of delivery/miscarriage/rupture of their ectopic pregnancy. Up to 30% relate to haemorrhage where they can die within 2 hours. A health centre intrapartum-care strategy can be justified as the best option to bring down high rates of MMR. There are further opportunities to alter the risk of maternal death outside the intrapartum period: antenatal care, post-partum (and post-miscarriage care), safe abortion when permitted, and family planning.

The evidence base for maternal health interventions suggests that no single intervention can have complete success in isolation. As such interventions should be provided in combinations or

[35] WHO, the International Confederation of Midwives, and the International Federation of Gynaecology and Obstetrics define a 'Skilled Attendant' as: "A skilled attendant is an accredited health professional—such as a midwife, doctor, or nurse—who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth, and the immediate postnatal period, and in the identification, management, and referral of complications in women and newborns"[35].

'*packages*'. The specification of the component intervention package, target group, and means of distribution constitutes a '*strategy'.* PNG's health sector strategy (component intervention package) should be decided by high level consultation with those operationally trained and experienced in the provision of maternity care, with an eye to availability, affordability, accessibility and appropriateness for local circumstances, using evidence, and ensuring equity for the rural majority and the poor, and should centre around the triad of improving:

1. **Family Planning** – to reduce the numbers of high-risk and unwanted pregnancies by increasing availability and accessibility of family planning information and services to reduce the number of pregnancies, especially high risk and unwanted pregnancies, and to ensure that individuals and couples have the information and services to plan the timing, number and spacing of pregnancies in PNG with its present high total fertility rate;
2. **Intrapartum strategies** – to reduce the numbers of obstetric complications – by ensuring that all women have access to quality antenatal, delivery and postpartum care to provide information, prevention and management of diseases during pregnancy and early detection and management of complications; and
3. **Provision of EmOC, and Supervised Delivery** – reducing the case fatality rate in women with complications – through providing access to essential obstetric services.

i.v Cross Cutting Issues

Gender issues cannot be separated from health issues. A women's status in the family, community and society at large often prevents them from making decisions about their health and from accessing care. It also prevents them from accessing development opportunities such as education, employment and access to credit- which means they have increase risks of maternal death. Women's autonomy (ability to control their own lives) and to participate in making decisions that affect them and their families, is associated with improved maternal health. And women whose rights are fulfilled are more likely to ensure girls have access to adequate nutrition, health care, education and protection from harm – which will then decrease their daughter's risk of maternal death and disability.

HIV and AIDS has reversed the gains made in addressing maternal mortality in many countries, and exacerbates the numbers of maternal deaths in all, especially in countries with a generalized HIV epidemic. Maternal death and ill-health risks are increased in HIV positive women. HIV positive women are (at least) 1.5 – 2 times at greater risk of a maternal death than negative women . It has both an impact on the direct causes of obstetric death and disability as well as exacerbating malaria and TB in pregnancy – which also increase maternal ill health and death risks. So addressing HIV and AIDS is an important maternal health issue, especially in PNG where HIV is a major and emerging health problem.

Recommendations

1. **That major government, private sector and development partner investments be secured to achieve the ambitious but necessary targets required to turn around the current status of Maternal Health in PNG.** This will require:
   - Strong leadership (political, health and community) at every level;
   - Immediate implementation of advocacy efforts to secure the resources and commitments required;
   - Mobilisation of the necessary technical expertise (clinical, public health and managerial) within the health sector to support these efforts;
   - An operational and resourced integrated provincial and district health service.

2. **Recognising that universal free primary education for girls is a successful intervention to address maternal mortality, the Taskforce strongly endorses the recent Government decision to introduce Universal Free Primary Education by 2010 and recommends that the resources required to implement this are made available for the 2010 launch. It also recognises the important role education has for all Papua New Guineans of all ages, male and female, in addressing and reducing maternal health problems.** To be successful, educational interventions should include:
   - Sexual and reproductive health subjects in the curricula with inclusion of Basic physiology and anatomy, Sexual health, Population planning and resource matching for the Nation, Family Planning & Essential Obstetric care and Men's role in S&RH
   - Removal of policies that support the expulsion of students from school due to pregnancy
   - Development of and resourcing for implementing opportunities for adolescent parents to complete schooling after delivery.

3. **Recognising that the Maternal Mortality Ratio is the most sensitive indicator of quality and level of functioning of a health service and that a dysfunctional health system in PNG has been a major contribution to the deterioration in and extremely high levels of maternal morbidity and mortality, the Taskforce recommends urgent and sustained efforts to address the well defined systems problems in the health sector.** This will include:
   - Human resources management
   - Infrastructure and assets management
   - Logistics and supplies management
   - Evidence based financial management
   - Health promotion activities
   - Supervision, monitoring and evaluation
   - Effective health information system
   - District and provincial health services, including hospital management.

   (*refer to Section 3: Health Systems and Maternal Health, p26, for additional information*)

4. **That quality voluntary family planning service provision be immediately strengthened in access and coverage for all Papua New Guineans as a primary intervention to reduce the burden of maternal mortality and morbidity in PNG. The target should be modern family planning prevalence of 65% by 2020 in order to achieve a desired Total Fertility Rate of 2.2 by 2020**. This will require:
    - Development and resourcing of a national family planning strategic plan to support the National Family Planning Policy;
    - Increasing access to a range of permanent and temporary contraception (long and short acting) methods, for males and females
    - Sustained community mobilisation and health promotion efforts to encourage wider acceptance of family planning as a way to match family and community resources to family size and spacing needs
    - Integration of family planning effectively into all health service delivery points independent of the agency managing the service. Full funding to these health services should be linked to provision of the package of sexual and reproductive health services, with incremental funding arrangements if full services are not provided.
    - Supporting men as partners and including adolescent health services in sexual and reproductive health programs.
    - Improvements in the quality of all health professional training programmes to ensure graduates have the required competencies in quality voluntary client focussed family planning service provision
    - Developing formal post basic courses in sexual and reproductive health.
    - Monitoring the national policy on free services for reproductive health to ensure implementation at all health service delivery points.

5. **Every woman in PNG must have access to Supervised Delivery by a trained health care provider by 2030. This will be achieved through reaching the interim targets of 60% of all pregnant women having access by 2015 and 80% by 2020**. This will be achieved by:
    - In 2009, in consultation with local experts, NDoH must define the suite of 'best bet' evidence based interventions for inclusion in PNG's minimum service delivery FP and Essential Obstetric Care 'packages'.
    - Immediately develop the cadre of community midwife, ie. a Community health worker who has received at least 6 months of competency based training and certification in midwifery ("Community Midwife"). The competencies of a community midwife and the required 6 month training package should be determined by the PNG Midwifery Society and the PNG Obstetrics and Gynaecology Society in conjunction with the NDoH in 2009 and training commence no later than 2010.
    - Urgently identifying the human resource requirements for trained health care providers to deliver the basic essential and comprehensive obstetric care packages, with a priority focus on midwifery and community midwives. Estimates should focus on reaching the following minimum requirements, with priority for the remote and poorly accessible rural facilities and districts with high levels of maternal mortality and morbidity:

a. By 2015 one Registered midwife in all district hospitals and in provincial hospitals for the first 1000 live births/year 2 midwives per shift (3 shifts) and an extra midwife per shift for every 1000 annual births more
b. By 2015 every health centre must have a Community Midwife
c. By 2020 every health centre must have a Registered Midwife
d. By 2020 every aid post/community health post that is providing birthing services should have a Community MW
e. Once these projections are achieved the training institutional implications and needs can be identified and the costing can then be finalized and funding sought and secured

- Development of the appropriately equipped health facilities, (including water, sanitation, waste disposal, power, security) with well defined minimum standards to support quality safe acceptable client focused obstetric services. This includes the concept of the Community health post which must have the capacity to provide basic antenatal care & screening, normal delivery and family planning and postnatal and neonatal care as well as a functional referral pathway for obstetric emergencies and support for 24 hour on call services.

6. **Every woman should have access to Comprehensive Obstetric Care from the Aid Post level upwards by 2030.** This will require, in addition to the capacities defined for essential obstetric care (recommendation 3):
   - Major investment in primary health care strengthening (incl. first referral level hospitals) over at least the next 20 years.
   - Immediate planning for the introduction of evidence-based, cost-effective reproductive health technologies that would support quality family planning and obstetric services (including new contraceptive technologies, emergency contraception and misoprostol for the management of postpartum haemorrhage).
   - Increase retention rates of Community Health Workers, Midwives, Health Extension Officers and Doctors in clinical practice particularly in rural and remote settings, this includes ensuring adequate and reliable remuneration and secure housing and living conditions.
   - Ensuring access to quality management of complications of unsafe abortion at all levels of the health service.

7. **Every woman should have access to quality emergency obstetric care if she requires it at the first referral level, with the support of a functional referral chain, adequate communications and transport**. This will require:
    - Access to roads and transport for clients and workers; and of particular importance to the most marginalized: the urban poor and those living in rural and remote areas
    - Safe and secure passage along roads and water routes for clients and workers
    - Availability of transport up and down the referral pathway, which will require consideration of resourcing for road, river, sea and air transport according to location.
    - Upgrading of current health care provider skills in EmOC and continued funding to ensure the maintenance of these skills.
    - Systematic review of the role of maternity waiting homes and their effectiveness and acceptability in a range of different PNG cultural and geographic locations and based on the findings, guidance on minimum standards for infrastructure, location and management of the facility if recommended must be developed.

8. **A 5 year plan of action should be developed by the National Department of Health and other relevant Government agencies to respond to the recommendations made by the Ministerial Taskforce on Maternal Health.** This will focus on:
    - Areas where immediate action is required, including midwifery and EmOC training.
    - Realistic timeframes and appropriate allocation of funding to meet actual cost.
    - A practical approach to develop an achievable program response.

1.0 Overview of the Maternal Health Situation in PNG

> *"The tragedy here is that these causes do not have to lead to maternal death. If they can be treated in time, almost all women who develop such complications can be saved. Many of these complications can be treated before they become emergencies, and almost all can be treated even if they become emergencies"*[36].

1.1 Epidemiology

Maternal mortality in PNG is very high.

A Maternal Mortality ratio of 733 per 100,000 live births[37] places PNG second worst in the Asia Pacific Region, second only to Afghanistan and high in comparison to the rest of the world. Put another way the DHS revealed that around twelve years before the survey, once a woman reached the age of 12, she had a one in 25 chance of dying from a maternal cause[38]. As the methodology of MMR estimation used in the DHS reflects a maternal mortality ratio about 12 years in the past, the fact that the MMR has more than doubled between DHS 1996 and 2006 indicates that our rural health service has seriously deteriorated between early 1980's and 1990's. If this was the trend between early 1980's and 1990's then it is very likely that the situation is actually much worse today. Unfortunately many reviewers think that the MMR of 370 revealed by the 1996 DHS may have been a serious underestimate of the true levels.

The internationally accepted **definition of Maternal Death** is:

The death of a woman whilst pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes.

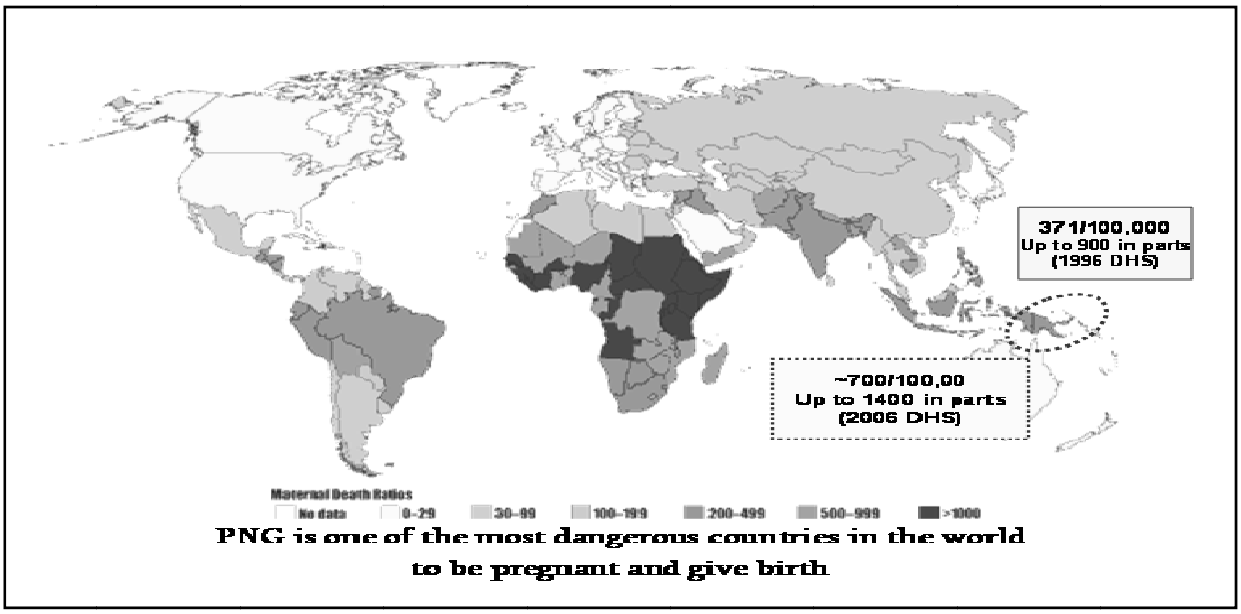
Most maternal deaths occur in the 24-48 hours surrounding delivery and this is where a correctly chosen suite of interventions can be most effective. Untreated, death occurs on average in:

[36] UN PNG submission 2008

[37] PNG DHS 2006 preliminary data, accounting for the 12 year period 1994 - 2006

[38] In considering these data a few issues need to be considered: Maternal mortality estimates are notoriously inaccurate. Information on maternal deaths can be obtained from vital registration data and from population surveys. Vital registration PNG is poor across the board, and when deaths occur outside of health facilities it is even more challenged. Even in countries with good systems there is underestimation of maternal deaths, especially those that occur early in pregnancy. Since our vital registration data is so poor we are forced to rely upon population surveys (like the DHS) which ultimately estimate MMR using mathematical formulae and the results have a wide margin of uncertainty and actually reflect the MMR up to 9 years prior to the time the data is collected. The MMR estimates provide some information at national level but they do not inform on regional differences within the country. Similarly there are differences between urban and rural settings, between social classes and ethnic groups, and other marginalized groups including the very young.

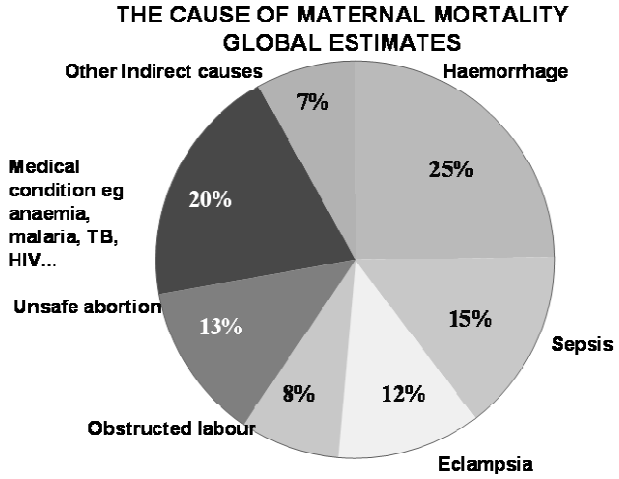
- 2 hours from Post Partum Haemorrhage
- 12 hours from Ante-Partum Haemorrhage
- 2 days from Obstructed Labour
- 6 days from Infection



Most complications are not in pregnant women assessed as higher risk, but in those who are considered low risk. The magic number is 15%: 15% of antenatal women will develop complications (and only 15% of those can be predicted), 15% will develop some level of complication in labour or delivery (and only 15% of those can be predicted) and 15% will develop some level of problem in the post-partum period (which lasts 6 weeks). Again, only 15% of these are predictable.

The causes of maternal mortality in PNG are the same proportion as the rest of the world. Obstetric haemorrhage is the main medical cause of maternal death. Local variation can be important, with unsafe abortion carrying a huge risk in some populations, and indirect causes, such as malaria or HIV/AIDS, featuring prominently where background prevalence is high[39]. A substantial proportion of maternal deaths take place in hospital[40]. 88–98% of maternal deaths are preventable"[41]

[39] Ronsmans et al 2006
[40] Ronsmans et al 2006
[41] WHO 1986



The deaths are only part of the picture: whatever the 'real' MMR in PNG, the suffering related to morbidity can be estimated using world figures and countries with like-conditions[42]. Various international reports estimate that for every woman who dies in pregnancy or childbirth that another 30 sustain significant disability, much of it life-lasting. The death or chronic ill-health of a mother increases the probability of death and poor growth and development of her children[43]. Improvement in financial and geographical access to good quality intrapartum care based in health centres is therefore important in any poverty eradication strategy, as well as a means of reaching MDG-5[44]. Women develop physical or mental disabilities every year as a result of complications or poor management.

:

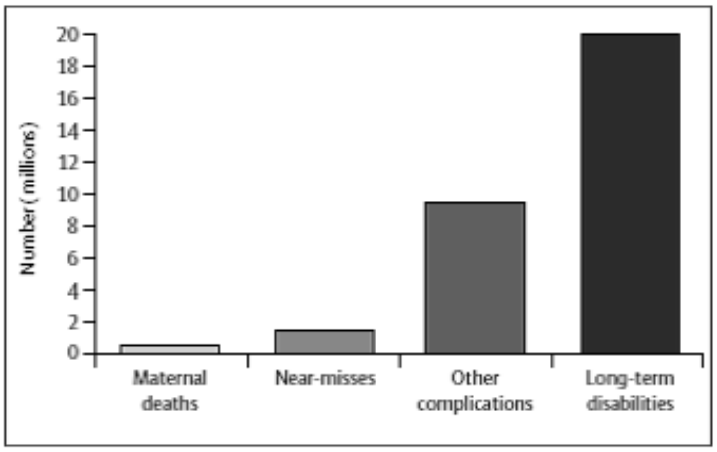


Figure 1: **Extent of maternal mortality, morbidity, and disabilities**
Calculations assume 136 millions births, 1% near-miss, 7% serious complications, and 20 million disabilities a year.[1],[2],[3]

Inequalities in the risk of maternal death exist everywhere, both between and within countries[45]. "One of the most important aspects to understand in PNG is the very high level of variability across the country, including marked differences between and within provinces in critical factors

[42] WHO 2006; Manandhar et al 2004; WHO, 2001
[43] WHO 2006
[44] Gwatkin 2005
[45] Ronsmans et al 2006

such as female literacy, cultural and social attitudes towards place of birth, anaemia and malnutrition, levels of rural infrastructure and security, organisation of health services and quality of health care delivery"[46].

Population growth and maternal mortality and morbidity.

It is estimated that the present population of PNG is 6.5 million[47]. The present rate of population increase will lead to a doubling of the population about every generation, ie. every 25 years.

Extrapolating the known census points on the population curve backwards shows clearly that PNG had a stable population of less than 1 million people for thousands of years. A stable population results basically from the fact that the birth rate equals the death rate. In 'traditional times' (pre first contact) both the birth rate and the death rate were very high (about 38/1000). When law and order produced tribal peace, and health and other social services were introduced after the 2nd World War, the death rate began to drop…… but the birth rate remained relatively high. Today the crude death rate has dropped to about 14/1000, but the birth rate is still about 34/1000[48]. As long as the death rate is so much lower than the birth rate the population will continue to increase at the same exponential rate, and can be expected to double to 13 million in 2032 and again to 26 million in 2057.

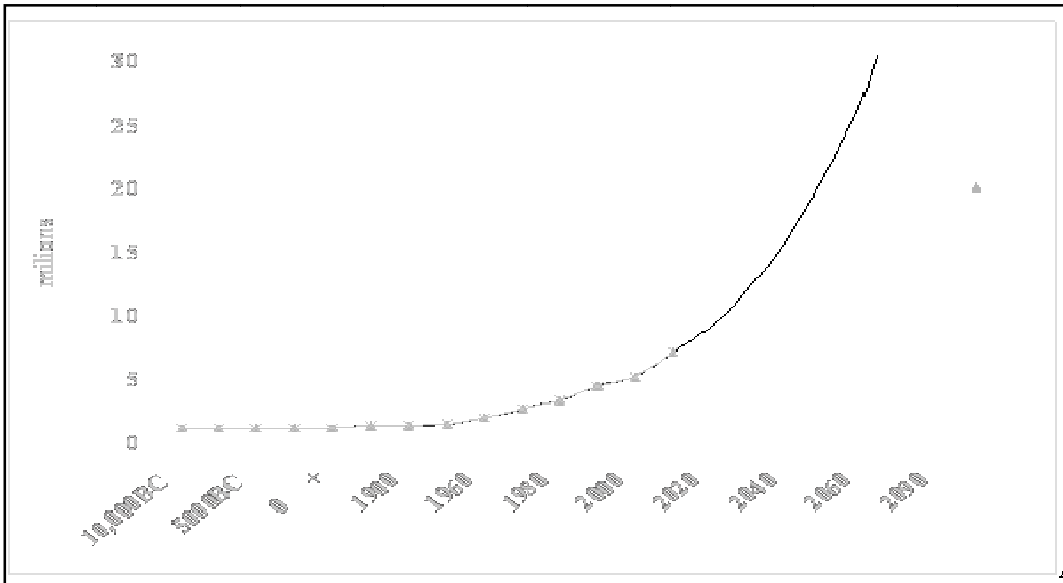
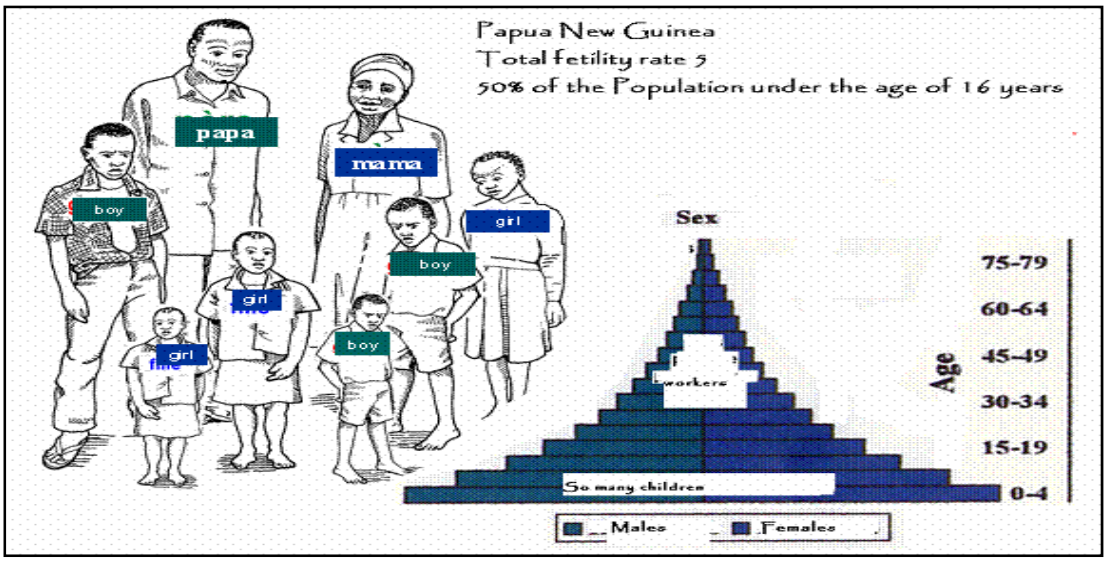


Illustration 1: Graph of PNG population from pre-history time to the present and beyond

There is a very definite (and in many cases linear) relationship between the total fertility rate (TFR or the total number of babies that a woman delivers in her lifetime), the standard of living in a country (eg. GNP/capita) and the maternal mortality ratio. It is still accepted that the TFR is the best proxy indicator of maternal mortality risk in a community and the proportion of supervised births is the best proxy indicators of maternal mortality risk for an individual mother.

[46] Morgan et al 2008 Submission to the Task Force
[47] NSO 2000
[48] NSO 1996

The working age population group is likely to experience a very rapid increase during the first three decades of the projection period and will apply substantial population pressure on the socioeconomic system. In other words, the demand for jobs will increase substantially[49]. The HIV/AIDS epidemic will have an impact on population change in the future. Population growth is estimated to be approximately 12 percent lower than it might otherwise be given the impact of AIDS. While this is a significant effect, it is not large enough to offset the large population increase to be expected in the future, given the high population growth rate. Many reviews have noted that increasing numbers of PNG people are not able to physically access health services[50]. One of the contributing factors to this is the lack of matching of the population growth to the services availability and health human resource numbers. The increased number of young people and present rate of population growth are already stripping *the availability of education services, and of the quality of the education individual children obtain[51].* Education is linked to development of the nation, linked to use of family planning and maternal health services and linked to maternal death. Thus ensuring population growth and education services match is an important primary strategy to address maternal health issues in PNG. One of the very big population stresses that PNG is experiencing today is due to the fact that the population structure is very heavily weighted with babies and children; indeed more than 50% of our population are under the age of 16 years and therefore are technically children. This very great preponderance of young people in our population not only means that most of our population are dependents, but also that even if we reduce our fertility rate to 2 children for each married couple there will be a population growth momentum that will result in the population doubling at least one more time.



It takes time to reach population stability because it takes at least one generation to change attitudes towards fertility and to convince people that having 2-3 children is an advantage.

If this started to occur starting today, during a generation of population education and national development (2010 to 2035), the population could be expected to double from 6.5 to 13 million. Then in the next generation (2035 to 2060) when families are having mostly 2 -3 children each, the population would double one more time because of population momentum. This would

[49] UNFPA 2008
[50] ADB, AusAID, World Bank 2007
[51] Ditto

mean that we could stabilise at about 26 million, - but only if we seriously started the process of demographic transition today.

Table 1: Known and projected attributes of PNG's population

	1960	2008	2035*	2060 and onwards*
Birth rate	38/1000	32/1000	20/1000	6/1000
Death rate	30/1000	10/1000	8/1000	6/1000
Life expectancy	48 years	61 years	66 years	70 years
Total fertility rate	5.2	4.4	3	2.2
Annual population growth rate	3.2%	2.6%	1.5%	0%
Maternal mortality ratio	?900	730	300	<100
The % of women using a reliable method of Family Planning	0	26	50-60%	75-85%
Actual & Expected GNP per capita USD	70	300	2000	10,000
Total population	1.9 million	6.4 million	12-13 million	22-24 million

* projected or estimated or at the very least 'desirable'.

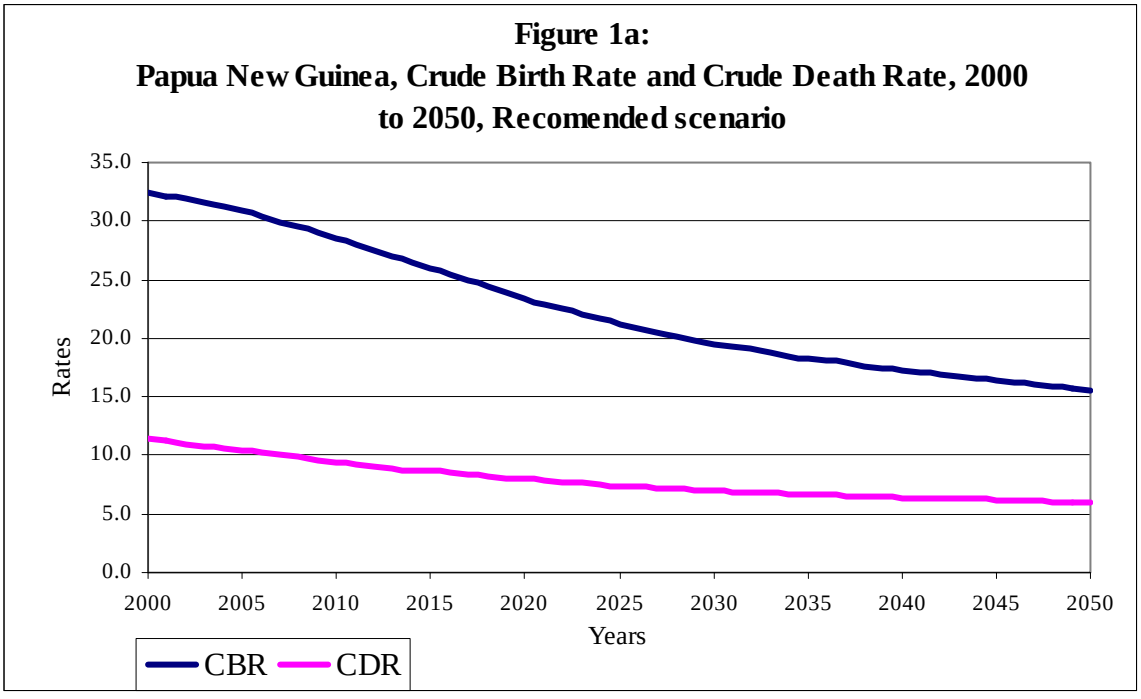
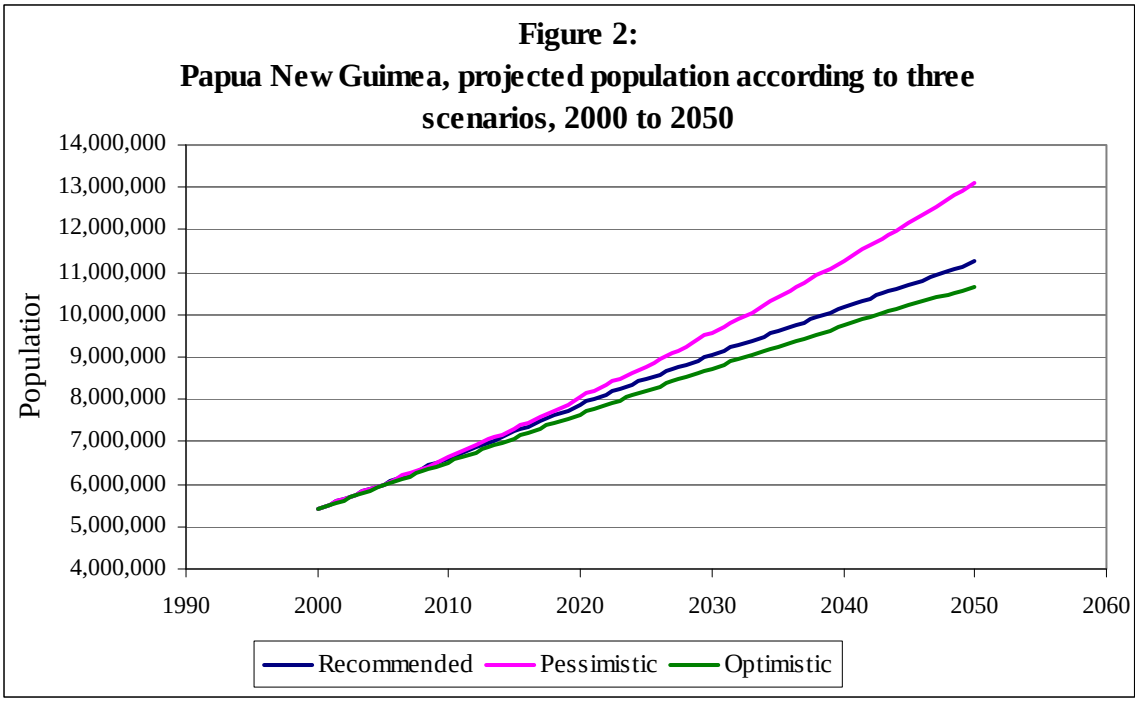


Figure 2:
Papua New Guimea, projected population according to three scenarios, 2000 to 2050



Finalising the current review of the National Family Planning Strategy provides an important opportunity to ensure that the strategic framework is not exclusive to married couples and the single objective of birth spacing but is based on the principle of ***reproductive rights and responsibilities for all sexually active men and women regardless of marital and reproductive status***. This requires recognising that the category of "higher risk and currently marginalised groups" includes individuals, particularly women, who are currently denied access or are inhibited from accessing family planning services because of their single status.

Marginalized groups.

There are many groups in the population of PNG who are marginalized and/or have special needs. As well as the general population the government of PNG must take into account various special groups (and especially marginalized and higher risk groups) if we are to achieve significant development and a stable population for our future. These include:

- Women who have children when they are at the "extremes" of the reproductive age range – that is **too young** or **too old**;
- Women who have more than 5 pregnancies – that is **too many**
- Women who have their pregnancies less than 2 years apart – **too close together**
- Women who are **too sick** to safely be pregnant at the moment: anaemia, cardiac disease, TB, HIV and Other people who suffer from chronic serious illness
- Women who are, for whatever reason **too far from services**
- Those challenged by circumstances through no fault of their own such as low or no literacy; extreme poverty (whatever cause);
- Those challenged by geography and circumstances through no fault of their own

- Women who are socially vulnerable: young, People Living With HIV and AIDS[52], survivors of Sexual & Gender Violence, the disabled (physically, mentally and intellectually)

This Taskforce strongly endorses the view that addressing unmet needs for family planning services through universal access is probably the most cost effective and feasible strategy to reduce maternal mortality. Prioritization of the pre-pregnancy period, where those who wish to avoid pregnancy can seek the means to do so safely, requires specific strategies for reaching young unmarried women and female students. There is an urgent need for ***reproductive and sexual health services for young unmarried women and female students*** who at present find it difficult to access family planning services, which are targeted at married couples and postnatal mothers.

Fertility preferences and the relationship between fertility and maternal mortality.

It is clear that people in PNG are having more children than they either want or have the capability to look after. Analysis of the fertility preferences of married women with regards to wanting more children clearly shows that fewer than half of the Papua New Guinean women with 2 children want any more and after the third child the figure wanting any more children drops very dramatically from 30.1 (31.7)% [1996,2007] to 13.5 (14.5)%[53]. The combined figures of those who 'want no more' and 'undecided as to whether they want any more children or not' – clearly do not want to get pregnant at the moment – these are the people who would very much benefit from family planning use, however, the preliminary DHS 2006 data suggests that only 35.7% of women of reproductive age are using a modern method of family planning.

The difference between those who do not want to get pregnant and those who are using family planning is termed the 'unmet need'. If the government of Papua New Guinea was able to, at the very least, meet the needs of the people who do not want to get pregnant, then there would be many less unplanned pregnancies and many less maternal deaths.

1.2 Cultural considerations, social determinants and community factors

The major medical causes of maternal death and the effective interventions to prevent maternal death due to these causes are known. Yet, every year, an estimated 1,500 women die in PNG just because they are pregnant. As in other developing countries, the social (non-medical) determinants of maternal health influence the accessibility to these interventions.

5252 Mola G 2007
53 NSO 1996, NSO 2008

Even if the first 4 characteristics of a successful public health program could be in place, i.e.

1. A package of interventions contextualized for PNG that are evidence-based & cost-effective
2. Adequate supply of trained, competent and willing workforce who have a
3. functional, supplied enabling environment and who are
4. supportively supervised and managed

There will be no change in outcomes **unless the population is willing and able to access the services provided.**

A framework used internationally to understand the underlying causes of maternal death and illness is the 4 delays framework[54]. Basically it analyses the delays in a system that, from the family to the health facility, may cause a woman's death, and the causes of these delays. The 4 delays are:

- Delay One: Not recognizing the danger signs early.
- Delay Two: Delays in making the decision to seek care.
- Delay Three: Delays in reaching appropriate care.
- Delay Four: Delays in receiving the appropriate care at health facilities.

PNG people's confidence in the existing health system is poor – "people do not express high esteem for the existing health system, although a clear distinction is made between the much preferred church based health care system and the much criticized government service[55]" Their concerns included closed facilities, lack of personnel, drugs and supplies, charges for health services and rude and disrespectful staff. **Women do not trust the health system to look after them respectfully and safely.** Maternity care can be disrespectful and contingent upon the payment of fees. Offensive and demeaning language by health personnel, and ridiculing of women's poverty, clothing, parity, smell, hygiene, cries of pain, or desire to remain clothed is not only disrespectful, but abusive. Throughout the public submissions to the Taskforce, experiences of this disrespectful and abusive behaviour were discussed.

…..Nurses are not friendly. They yell and hit us while we are in labour. We are exposed and people can see us naked. We are powerless and aren't told what is happening. They aren't careful in the clinics and people get infections when they go there. I'd rather have my baby at home than go to the clinic.

…..Attitude of male and female staff is a huge barrier to women from the villages. Staff often treat these women with a lack of respect and seem to equate lack of literacy or formal education with lack of need for explanation or involvement in their care

… If a villager's home is more comfortable than a ward, then this will lead to under utilization of inpatient services

….Failing to attend to them after the mothers walked a fair distance from the village is a good deterrent for her successive births and the word goes around in the communities quite easily

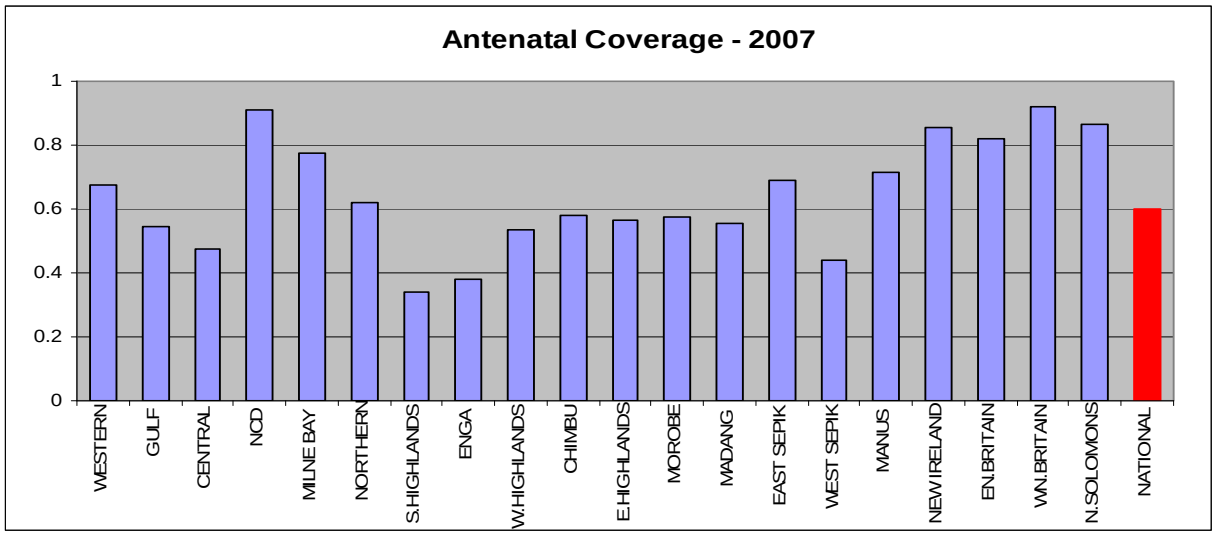
[54] Based on Thaddeus, S., Main A 1990
[55] Decock, Hiawalyer and Katz 1997

Staff reported feeling under-valued and under-appreciated by their employers and the community they serve. **Workforce morale** is contingent upon feeling competent, supplied and supported, cared for and appreciated. If the health system does not support the worker in this regard then they cannot lay the problem of poor client-focus at the door of the worker.

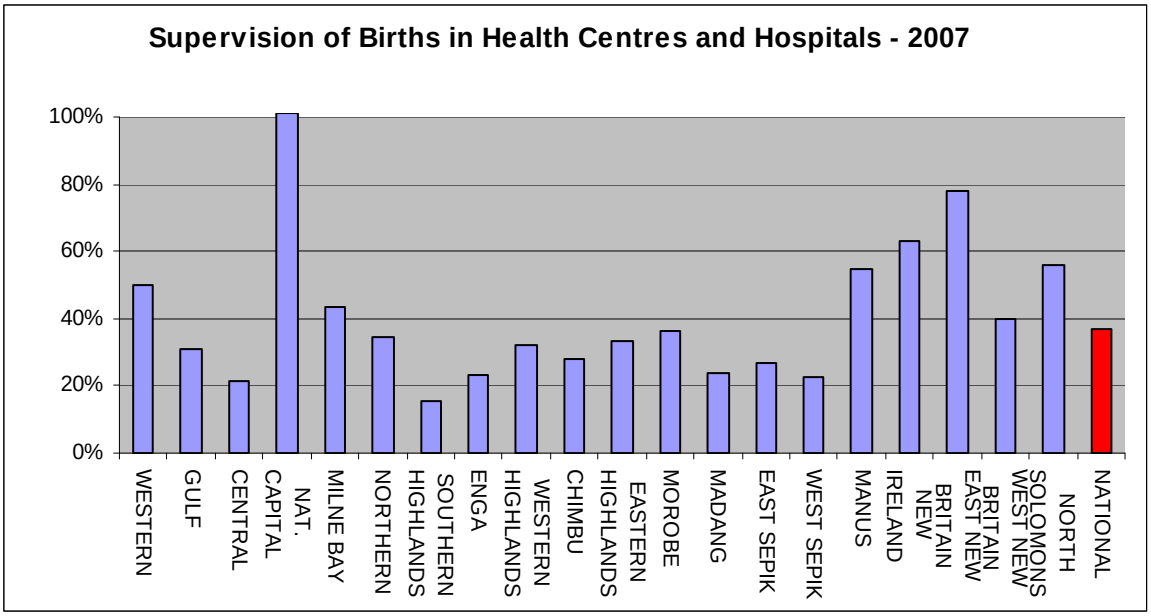
Prevention services being provided in PNG are not being utilized or accessed - antenatal coverage rates are low, supervised delivery rates are low, and little postpartum care is offered or utilized. Contraceptive use is low. There has been little positive change in the levels of utilization of these services over the past 10 years. The rate of outreach is low and static in most provinces of the country. **Coverage of these prevention and promotion services is unequal throughout PNG[56].** Local issues that affect coverage must be addressed in any strategy.

Maternal & Child Health

Characteristics	2006	1996
% of mothers who received ANC from health professional	80.7	76.7
% of mothers who received TT vac. during pregnancy	72.4	68.8
% of mothers who delivered with professional attention	59.2	53.2
% of mothers who delivered without any assistance	5.7	10.2



[56] NHIS 2008



Knowledge of family planning and the need for pregnancy care is high, but more detailed knowledge of when to seek care, range of family planning methods, what to do if one has problems and where to seek care are low. Women and men do recognize the need for supervised delivery at a health facility, limiting family size and the need for birth spacing. Risks for maternal and neonatal death were less well known. There was widespread understanding that having a pregnancy too young was dangerous. Despite this awareness and positive attitude, the rates of actual delivery in a health facility are lower. The reasons women state facilities and services could be made more acceptable to attend include:

- Light in the health facility;
- Access to female health workers;
- Access to water, toilets and food;
- Cleanliness of delivery room, equipment and environment;
- Privacy and confidentiality;
- Access to medication and referrals if required;
- Kind staff that were able to assess the progress of labour (skilled and competent) and provide support;
- Limited number of procedures[57];
- Women also note that family support, ease of access to transport and transport available in a timely manner also increase utilisation of health facilities[58].

Additionally, even with a strong positive knowledge of the role and need for family planning, the level of practice is far lower[59].

[57] Women may also fear the procedures such as caesarean section, episiotomy and blood transfusions. In Maprik 6 (of 73) women noted this as a disadvantage of attending a health facility for delivery (Ktumusi and Lee 2008)
[58] Ktumusi and Lee 2008
[59] NSO 2008

Family Planning

Characteristics	2006	1996
% of all **men** with knowledge of any FP method	88.8	-
% of all **women** with knowledge of any FP method	85.3	71.8
% of all **men** with knowledge of source of FP method	76.0	-
% of all **women** with knowledge of source of FP method	74.9	64.5

Family Planning

Characteristics	2006	1996
% of all **men** who have ever used any FP method	46.1	-
% of all **women** who have ever used any FP method	41.4	29.0
% of currently married **men** using any FP method	42.3	-
% of currently married **women** using any FP method	35.7	25.9

Some of the factors that community members across a range of PNG settings stated cause the gap between knowledge and practice of family planning and maternal health care seeking included:

- Expectation of the birth of the first child within the first year of marriage;
- High value for children;
- Strong community and family obligation to have a boy child
- Having children was very important to young people[60]

There are some groups in the population who are under-utilizing services available, especially the poor and the remote, adolescents and HIV positive people.

Accessibility of fixed facilities is inequitable across the country, even at provincial levels. For some provinces, such as Western, Eastern Highlands and Sandaun, the health services are not accessible for at least 40% of the population[61].

Concerns about the cost of services and seeking care delay timely care. Evidence from submissions and research conducted at the time of the introduction of user fees for hospital care show:

- There is a *perception* that service costs will be high;
- For many, especially the poor and the remote, there is a high *opportunity cost* in accessing care, such as transport costs for woman and guardian, food whilst away from home, work at home not being done or needing to be paid for (garden, caring for the other children);
- User charges do discourage women from seeking maternal care services;
- Shortages of medical supplies mean families must purchase required drugs and supplies, even in government services[62].

The physical accessibility of the facility impacts upon utilisation. Villagers find hospitals too impersonal, too far away, and were concerned they may deliver on the way to the facility. Lack of transport to assist women to attend hospital means many do not deliver in a facility[63].

[60] Decock et al 1997b
[61] Data Source: NDoH 2006 TB Strategy

[62] Imppact 2005
[63] Popon 1993

Cultural beliefs and preferences impact upon recognizing the need for care, seeking care and levels of utilisation of care. Some of these include traditional taboos/beliefs/sanguma stories[64] and nutrition in pregnancy. **Gender issues affect the timeliness of seeking care.** Many women and their families prefer a female birth attendant, especially in remote settings, where maternal mortality levels are the highest. The cultural importance of this varies across the country but in many places is a significant barrier. Additionally, the lack of women's autonomy in many cultural and language groups means women need to seek 'permission' to access services – and being unable to seek that permission or being refused the permission creates delays, disability and often death.

International experience has shown that, by and large, **where good quality, client-focused services are provided, the users vote with their feet**. In PNG there is a widespread poor level of quality of services in maternal health. Underlying causes of this include:

- No effective licensing and regulation of staff and facilities;
- Low technical standards and poor supervision;
- Shortfalls in professional skilled care providers, poor staff attitudes, performance, knowledge and skills;
- Low salaries and motivation and ineffective management;
- Unpredictable supplies, lack of drugs, and malfunctioning equipment;
- Lack of referral coordination;
- Inadequate service information and accountability;
- No consideration of food preferences, availability, preparation or budget for women who do come for supervised delivery;
- Shortfalls of trained and skilled personnel (midwives, obstetricians, anaesthetists);
- Ineffective deployment, retention, and care configurations;
- Lack of support and managerial staff;
- Lack of availability of supplies, equipment, electricity, water, fuel, and vehicles;
- Dilapidated and unusable buildings; and
- Unsupportive policies and regulations.

Based on the national and international literature and using the 4 delays framework, the following summarizes what we know works for the various causes of delay –

Delay One – Help women and their families recognize danger signs by:

- Universal primary education;
- A comprehensive national health promotion campaign;
- Include men as partners in making pregnancy safer;
- Raising awareness in communities about the signs of life-threatening complications; and
- Educating women, their partners, and their families about when and where to seek care for complications.

Delay Two – Help women and their families decide to seek care by:

- Encouraging families and communities to develop plans of action in case of obstetric emergencies;

[64] Ktumusi and Lee 2008

- Raising women's status so that they are empowered to make critical health decisions;
- Enhancing links between communities and health care providers;
- Improving relationships between traditional healers and skilled health care providers;
- Improving the interpersonal skills of health care providers by using information about how the community defines quality of care;
- Educating women and their families about where to seek care for complications;
- Encouraging communities to create insurance schemes to pool the costs associated with emergency care; and
- Encouraging the use of health care facilities by adolescents, single or unmarried women, and ethnic and linguistic groups who are reluctant to use services because of socio-cultural barriers.

Delay Three – Help women reach appropriate care by:

- Encouraging communities to create emergency transportation plans;
- Upgrading roads and other transportation systems;
- Enhancing referral systems between communities and health care providers; and
- Establishing maternity waiting homes.

Delay Four – Make sure women receive care at health facilities by:

- Ensuring skilled midwifery care is available closer to the community;
- Upgrading the quality of care at health facilities, including improving providers' technical and interpersonal skills, motivation, and performance;
- Establishing evidence-based national protocols for treating obstetric complications;
- Training health facility staff to recognize and admit patients with life-threatening complications;
- Ensuring adequate and sustainable supplies of emergency medicines, essential equipment, blood, and staffing levels at health facilities;
- Providing 24-hour service at facilities that provide emergency obstetric care;
- Enhancing referral systems between communities and health facilities;
- Improving communication between the units that provide care in order to generate more referrals; and
- Ensuring that the national curricula for health providers include practical components about treating obstetrical emergencies and the provision of regular continuing education in treating obstetrical emergencies.

Community involvement in maternal health increases utilization of services and timeliness of use of the services. In some locations in PNG, ways to address this have been a particular focus. In one submission it was noted "*Creative approaches to enabling access to services can be effective e.g. the Trobriand Islands "red card" approach which meant that any traffic passing by was obliged to pick up a needy woman and take them to the health facility. This requires* ***local leadership and enlisting community support****."*

The reviews undertaken by the taskforce underscore the importance of ***waiting houses as a health centre intrapartum-care strategy*** to better support pregnant women and family members to access services, to ensure supervised delivery and ensure adequate post partum length of stay. It is reasonable to assume that waiting houses will be used only if they are designed to accommodate female guardians and family members and are provisioned with cooking and washing facilities that take into account the gender-specific needs of those who will be using them.

Targeting of underserved and higher risk groups. Those at particular risk require particular focus and include those who are Too young; Too old; Too many; Too close together; Too sick to safely be pregnant at this time; Too far from services to be assured of supervised delivery; and Too socially marginalized – survivors of Gender Based Violence, some language groups, People Living With HIV and AIDS and teenagers. Men, particularly regarding population and resource planning as it affects them as fathers and partners, are not made sufficiently welcome as rightful participants during antenatal care, labour and delivery, the post-natal clinic or family planning clinics.

An immediate solution is to **enforce** the present policy of free maternal health services for all women.

The user charges being implemented, in whatever form, in government and church facilities, are against this policy. However, many health care managers note their dependence upon these fees for operating costs of the facility, so adequate compensation, in some form, for the "financial loss" incurred by removing the collection of fess must be instituted. For many facilities, the largest number of inpatients in a year are women with pregnancy related issues. The costs of transport for women must also be addressed. **Geographical targeting** can be beneficial in extending access to services in the poorest areas first. Such services include access to skilled delivery care, basic emergency obstetric care, and transport or transport subsidies to get to hospitals. **Making services culturally friendly** is crucial. Many good, supportive customs and traditions that were supportive are breaking down e.g. care of the recently delivered woman was often assumed by her family or mother-in-law for extended periods of time; now delivered women are more often back to 'full duties' without time for recovery and adequate time to attend to the new baby[65]. Some customs (e.g. putting dung ashes on the cord) are positively dangerous….and we need to work with communities to establish new and positive balances. The **involvement of men** is important. In some places in PNG, the presence of men remains a strict taboo, but in others that is NOT the case. The inclusion of men in all services related to saving women's lives is to be welcomed and promoted: there is evidence that there is much to be gained in family health if this is the case. They should feel included and welcomed, be offered information and encouraged to stay with their partners where it is mutually agreed. **Health promotion activities** based on evidence, targeted for the various audiences, evaluated and continually improved are a useful way of: a) increasing people's knowledge of healthy behaviours; and b) providing an environment in which they can change their behaviours. However the capacity in PNG in relation to the needed Health Promotion activities is very limited.

The **role of the churches and civil society is vital.** PNG's civil society is a diverse community of churches, business associations, labour unions, women's and youth organizations, policy institutes, NGOs, community-based organizations, and landowner groups. While the churches are prominent throughout PNG, many civil society groups based in and around the main cities rely on external support and are not as deeply rooted in PNG society as the churches. The Churches and private enterprise remain untapped conduits to the people in terms of health promotion, education and role-modelling in relation to Making Pregnancy Safer. The recent work on detailing a Public Private Partnership policy for the whole of government, implementation of the

[65] Personal communication, Dame Carol Kidu, 2008 discussing changes in Motuan culture and lifestyle in relation to traditional practices surrounding childbirth

PNG Health Sector Partnership Policy, the Partnerships in Health study and other such initiatives to encourage national and global partnership for health – and especially sexual and reproductive health – must be strengthened. Appropriate legislative and regulatory frameworks and government capacity to manage these partnerships and contractual arrangements are required to ensure this is a positive development for health outcomes for Papua New Guineans and especially for maternal health.

Reorientation of health staff towards providing positive and welcoming attitude by staff, increased supervision of community health workers, clean labour wards, engagement with the community and families of pregnant women, and provision of feedback to community and village birth attendants on causes of maternal death.

Health Sector and Systems

In PNG "Rural health has improved very little in the last 30 years and is at the core of the problem of low maternal health status[66]" - as demonstrated by:

- The proportion of delivery rooms with running water and sinks has decreased;
- There are perennial problems with the drug supply;
- Reduced doctor supervisory visits;
- Aid posts closed (in 2000 only 63% of the original aid posts are still open);
- Number of health staff in rural facilities declined by 25% between 1987 and 2000, especially community health workers;
- Antenatal coverage is much lower (and especially for the lowest asset quintile);
- Contraceptive use is low (especially in the lowest 2 quintiles of income);
- TB control is poor;
- There is a shortage of anti-malarial drugs;
- Decreased access to ambulatory care;
- Declining health infrastructure; and
- Rates of supervised deliveries remain low and have not greatly altered in the last decade.

The decentralization of government roles and responsibilities, and financing under the Organic Law, has seriously compromised the quality and functionality of health services, including maternal health. The integration of hospital health centres and community level services- "required for safe motherhood programs' was not achieved in PNG – as hospitals were made autonomous, further exacerbating the "conflict" between provincial health and hospital CEOs[67]. Health system performance in PNG has been on the decline over a couple of decades: with decreased coverage and quality despite a 35% increase in real terms in public spending between 1996 and 2004[68]. In the late 1970's, if a woman was able to reach a rural health centre almost anywhere in PNG with obstructed labour she could be transferred to a provincial hospital and be dealt with by quality emergency obstetric care. More importantly than anything mentioned

[66] ADB, AusAID and World Bank 2007
[67] Aitken 1999
[68] ADB,, AusAID and World Bank 2007

above, the thing that made maternal health services more effective in the past was a functioning rural health and referral system[69]. This was supported by:

- Well defined policy and leadership from the NDoH as stewards of the system;
- Provincial health services were managed by the provincial health office team, with clinical and public health staff, headed by the Provincial Health Officer (PHO);
- Rural health centres were visited regularly by the PHO team, were clearly managed by senior people with health knowledge and experience, and the rural health centre team in turn supervised the peripheral units (aid posts);
- There was a capacity and designated responsibility and power at provincial health level to manage service or personnel problems; and
- The Provincial Health Officer was a respected and senior member of the provincial administration management team.

The end result was that health workers mainly turned up to work every day. They did their jobs and if there was a problem with personnel management it was sorted out expeditiously by someone who cared specifically about the health service. Now well documented are the changes to this management system that have occurred through the New Organic Law changes in 1996[70]. These included:

- Supervision of the rural health service being decentralized to the district administration without the District Manager having the knowledge or experience of how a health service operates – resulting in it being difficult to get health system problems effectively resolved or sorted out, health workers mostly not being supervised and many not turning up to work;
- The provincial health office team merely having a technical advisory role so if their advice is not sought they may actually have nothing much to do, if they see that things are not going well they cannot themselves do anything about it - resulting in demoralization both at the senior level in the PHO and at the rural health facility level;
- The majority (probably up to 65%) of aids posts (based on 1996 levels) having closed down because CHWs are unwilling to work in rural areas where they are not supported or supplied with the things they need to work effectively;
- "many of the provincial health authorities were neither technically nor managerially prepared for these changes[71]";
- "Furthermore, declining health budgets made it almost impossible to invest resources in expanding training and control programs[72]";
- Provincial and local level governments and MPs accepting no responsibility for primary health care and essential public health functions [73];
- Provincial declines in real health expenditure by 45.1% between 1997 and 2004; and
- Decline in hospital real health expenditure by 13.6% 1997 – 2004.

The capacity for these areas to be redressed now exists in the form of:

- The Provincial Health Authorities Act (2007);
- The devolution of DPM decisions over staff establishment structures and numbers to provinces and Departments; and

[69] Mola, G 2008 Submission to Taskforce
[70] PSRMU 2001
[71] Aitken 1999 page 124
[72] Aitken 1999 page 125
[73] ADB, AusAID and World bank 2007

- The recent changes to the financing of provinces through the NEFC financing arrangements and formula including quarantined health functions grants.

The NDoH, as the national steward and policy maker in the health sector, has not had the capacity to meet its new role under decentralization and **Reproductive health has been eclipsed by the disease control programmes** funded by the Global Health Initiatives[74].

There is growing awareness in international health groups that weak national health systems limit the gains that can be made in many areas of health. A systems approach to reduce maternal mortality does not necessarily delay progress. A World Bank study showed how, in the second half of the 20th century, the coverage, quality, and use of maternity services in Malaysia and Sri Lanka were systematically improved[75]. **The report concluded that maternal mortality could be halved in developing countries every 7–10 years with this approach.** These experiences show us a clear road to success if we have the perseverance to follow it and resist the temptation of shortcuts[76]. **Medical supply logistics, procurement and management** are poor in the PNG health sector and this has been well document in several reviews, including the recent Ministerial Taskforce on Medical Supplies. Several recommendations have been made, reinforcing those of previous reviews, and a road map provided to the NDoH for implementation. Disappointingly slow progress has been made to date on implementing these recommendations and this must be addressed urgently.

[74] IMRG 2008
[75] Pathmanathan et al 2003
[76] Maine 2007

2.0 Policy Setting for Maternal Health

2.1 Government Policies

> *"Additional policies such as those that bring about expansion of female education, better financial access for the poor and poverty reduction are essential to sustain success (in maternal mortality reduction"*[77].

The deterioration of the health services in the country has contributed directly to the worsening of the maternal health status in the last decade in PNG. Maternal mortality is an indicator of disparity and inequity between men and women and its extent is a sign of a women's place in society and their access to social, health and nutrition services and to economic opportunities.

A women's participation in economic activities & control of her own income is more important to improvement of maternal health than household socioeconomic status[78]. The low status and empowerment of women negatively affects their access to, and use of, health services. **The lack of a PNG national gender policy** creates a vacuum for implementation, enforcement, monitoring and evaluation of gender development policies including gender equality and the rights of men and women to equal opportunity and safety. It allows the gaps in gender equality in employment, parental leave post-pregnancy, education access, and poor implementation of the laws related to gender based violence to persist. Implementation of the Gender Policy and other obligations under the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) will also provide positive environments for maternal health. Violence in pregnancy is associated with many negative consequences for maternal and foetal health. Poor implementation and monitoring/enforcement of the laws relating to **gender based violence**, especially in the law and justice sector and health sector, create poor maternal health outcomes for many women. The negative effect of unsafe abortion on maternal health is well researched and documented – including complications such as haemorrhage, infection, pain, infertility and death[79]. Maternal deaths due to abortion are highest in countries where abortion is largely illegal – resulting in around 13% of maternal deaths in many countries[80]. The present laws regarding termination of pregnancy increase the risk for many women of unsafe and often fatal abortions, poor access to safe abortion and post-abortion care, and often confused health workers regarding the management of septic abortion – resulting in women's deaths and disability.

Access to, quality of, and acceptability of health services in PNG has deteriorated in the last 10-15 years – and in this context maternal health services have been affected most severely. Trickle down approaches to health disparities, of which maternal health is a major one, are not good enough, and inequities must be explicitly addressed[81]. The poorest women in the poorest parts of PNG are likely to be the worst affected by maternal health and have least access to services. Progress and investment in maternal health have lagged far behind estimates of what is needed to achieve the MDG in PNG, and globally[82] . Scaling up towards universal access to and utilisation of maternal health services requires tackling social, economic and political conditions[83]. In

[77] Chowdhury M et al 2007
[78] Gill et al 2007
[79] Gill et al 2007.
[80] Gill et al 2007
[81] Freedman et al 2005
[82] Gill et al 2007
[83] Freedman et al 2005

September 2000, 189 countries (including PNG) pledged to support the MDGs. **Millennium Development Goal 5** demands a reduction in the maternal mortality ratio by three-quarters between 1990 and 2015. Malaysia, Thailand, Sri Lanka, Honduras, Bangladesh, and Egypt have all shown that to reduce maternal mortality by 75% in 25 years is possible[84]. **However, in the present demographic, economic, and political context, Papua New Guinea has no hope of making this commitment**.

Additionally, improved maternal survival assists in the achievement of other **Millennium Development Goals:**

- MDG-1: poverty reduction: improved maternal health services , which are available equitably can not only help to reduce the gap in numbers of maternal deaths between rich and poor people, but also reduce the economic effect on poor families
- MDG-3: women's empowerment: maternal mortality is high where women's status is low, especially with regard to educational level.
- MDG-4: child survival: intrapartum and early postpartum strategies will reduce the overwhelming burden of neonatal deaths, and improved maternal survival will also enhance the survival and well-being of young children.
- MDG-6: infectious diseases: good maternity care services provide opportunities to prevent and treat malaria in mothers and babies, and prevent mother-to-child transmission of HIV and other sexually-transmitted infections.

Maternal health has many valued outcomes, but maintaining a focus on maternal death is crucial in PNG where the mortality burden is very high indeed[85]. For every woman who dies, another 30 will suffer lifelong morbidity related to complications sustained during pregnancy and childbirth. The woman carries the burden, but this burden also translates into productivity losses for the family and community, as well as an obstacle to National Development.

Maternal health in PNG is affected by: the nutrition, education levels and equity of opportunity of girls and women in PNG; the level of expenditure on and accessibility of health services; access to information, education and services on reproductive health at all ages; laws and policies relating to gender based violence, access to safe termination of pregnancy, family planning services; and broad development policies regarding population policy, poverty alleviation and gender and development. **Maternal mortality is an indicator of disparity and inequity between men and women and its extent a sign of women's place in society, as well as their access to social, health and nutrition services and to economic opportunities**. The social determinants of health must be addressed in making pregnancy safer.

Women, as citizens of a nation, "have rights – entitlements to the conditions, including access to health care that will enable them to protect and promote their health; participate meaningfully in the decisions that affect their lives and demand accountability from the people and institutions that have the duty to take steps to fulfil those rights[86]".

Changes in human resource policies are necessary to deliver the maternal health intervention package to scale[87]. These include: the provision of pathways and practices to enable mid-level

[84] Ronsmans and Graham 2006
[85] NSO 2008
[86] Freedman, l et al 2005
[87] Freedman et al 2005

providers to perform procedures they can be trained effectively to practice, but are presently restricted to obstetricians and gynaecologists; and changes in salary and career structures and working conditions of health workers, perhaps differently from other cadres in government service. The policies and standards for basic and post-basic training for health workers, especially those directly linked to maternal health services – such as CHWs, nurses, midwives, HEOs and doctors – need review and strengthening – to ensure every health worker is trained, and remains competent to provide the essential health services required. Attention to accreditation and continual professional development is poor in the present system. Better liaison and cooperation between the **Office of Higher Education, National Department of Health and Medical Board and Nursing Council** is required to support these actions.

Mechanisms to **strengthen the voice of the poor and marginalized to make claims[88] must be supported.** This requires a dynamic relationship between people and their government in the areas of entitlement and obligation. It becomes a building block for functioning health systems, and can be enhanced by well designed and implemented decentralized health services. This requires, like lessons learnt from the AIDS movement, the building and supporting of the capacity of communities, civil society organizations, and government staff in planning, setting priorities, reviewing how services are delivered and provision of information, e.g. on budgeting decisions. Explicit attention must be paid to gender and development in the Poverty Alleviation policies and strategies of a nation, and particularly to equal work and pay opportunities and parental leave.

The National Population Policy in PNG has been neglected for several years in its implementation and monitoring. The quality and implementation of a national population policy affects maternal health – directly though its promotion of a limited number of children per household (high numbers of birth and closely spaced births decreases a woman's chance of a safe pregnancy) and its policy on voluntary access to free quality family planning services for men, women and couples, and sexually active adolescents, as well as its policies on parental care, breastfeeding at the workplace, proposed population growth rates etc. **A new Population Policy and reinvigorated oversight body** is required to ensure the right environment for planning sustainable population growth and link to resource availability (financial, environmental, services), as well as voluntary access to safe family planning services.

Health services location, access by affordable local transport and good quality roads or water transport systems – are important determinants of health services utilisation. Thus **policies about where to locate and upgrade transportation routes and health services, affect maternal health.** The costs of accessing services, such as costs of transportation, of alternate child care and of fees charged, directly affect use of services – and more so amongst the poor. Policies regarding fees charged for services directly impact on access to services and therefore maternal health.

International evidence shows even the poorest countries, ones with political instability or very high HIV prevalence, can still, if all partners are committed politically and financially, implement a successful primary health care approach and achieve the MDG 4 and 5 targets. To attain and maintain political momentum and commitment needs to address 4 interconnected political challenges[89]:

1. Build cohesion in the policy community to speak with authority and unity to the political leaders;

[88] Freedman et al 2005
[89] Shiffman and Smith 2007

2. Create an enduring guiding institution/partnership to sustain the initiative
3. Develop convincing themes of the importance of maternal health
4. Develop strong links between other national initiatives and civil society organisations

(Recent inaugural meeting of Parliamentarians on Population and Development)

Recommendation

1. *That major government, private sector and development partner investments be secured to achieve the ambitious but necessary targets required to turn around the current status of Maternal Health in PNG. This will require:*
   - *Strong leadership (political, health and community) at every level;*
   - *Immediate implementation of advocacy efforts to secure the resources and commitments required;*
   - *Mobilisation of the necessary technical expertise (clinical, public health and managerial) within the health sector to support these efforts; and*
   - *An operational and resourced integrated provincial and district health service.*

2.2 Education and Maternal Health

Universal free compulsory primary education will have a positive impact on maternal health, and related impacts on infant and child mortality and health. These will all result in positive economic and development outcomes for PNG. Statistics indicate that for each additional year of education achieved by 1,000 women, two maternal deaths will be prevented[90]. Research shows that maternal mortality is also reduced by better knowledge about health-care practices, expanded use of health services during pregnancy and birth, improved nutrition and increased spacing between births – all factors that are fostered by girls' education[91]. Women and girls are empowered when they have adequate knowledge about reproductive health, sexuality and HIV and AIDS, and can make decisions regarding these issues. In PNG low levels of completion of primary school education by boys and girls has a negative effect on access to health information and health services. The 2006 DHS showed lower rates of access to services and use of family planning and access to antenatal care amongst people who have not completed primary education than other groups of Papua New Guineans. This reflects the trend seen around the world – that people who have not completed basic education have poorer access to health information and services. There is a particular relationship between girl's completion of primary education and maternal health – both seen in PNG reflecting the international trend. **Universal primary education is recommended as one strategy to address maternal health** in all the international literature. In addition, policies in the **education sector** that support the provision of population and sexual health education are poorly implemented – resulting in many young Papua New Guineans having limited levels of knowledge about these issues.

[90] World Bank 2002
[91] UNICEF 2003

Recommendation

2. *Recognising that universal free primary education for girls is a successful intervention to address maternal mortality, the Taskforce strongly endorses the recent Government decision to introduce Universal Free Primary Education by 2010 and recommends that the resources required to implement this are made available for the 2010 launch. It also recognises the important role education has for all Papua New Guineans of all ages, male and female, in addressing and reducing maternal health problems. To be successful educational interventions should include:*
    - *Sexual and reproductive health subjects in the curricula with inclusion of Basic physiology and anatomy, Sexual health, Population planning and resource matching for the Nation, Family Planning & Essential Obstetric care, Men's role in S&RH*
    - *Removal of policies that support the expulsion of students from school due to pregnancy*
    - *Development of and resourcing for implementing opportunities for adolescent parents to complete schooling after delivery.*

2.3 Financing of Health and Maternal Health

The level and distribution of overall health financing – for primary, secondary and tertiary care is an important determinant in the quality and functionality of health systems in general. The effectiveness of the expenditure – is it being spent on the right things, in the right quantities, at the right time and at the right places – is important. The equity in financing – are the poor, marginalized and remote receiving enough financing to ensure they have equal opportunities to access the minimum essential package of services . The efficiency of the service is also important to consider and programme.

"Preventative interventions at the community level for newborn babies and at the primary health care level for mothers and newborn babies are extremely cost-effective, but the millennium development goals for maternal and child health will not be achieved without universal access to clinical services as well[92]". Scaling up coverage of skilled deliveries will have the consequent impact of halving the number of maternal deaths by 2015 at between US$ 0.22 - $1.18 per person. The Commission on Macroeconomics and Health estimated that an average of $US 34 per head of population (2002 prices) would be needed to provide essential health services in low income countries (like PNG).

There is globally a longstanding lack of funds for maternal health. Despite the evidence that scaling up coverage of skilled deliveries with the consequent impact of halving the number of maternal deaths by 2015 at between US$ 0.22 - $1.18 per person[93], the levels of investment in maternal health, both by governments and development partners, goes nowhere near reaching the requirements[94]. Additionally the **equity in financing** – that is are the poor, marginalized and

[92] Adam et al 2005
[93] Only 2% of donor funding goes to maternal health globally.
[94] Berer M 2007

remote receiving enough financing to ensure they have equal opportunities to access the minimum essential package of services – is important to consider and monitor.

At the broader **national development level:**

- **Decreased productivity** caused by the death of a women in the prime of her economic and family life[95];
- Relationship between burden of disease and **economic growth** – in countries like PNG[96], maternal death is a large proportion (up to 13%) of total burden of disease;
- "The woman dying are in the prime of their life: they are crucial to society and the economy; they sustain the next generation; [and] they make up more than half of the workforce …. Continuing high levels of mortality in mothers and babies is a global collective failure"[97].

In scaling up coverage of maternal and neonatal health[98]:

- There is a minimal increase in overall programme costs;
- About 25% of the increase in costs will be overall health systems strengthening;
- Another 25% of costs are the remuneration of service providers, as more serviced providers will be required, and some innovation in retention and encouraging rural practice is required, based on international experience, and the costs of training; and
- The majority of the costs, 50% will be for drugs, supplies and laboratory costs.

A large component of the costs of scaling up will be to "close the supply gap and the availability of skilled human resources for maternal and newborn health care[99]". Based on the analysis of international evidence on the costs of maternal health services, it can be seen that **scaling up coverage of maternal health services will require substantial increases in overall funding, specifically in drugs and medical supplies**. Interventions that need intensive labour input, such as management of eclampsia, are also expensive. The level at which common obstetric problems can be managed will affect the total costs of the service. And the costs of prevention are cheaper than 'cure' (treatment). For these expenditures there are also savings – especially for preventative services. For example, in a typical high maternal mortality, high fertility country like PNG, the cost of averting a single unintended birth through family planning could be as much as $US 368, and the estimated savings to the government is US$440. The cost per user falls as the number of users rises. In some countries, every dollar spent on family planning saved US$12 in health and education costs for the government[100].

Despite this evidence, **PNG Government funding on health has decreased** by 9.4% in real terms between 1997 and 2004, but development partner funding increased by 109.7% in the same period. The government funding cuts were in goods and services funding (27%) and capital items (77%), but salaries increased by 10%. In this same time period, 200 aid posts closed and ANC coverage declined[101]. Contributing to these decreases are the provincial declines in real health expenditure by 45.1% between 1997 and 2004. There has been a decline in hospital real health expenditure by 13.6% 1997 – 2004. The share of health budget (all sources) to family health services is only 6% of total expenditure, with 1% of government funding and 18% of development

[95] Gill et al 2007
[96] Gill et al 2007
[97] Graham et al 2007
[98] Sigurbjornsdottir 2005
[99] Sigurbjornsdottir 2005
[100] Alan Guttmacher Institute and UNFPA 2006
[101] ADB, AusAID and World Bank 2007

budget[102]. Only 13% of total health expenditure was spent on supplies and equipment, well below the international benchmark of 25-40%[103]. There has not been an increase in real terms in budget allocation for medical supplies in recent years. The request in 2009 from the NDoH was for K120 million, but only K80 million was allocated – which was the same as 2008 with an inflation increase only. Comparing these levels of expenditure, one can see the huge underinvestment in health:

- Health expenditure as a % GDP is 0.6% in PNG, This compares to for Australia at 8.8%, New Zealand at 8.9%, Indonesia at 2.1%, Samoa at 4.9% and Fiji at 4.1%[104].
- Government expenditure on health as a % of total government expenditure is 9.6% in PNG (similar to Fiji at 9.6% and lower than Samoa at 11.6%)[105].

Not only is it the low amount of health financing a problem, so to is **the lack of funding at the operational level.** The failure to get resources to the operational level, either via health centre grants, or larger tranches of HSIP funds to the provincial level is a major problem. **Provincial/district budgets for personnel are exceeded in real expenditure** in most instances. Closure of aid posts has in part resulted from the reduction in money for staff positions, and a contraction of staff from the periphery[106].

Hospitals account for about 30.1% of government expenditure. However hospitals are most heavily used by the richest quintile of income. Despite this percentage of the total health budget being spent on hospitals, there remain serious service quality concerns; reduced inpatient capacity; regular shortages of essential medical supplies; all exacerbated further by the increasing HIV burden[107]. Absolute levels of health financing must be increased as well as the efficiency and effectiveness of that expenditure.

[102] ADB, AusAID and World Bank 2007
[103] SADB, usAID, WB 2007
[104] Asia Pacific Action Alliance on Human Resources for health 2008
[105] Asia Pacific Action Alliance on Human Resources for Health 2008
[106] IMRG 2008
[107] ADB, AusAID and World Bank 2007

3.0 Health Systems and Maternal Health

> *"Rural health has improved very little in the last 30 years and is at the core of the problem of low maternal health status[108]"*
>
> *"Countries … with the weakest health systems have the highest number of maternal deaths[109]".*
>
> *"Reaching the MDGs 4 and 5 means having functioning health systems[110]"*

Maternal Mortality Ratio is the most sensitive indicator of quality and level of functioning of a health service. That means a high maternal mortality ratio means a poorly functioning health system overall. International evidence shows that maternal mortality can be reduced when quality health services are available and accessible including a referral system to manage complications at a higher level of the health care system (WHO 1994). Primary health care and a district focus are key to health systems strengthening, and building a firm foundation for maternal health services.

Within a health facility there is a well defined minimum requirement for the physical environment to support provision of quality maternal health services. Very few health facilities in PNG meet these requirements, according to the level of maternal care they should provide. The sheer absence of adequately trained, maintained and supervised staff *and* facilities is the most substantial barrier to progress when discussing Maternal Death and Disability in PNG. These issues are not the sole responsibility of those involved in health service provision. They need to be addressed with a **Whole of Government approach**.

Full access to, and utilisation of, proven effective interventions would avert ¾ of maternal deaths[111].

Twenty percent of maternal deaths are due to an underlying disease that is aggravated by pregnancy – such as malaria, iron deficiency anaemia, hepatitis, tuberculosis or heart

[108] ADB, AusAID and World Bank 2007
[109] Obaid T 2007 page 1288
[110] MDG gateway 2008
[111] Freedman et al 2005

disease[112].Therefore a strong primary health care and prevention program is a necessary foundation for maternal health. **The district is the basic unit for planning and implementing the Making Pregnancy Safer package.** There is a need to shift focus to the challenges of effective implementation of services with districts and strengthening of the district health system capacity[113]

Major reductions in MMR have occurred in developed and developing countries with an evidence based, cost effective health system and social interventions. A World Bank study showed how, in the second half of the 20th century, the coverage, quality, and use of maternity services in Malaysia and Sri Lanka were systematically improved[114]. The report concluded that maternal mortality could be halved in developing countries every 7–10 years with this approach. These experiences show us a clear road to success, if we have the perseverance to follow it, and resist the temptation of shortcuts[115].

Maternal mortality rates are contributed to by health systems and service delivery constraints[116]. These include the broad health systems building blocks of:

- Information systems: underreporting and lack of use of data leads to poor planning for maternal health services[117];
- Models of care and referral protocols: too many layers means families may waste time and resources accessing many providers – causing delays to access – as does haphazard referral – See Briefing paper 4;
- Human resource management: such as supporting health workers, supervision and ensuring rational use of evidence based treatment;
- Logistics management: ensuring drugs, supplies and basic diagnostic sets are available;
- Policy framework: ensuring treatment standards are available as well as other policy support;
- Financial management: including accountability, equity and sending on the right priorities and interventions; and
- Community participation: including accountability of services to communities.

There is a pressing need to address:

1. Infrastructure;
2. Essential Equipment, Supplies & Drugs;
3. Logistics support;
4. Security issues;
5. Communications;
6. Emergency transport;
7. Secure accommodation for staff; and
8. Supportive supervision and management.

[112] WHO 1994
[113] Freedman et al 2007
[114] Pathmanathan et al 2003
[115] Maine D 2007
[116] George A 2007
[117] Cecatti et al 2007

To effectively address maternal health deaths and disability in PNG requires a trained, competent and willing workforce to deliver the relevant 32 interventions that can save women's lives. **Worker density is an important determinant of maternal health.** There is a critical shortage of health care professionals across all cadres in PNG. The WHO has identified that a health worker to population ratio (doctors, nurses and midwives) of 2.5 health care workers (counting only doctors, nurses and midwives) per 1,000 population can help the country reach many of the MDG targets (more than 80% measles coverage, skilled attendance at all births and reductions in infant, child and maternal mortality)[118]. According to the Asia Pacific Action Alliance for Human Resources for Health[119], PNG has a ratio of 0.58 health workers per 1000 (2000 data), compared to Fiji at 2.23 and Samoa at 2.74. Facility-based births with skilled midwives and assistants working under their supervision can effectively increase the number and proportion of women with professionally assisted births. For a maternal death to be prevented, the health system must meet a minimum level of functionality in terms of human resources, infrastructure, supplies, and management. There are several **human resource management issues** that need to be addressed including:

- Supervision;
- Training;
- motivation[120];
- performance management;
- retention; and
- planning – numbers, mix and distribution.

The required workforce must be a) the Right cadre mix for PNG; b) in the Right numbers [yet to be decided]; c) in the Right distribution, close to the target recipients [yet to be decided]; d) have the Right skills base [yet to be agreed and implemented] developed through quality competency based pre-service, post-basic and in-service training; e) have the Right career structure [in need of review]; f) receive the Right remuneration, incentives and working conditions [in need of review]; g) receive regular, supportive supervision and management; and h) be supported by the tools they need to do their job.

Basic training of health workers needs to instil the essential competences, skills, *and attitudes* adapted to changing field realities. More investments are needed in the training system, including its staff, to ensure a thorough socialization process. Concentrating on the Medical Determinants of health without linkage to and emphasis on the Social Determinants[121] will not produce a client-friendly and focused service that families will want to access. A responsive health workforce can be built on horizontal cross-professional training to which modules are added in function of required mixes of competencies[122] and capped by validation of graduates through a transparent process. "There is a limited supply of appropriately qualified people to enter the sector as health workers, especially women and people from rural areas, given their low level of participation in formal secondary education. Training schools for community health workers and nurses, as well as medical schools, have also recently increased their entry requirements, although the number of eligible applicants still exceeds the number of places available. The *demand for additional staff is expected to increase as PNG's population doubles over the next 25 years*, putting pressures on the

[118] Working together for health, WHO, 2006
[119][119] Asia Pacific Action Alliance on Human Resources for Health, 2008
[120] Rath et al 2007
[121] See Briefing Paper I
[122] Global Health Trust 2004

health budget, which NDoH will be hard pressed to meet. Ironically, large numbers of staff have been retrenched in recent years with the expectation that the money saved would be used for other priorities. This however has not occurred.

The 2008 NDoH HR Forum concluded that we are currently at least 3,000 health care providers short of what is required in 2008. There is a clear and pressing need to document the current supply, demographics, attrition rates (related to transfer, resignation, retirement and death) and geographic distribution of skilled care providers (in-post and otherwise[123]). In addition, nationally agreed and recommended staffing norms/establishments for the various levels of care and the populations they serve need to be developed in keeping with international recommendations. As a working example, a district with 100,000-120,000 population will expect:

- 3000-3600 birth a year to need skilled attendance,
- *plus* 210-250 of those women (*plus* 270-550 of the babies) will require referral
- with 60-110 women requiring surgical intervention[124].

This translates to the need for 20 midwives organized into 2-3 teams, one of which works at the district level, plus at least 3 part-time doctors with skills in obstetrics, paediatrics and anaesthesia. Based on international evidence[125] it is anticipated that, in PNG, three to four midwives together in a team with double the number of community midwives is the minimum to allow for 24-h coverage, 7 days a week. There are considerable opportunities to expand the Community Health Worker role into that of Community Midwives. To achieve this would require an appropriate competency-based training package, career structure and supportive supervision by midwives. These CHWs, upskilled as Community Midwives, would improve staff to patient ratios at *every* level of care.

The capacity to train adequate numbers of doctors (in Diploma and Masters), midwives, community health workers and community midwives is below requirements. In addition, in-service training in sexual and reproductive health, including essential and emergency obstetric care, family planning and neonatal care is very limited and of poor quality, and does not have the capacity to meet present and projected requirements. The institutional capacity for training nurses and health workers also decreased in the ten years leading up to 2002 as ten nursing schools were closed, leaving six active schools and one new nursing programme at the Pacific Adventist University. The quality of education provided for the preparation of health professionals working in midwifery and family planning related areas has a major influence on the ability of health services to provide skilled care for women. For the last 8 years, graduates of all 4 midwifery schools in PNG have been unregisterable according to the minimum requirements of the Nursing Council of PNG. A recent review of the midwifery curricula at the 4 schools[126] has made clear recommendations, and although a successful Curriculum Review process has been conducted in 2008[127], there will continue to be delays in the implementation of that curriculum (currently planned for 2010). There is a clear need to fully implement the recommendations of

[123] There are thought to be many health professionals either not working, or working outside the Public Sector but the numbers have not been quantified.
[124] WHO 2005
[125] Koblinsky at al 2007
[126] Kruske 2006
[127] Final report pending

the PNG Midwifery Education Review 2006[128] as a matter of urgency. Any scale up of nursing and midwifery training (estimated to have a need to double from the 2001 intake of 260 nurses per year to 485 in 2010[129]) will require close relationships with the Office of Higher Education and the universities[130]. It is not an immediate action that can be taken as staff/student ratios are less than required, and the physical capacity of the hospitals, training institutions and accommodation, as well as preceptors is limited. Some innovative ways of increasing the quality and number of midwifery trainers in the immediate to short term will be required. Similarly for CHW intakes, scopings have been undertaken in 8 of the 12 schools (2003/4) to increase intake from 20 a year to 40 a year, but this will require considerable capital works investment and staff development.

Retention of health service providers is a major part of the supply problem. The brain-drain has started in PNG (as in all developing countries) but in PNG we have no idea of the annual outflow of trained staff: something that could be improved by both Medical and Nursing Registration with the support of the Medical Board, Nursing Council and employers (public and private). In addition, significant numbers of health professionals are being attracted to both private enterprise and to programs under the auspice of Development Partners. Employment contracts for employment and redeployment should be contingent upon current registration, with penalties for both employer and employees who default. Registration itself should be contingent upon documented evidence of relevant minimum standard Continuing Practice Development/in-service training in areas related to Emergency Obstetric Care and Family Planning (as a starting point, but could also include service provision for Gender-based Violence, Men's sexual and reproductive health, Men as Partners) and competency assessment. To ensure this, mechanisms for supporting cooperative liaison between the Medical Board, Nursing Council and relevant Professional Bodies (PNG O&G Society, PNG Midwifery Society, PNG Paediatric Society, PNG Public Health Association and PNG Sexual Health Association) could be developed and resourced.

Poor distribution of human resources is a problem. Some critical rural postings go unfilled for reasons of poor career structure, inadequate income, low prestige, concerns about law and order, poor rural infrastructure for children, staff accommodation with inadequate utilities…sanitation, water, power, access to services e.g. banks, stores, transport, communications and social isolation. These all need to be addressed if we are going to get midwifery skills close to the communities who need them[131]. Incentives for staff to work in rural areas, such as rewarding many years service with a scholarship and/or special allowances, in addition to providing adequate accommodation/security and an effective communications system (both for technical and motivational reasons), would be a useful start. **Career structure options** also impact upon workforce being where they are needed. Unless remuneration, pay and employment conditions, transfer packages and career paths are joined with other incentives (e.g. education package for children, low interest home loans, guaranteed training opportunities, bonuses or repatriation packages related to length of stay) that speak to the value of the clinical midwife in PNG, nothing will change. In this respect it is recommended that the Nurses Work Value Study[132] be implemented as a matter of priority. In addition, most midwives are female; most will be married

[128] Kruske 2006
[129] NDoH 2000
[130] GHWA Financing taskforce 2008
[131] The NDoH HR Development Strategy has called for a review of incentives and partnerships with villages and local governments
[132] A report on the work value of nurses working in public health facilities (March, 2008)

and require guaranteed employment opportunities for their partners as well as educational opportunities for their children. Whilst difficult, these things are not impossible to negotiate, particularly if there is engagement with the community to whom they are going to serve.

All employees have the right to expect that their own health and safety (and that of their families) will be considered as part of the contract with the employer and the community they serve. They have the right to expect that the terms of their contract will be adhered to e.g. being paid on time, having their rent paid on time. The role of health care providers is to provide health care, but not at the expense of their own – stress-related illness in health care providers is recognized all over the world and in designing work structures, care must be taken not to over burden the health care provider. Demands such as 24 hr on-call rosters; a requirement for integrated service provision and 'every opportunity' service provision; and multi-skilling roles all add to the stress of the job and need to be taken into consideration. Health services for providers should be factored in and be part of the manager's role to ensure.

Keeping staff motivated is important. Many submissions note the demoralizing conditions that health staff work in – especially with shortages of drugs and supplies, no supervision and poor living and working conditions. International evidence shows that de-motivation and demoralization of staff remaining in the system leads to them becoming less altruistic, to being abusive to patients and having higher rates of absenteeism[133].

For maternal death to be prevented, health systems must meet a minimum level of functionality in terms of human resources, infrastructure, supplies, and management. As such, **monitoring** indicators of maternal health is a highly effective way for countries to monitor the basic capacity of their health systems. The challenge of reliably measuring trends in maternal mortality is substantial, and thus no simple solutions for monitoring progress towards MDG-5 are available. Rather, all opportunities should be seized to gather data, such as the decennial censuses, indirect approaches embedded in large surveys, innovations in sampling, population surveillance sites, and adjusted routine facility-based data. Countries should report the maternal mortality ratio *and* the total number of maternal deaths. At a minimum, mortality estimates should separate abortion from other direct obstetric causes, and so-called coincidental causes should be identified within maternal mortality statistics. Presently in PNG, it is unlikely that we are collecting data on deaths that occur before 20 weeks (miscarriage, ectopics, infections in pregnancy etc) as most women are not known by the community to be pregnant before that gestation. Vital registration is in a parlous state and must be improved nationwide to ensure that at least all births and deaths are identified, and the primacy of individual reporting of all maternal deaths must be reinstated. Nationally agreed Key Performance Indicators need to be decided. Indicators that might be chosen include, amongst others:

- Total number of maternal deaths, by cause;
- Maternal mortality ratio, by cause;
- Midwife to population ratio;
- Availability of basic and comprehensive obstetric care facilities per 500 000 population[134];
- Proportion of births attended by skilled health personnel by place of delivery;

[133] Schneider, et al 2006; Gerein et al 2006
[134] UNICEF, WHO 1997

- Proportion of births with caesarean section[135];
- Population based Caesarean section rates (as a proxy for unmet need of EmOC services) using facility based data;
- Proportion of births with life saving surgery[136];
- Proportion of women who stayed in a health facility for 24 hours or more after delivery;
- Mortality rate among women of reproductive age;
- Age-specific mortality rates;
- Parity specific mortality rates; and
- Relevant Family Planning indicators[137].

The suggested indicators could assist tracking progress with the health-centre intrapartum care strategy. Monitoring of service use by equity parameters is essential to measure progress in care for those who need it most.

Skilled providers require **facilities with intact infrastructure, functional essential equipment, supplies and drugs, communications equipment and transport options in order to practice their skills and deliver useful interventions that can save women's lives.** These facilities need to be distributed within the walking reach of the majority of the target population. The sheer absence of adequately trained, maintained and supervised staff *and* facilities is the most substantial barrier to progress when discussing Maternal Death and Disability in PNG. The poor quality and under-use of existing services, where they are available, is of secondary importance to the absence of supply and diminished management capability. **Infrastructure** does not relate to facility buildings alone, although they must be a significant focus. Other things need to be taken into consideration and responsibility for these interventions should be addressed and resourced by the relevant department and government level e.g. Departments of Works, Transport, Agriculture, Community Affairs, Law and Justice Sectors and RPNGC, Civil Aviation Authority, Telikom PNG, PNG Power, National Water Board, National Housing Board etc, to guarantee:

- Safe road access and transport for clients and workers; and of particular importance to the most marginalized – the urban poor and those living in rural and remote areas;
- Law and order for clients and workers; and
- Transport up and down the referral tree – ambulances (road, river, sea and air transport needs consideration)

The NDoH and the Provincial and Local Level health authorities must address health facility minimum standards, design, distribution, building and maintenance. It is difficult to locate information that is comprehensive and up to date regarding asset management of health infrastructure (of facilities that are in and out of use and closed). The National Health Inventory, conducted annually, has only 5 variables measured (aid post open/closed; presence of radio/telephone; presence of vehicle/boat; presence of running water and sink in delivery room; and experience of drug shortages) with data derived from the provincial health office. The development of a health sector assets register has been mooted for several years, but has never

[135] Stanton ey al 2005
[136] Ronsmans et al 2002
[137] See current Draft National Family Planning Policy

developed. The Health Sector Improvement Program funded major assets, assets purchased through GFATM and GAVI funds and those handed over from development partners are recorded into separate assets registers. There is an urgent need to finalize an assets management plan, assets policy and assets register that is used consistently and thoroughly in the sector. A major determinant of the acceptability of health facility based supervised deliveries is the safety of the woman in the facility. Adequate lighting, fencing, and community support are all required to ensure security is maintained at facilities. Other reasons for addressing security include:

- Ensuring patient access;
- Asset management;
- Protection of staff and patients at facility level;
- Protection of staff on patrols;
- Security of patient during transfer when required;
- Protection of staff accommodated on location; and
- Protecting staff from attack travelling to and from work (Newspaper reports of nurses being attacked and even raped whilst on duty or travelling to work occur frequently and discourage people from joining and staying in the profession).

Liaison with community and RPNGC, the army, private enterprise may well be required.

Nearly every submission spoke to the appalling and recurrent lack of essential equipment, supplies and drugs, the poor quality, choice, lack of timely supply and regular stock-outs. Addressing the physical factors that contribute to maternal morbidity and mortality in PNG is going to be expensive because of the infrastructure challenges that the size and topography of this country presents, but they can be overcome. They require political will, focused determination, a realistic budgetary allocation, civil servants with a track record of achievements and widespread public support. In its basic elements, supply consists of the following functions:

i. Procurement (which could also include gifting, loans or donations);
ii. Provisioning (determining need);
iii. Receipt, Warehousing and issuing;
iv. Inspection and quality control; and
v. Asset management register and management.

This has been challenged in PNG for a variety of reasons and recent steps have been taken by NDoH to improve functions related to procurement, provisioning, warehousing and other issues. The reform of the medical supplies procurement and logistics system is a major priority for the health sector and for saving women's lives[138]. Let us remember that funding the commodities for EmOC is reasonably inexpensive, averaging about US$2 for every pregnant woman in the country. On the other hand the cost of sending out a mercy mission to rescue a woman can be expensive. There are international standards for the equipment and related supplies[139] that should be referred to by the expert clinicians (medical and midwives) who develop/update the PNG

[138] Ministry of Health 2008; Ministry of Health 2007
[139] WHO 1991; WHO 1994; WHO 2004; WHO, IPPF, JSI, PATH, PSI, UNFPA , World Bank 2006; WHO, UNFPA, PATH 2006

minimum standards. There has not been a comprehensive nationwide provision of essential health centre or aid post equipment (including for pregnancy care) since 2001. Ad hoc supplies may have been provided through small project activities. In the 2009 provincial Annual Activity Plans every province requested essential obstetric equipment as a priority for expenditure. At first referral (hospital) level, medical equipment especially related to maternity care has been neglected. Additionally, because of non-compliance with the PNG Medical Equipment Policy, there are also high levels of obsolete, inappropriate or non-functioning medical technology lying around hospitals. Despite intensive effort to build a biomedical engineering capacity in the hospitals, inadequate funding, supervision and resourcing of this cadre has meant these services have deteriorated in the last 5 years.

The PNG health sector has inefficient, poor quality and inadequately managed laboratory services. Factors contributing towards this situation include:

- Underfunding of laboratory services;
- Obsolete laboratory equipment;
- Poorly managed medical supplies procurement leading to undersupply of reagents;
- Lack of adherence to standardization of laboratory equipment; and
- Inadequate numbers of laboratory staff of all levels.

Communications are a major infrastructure requirement for maternal health services. They must be reliably available:

- Between community and facility;
- Between facilities, especially aid posts and health centres with the first referral level; and
- Between facilities and other key agencies (e.g. police).

To make staying in remote and rural areas attractive, facilities should also be available for personal use by staff.

Communications are required for:

- Seeking specialist opinion on difficult situations facing rural health staff (eg. Obstetric complications);
- Arranging for a referral of a woman with complications;
- Arranging for transportation of a woman with a maternal health complication;
- Providing medical supervision “on the air”; and
- In-service training.

The backbone of the rural health facility communications is and shall remain the high frequency radio system. Every provincial hospital, provincial health office, district health office and health centre, as well as area medical stores have a HF radio that is part of the national health services radio network. There needs to be an expansion of this service to ensure a radio is available in the labour ward of every first referral hospital (rural and provincial) and in key remote aid posts at least. All provincial hospital labour wards should have a health radio to aid regular ‘ward rounds’ and in-service with facilities staff and increase access to timely advice and referral. Where mobile telephone networks allow, they should be made available to facilities staff to complement the HF radio, and mechanisms for cost-sharing developed.

The role of maternity waiting homes and their effectiveness and acceptability in a range of different PNG cultural and geographic locations may be systematically studied and based on the findings. Guidance on minimum standards for infrastructure, location and management of the facility must be developed.

Recommendation

3. *Recognising that that Maternal Mortality Ratio is the most sensitive indicator of quality and level of functioning of a health service and that a dysfunctional health system in PNG has been a major contribution to the deterioration in and extremely high levels of maternal morbidity and mortality, the Taskforce recommends urgent and sustained efforts to address the well defined systems problems in the health sector. This will include:*
    - *Human resources management*
    - *Infrastructure and assets management*
    - *Logistics and supplies management*
    - *Evidence based financial management*
    - *Health promotion activities*
    - *Supervision, monitoring and evaluation*
    - *Effective health information system*
    - *District and provincial health services, including hospital management.*

4.0 Evidence based interventions to address Maternal Health

The major medical causes of maternal death and disability are known. Effective health interventions for Making Pregnancy Safer are relatively cheap and certainly well known, but they are not reaching those in need in PNG.

A broad international, expert and evidence-based consensus has emerged with particular emphasis on what works in developing countries as the minimum demanded focus – after decades of experience **we DO know what works**. The three core strategies of:

1. Comprehensive, integrated reproductive health services, with an emphasis on strong **family planning** services; plus
2. Skilled care for all pregnant women by trained providers[140] with strong midwifery skills during pregnancy and especially during childbirth i.e. **Supervised Delivery**; plus
3. **Skilled Emergency Obstetric Care** (EmOC) for all women (and infants) with life-threatening complications supported by timely referral.

These strategies are the basic elements that **must** be in place if any country with high maternal mortality is to bring its rate down significantly, but are by no means exclusive. They must be Acceptable, Accessible, Appropriate, Affordable and Available; Evidence-based, Effective, Efficient; and able to be applied Equitably; and be Safe, client-focused and timely.

In addition, there is growing attention to the need for timely postnatal care for both mothers and their newborn, preferably for at least the first 24 hrs after birth. Although research has not shown that antenatal care directly reduces maternal mortality, good quality, client-friendly antenatal care is linked with greater use of skilled care during childbirth. Universal access to family planning is probably the most cost effective and feasible strategy to reduce maternal mortality[141]

In PNG:

- Voluntary family planning alone could reduce maternal death by a third and child deaths by as much as 35%; and
- Ensuring skilled attendance at all births, backed by emergency obstetric care, could reduce maternal deaths by about 75%.

One of the critical pathways to reducing maternal mortality is improving the availability, accessibility, quality and utilisation of services for the treatment of complications when they arise during pregnancy and childbirth. These services are collectively known as Emergency Obstetric Care (EmOC)[142]. Countries with the lowest proportions of skilled health attendants at birth,

[140] WHO, the International Confederation of Midwives, and the International Federation of Gynaecology and Obstetrics define a 'Skilled Attendant' as: "A skilled attendant is an accredited health professional—such as a midwife, doctor, or nurse—who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth, and the immediate postnatal period, and in the identification, management, and referral of complications in women and newborns"[140].

[141] Senanayake 1995

[142] Prof. D. Maine, Women Deliver conference, London, 2007.

lowest use of contraceptives, and the weakest health systems have the highest numbers of maternal deaths. The challenge in PNG is to bring the required resources together so that services can be provided to the people who need them most. To reduce MMR, we need to have functioning hospitals and other health facilities. To reduce MMR, we also need to have midwives practicing closer to the communities.

> *Pregnancy is a period of potential risk for all women. Any pregnant woman can have complications and die. Accurately predicting which women will develop complications is not possible, so early decision and management of complications is vital. Maternal deaths occur due to the same complications throughout the developing world. And the technology to prevent them exists and is affordable for PNG*[143].

The patterns of maternal mortality in PNG requires prioritization of:

1. **the pre-pregnancy period** where *those who wish to avoid pregnancy* can seek the means to safely do so – implementation of an adequate National Family Planning Policy with 'reach' to the communities being targeted, and
2. **the intrapartum period** – 50% of all women who become a maternal mortality statistic do so within the first 24 hours of delivery/miscarriage/rupture of their ectopic. Up to 30% relate to haemorrhage where they can die within 2 hours. A health centre intrapartum-care strategy can be justified as the best bet to bring down high rates of MMR. There are further opportunities to alter the risk of maternal death outside the intrapartum period: antenatal care; post-partum (and post-miscarriage care); safe abortion when permitted; and family planning.

The strategies available to improve the burden of maternal death and illness in PNG have proven to be some of the most successful health efforts to address a specific cluster of causes of deaths. In countries, both developed and developing, that have successfully implemented these strategies, maternal death rates reduced by 90-99%.

Most of these deaths occur in developing countries, like PNG, where the non-medical/social determinants of maternal health influence the accessibility to health services. Effective interventions for Making Pregnancy Safer are relatively cheap and certainly well known but they are not reaching those in need in PNG.

Antenatal coverage is low across most provinces in PNG, and in some locations evidence exists of poor quality[144]. There is a decrease in tetanus toxoid immunisation provided for those women who attended antenatal care in 2007. This is a proxy indicator of quality of the antenatal care received. The indicator determines whether health workers undertake good practice.

---

[143] Rohde 1995

[144] Measured by proxy indicator of tetanus toxoid immunisation rate at antenatal visit. Should be at near 100%, average for PNG in 2007 was 80% and some provinces (Gulf and Central) reported levels as low as 60%.

No single intervention alone can address the diverse range of causes of maternal death. Many proven single interventions[145] and composites of these are available and have been assessed[146]. Such single interventions are thus not given alone, but rather together in varying combinations and referred to as *packages*. The specification of the component intervention package, target group, and means of distribution constitutes a *strategy.* PNG's health sector strategy (component intervention package) should be decided by high level consultation with those operationally trained and experienced in provision of maternity care, with an eye to availability, affordability, accessibility and appropriateness for local circumstances, using evidence, and ensuring equity for the rural majority and the poor, and should centre around the triad of improving:

Strategy One – Family Planning:

Aim: reducing the numbers of high-risk and unwanted pregnancies – through increasing availability and accessibility of family planning information and services to reduce the number of pregnancies, especially high risk and unwanted pregnancies and to ensure that individuals and couples have the information and services to plan the timing, number and spacing of pregnancies in PNG with its present high total fertility rate. **The target should be modern family planning prevalence of 65% by 2020 in order to achieve a desired Total Fertility Rate of 2.2 by 2020**.

Provision of a locally responsive National Family Planning Program package is twice as cost-effective in reducing maternal mortality as any other known intervention – if you are not pregnant you cannot die of a complication of pregnancy. It's that simple. Family planning programmes consisting of a dozen or so effective contraceptive technologies (including emergency contraception) and a range of means of distribution (from traditional clinic-based strategies, to mobile clinics, community-based distribution, and social marketing) have been implemented all over the World – *all methods are unequivocally safer than pregnancy and delivery*.

Strategy two – Intrapartum strategies: Provision of EmOC, and Supervised Delivery:

Aims:

1. to reduce the numbers of obstetric complications – by ensuring that all women have access to quality antenatal, delivery and postpartum care to provide information, prevention and management of diseases during pregnancy and early detection and management of complications;
2. reducing the case fatality rate in women with complications – through providing access to essential obstetric services.

[145] WHO 2007

[146] WHO 2005; Gay et al 2003; WHO 2000; Bale et al 2003; Adam et al 2005; Graham et al 2006; Darmstadt et al 2005; Jamison et al 2006; Hatcher et al 1997

Target: With 10% of deliveries in an institution and 1-3% caesarean sections, a ratio of 100 deaths per 100,000 live births could be achieved[147].

An Essential Obstetric Care (EOC) package encompasses an Antenatal Care package, plus Intrapartum Care and Post-natal Care packages (including the care of the neonate). Interventions for the mother at the time of delivery also have a substantial effect on perinatal mortality – an estimated 30-45% of newborn deaths[148] and 25–62% of intrapartum stillbirths[149] could be averted through good obstetric care. The basic package has been well defined and based on evidence (See below). It has been estimated that implementation of these interventions as a package could, in 5-6 years, reduce maternal mortality by 50%[150]. Of this EOC suite, the greatest value for money revolves around the provision of adequate Emergency Obstetric Care (EmOC) packages (primarily for intra- and post-partum emergencies) which are internationally described as *Basic* EmOC and *Comprehensive* EmOC[151].

Basic EmOC (which should be able to be provided in every health centre where there is a trained and registered midwife or HEO)

1. Parenteral antibiotics
2. Parenteral oxytocic drugs
3. Parenteral anticonvulsants
4. Manual removal of placenta
5. Removal of retained products
6. Assisted vaginal delivery
7. Neonatal resuscitation and care

Comprehensive EmOC: which can only be provided in hospitals

All of the above plus:

8. Surgery (e.g., caesarean delivery)
9. Blood transfusion

Ensuring such services are close enough for women to deliver in would: a) ensure women are likely to be close enough if the need for emergency care arose in the antenatal or postpartum period; and b) that the services are cost effective. This will be a significant challenge for PNG – getting services close to the community. A *health centre intrapartum-care strategy requires 24-hour availability of service* and this is not currently the case for many health centres here. Ideally, a 24 hour contact period is needed[152]. Intrapartum women can opt for supervised deliveries in preference of the alternatives (village or unsupervised birth – and their inherent dangers), provided that barriers of distance, law and order constraints, status of women issues, user costs (direct and indirect), language barriers, provider-gender issues and cultural acceptability are overcome. Additionally, staff in facilities must have the necessary client-focused interpersonal skills to support women, the infrastructure must be clean and in good repair and the health facility must be well supplied according to minimum standards. Some women will still choose other alternatives, including home birth with a relative or Village Birth Attendant, particularly

[147] Papiernik, E 1995
[148] Darmstadt et al 2005
[149] Lawn et al 2005
[150] WHO 1994
[151] UNICEF, WHO, UNFPA 1997
[152] Li et al 1996

where distance is great and where there are strong beliefs in the normality of childbirth or cultural preferences for certain practices or delivery environments and where there is fear of the health system. Women are *not* going to go to the trouble of going to a facility where they are not made welcome and one which is in poorer condition or dirtier than their own home. We cannot advocate prohibition of women's choice; rather, our 'best bet' is about what the entitlement to care *should* be and to ensure that effective strategies *are available* to all women, especially those who are poor. This is where supportive monitoring and supervision plays a key role. EmOC is an essential requirement for reduction of a substantial proportion of maternal mortality[153] and all health centre intrapartum-care strategies need to incorporate it. Success of EmOC is dependent on a means of distribution to ensure that its target-women with complications – particularly rapidly fatal intrapartum complications – can access such care, ideally within a couple of hours. This means overcoming delays in recognition of complications (the so-called first delay[154]) and in gaining timely access to appropriate emergency obstetric care facilities (the second delay)[155], including Emergency Obstetric advice and transfer where indicated and possible. Capacity to provide adequate and timely emergency obstetric care is, however, the minimum standard that a health system is ethically obliged to provide in beginning to address maternal mortality. Developing and sustaining an effective ***referral system for obstetric emergencies*** requires close consultation with communities regarding their role and existing capacity in terms of mobilising available transportation and ensuring roads and bridges are maintained and open, to the extent that communities are able to influence and control these conditions. This involves strategies for working with those men, who control transportation and road routes, about the importance of community mobilisation and the need to have a communication system in place that prioritises emergency obstetric situations with regards to vehicle availability and ease of passage.

The risk of death decreases steadily by 2 days postpartum, and so the optimum means and timing of the distribution of routine postpartum care during the entire 6-week period is unclear, beyond recommending that *intrapartum-care strategies need to cover the very high-risk period up to 24 hrs postpartum.* Available international data suggests that between a quarter and two-fifths of maternal deaths could be eliminated if unplanned and unwanted pregnancies were prevented[156]. Unsafe abortion in circumstances of unintended, mistimed and unwanted pregnancy accounts for as much as 13% of maternal deaths worldwide. There is no accurate PNG data, but there are enough case reports to know that it appears to be an increasing problem. In countries where law reform in this area has proceeded (hand in hand with the provision of adequate family planning programs) and there is subsequent provision of good services, legal termination of pregnancy has become safe... and rare in comparison to unsafe abortion and its attendant risks.

The **baseline health** of the PNG woman is poor to start with. High prevalence of anaemia (nutritionally based, but exacerbated by malaria and other chronic infections, including helminths), acute malaria, TB, cardiac disease, and increasingly HIV/AIDS, all conspire against her when pregnant. Improvements in general health status are possible using simple interventions, like iron and folate tablets, in between, as well as during, pregnancy; and anti-malarials and bed nets can make a significant difference. Over-(mal) **nutrition** in the form of obesity and associated diabetes is more of a problem in urban areas. Prevention of chronic infections or disease could help reduce maternal deaths. Twenty percent of pregnant women with

[153] Paxton et al 2005
[154] See Briefing Paper: *Overview*
[155] Thaddeus and Maine 1994
[156] Campbell et al 2006

infective syphilis will have an abortion – which can lead to death, morbidity and social stigma; and 30% to stillbirths with the same consequences[157]. Genital ulcers, vaginitis and cervicitis can lead to prematurity, low birth weight, congenital infections and foetal wastage – all with maternal health consequences. Vaginitis and cervicitis can lead to Pelvic Inflammatory Disease (PID), which may cause ectopic pregnancy with health consequences[158]. In a study at PMGH[159], high maternal and perinatal morality was found and it noted the need for improved detection of TB in antenatal patients; and introduction of adequate treatment before delivery to prevent maternal deaths and perinatal morbidity and mortality. They estimated that TB contributes to 1-2 maternal deaths per annum at PMGH – and 10-15 cases amongst booked PMGH patients (n=9000) per year. But many are un-diagnosed. Issues related to status of women and cultural practices (e.g. early partnering and childbearing) also add to risk, and new programs to increase the involvement of men in reproductive health show promise.

Recommendation

4. *That the quality of voluntary family planning service provision be immediately strengthened in the areas of access and coverage for all Papua New Guineans as a primary intervention to reduce the burden of maternal mortality and morbidity in PNG. The target should be modern family planning prevalence of 65% by 2020 in order to achieve a desired Total Fertility Rate of 2.2 by 2020. This will require:*
    - *Development and resourcing of a national family planning strategic plan to support the National Family Planning Policy;*
    - *Increasing access to a range of permanent and temporary contraception (long and short acting)methods, for males and females*
    - *Sustained community mobilisation and health promotion efforts to encourage wider acceptance of family planning as a way to match family and community resources to family size and spacing needs*
    - *Integration of family planning effectively into all health service delivery points independent of agency managing the service. Full funding to these health services should be linked to provision of the package of sexual and reproductive health services, with incremental funding arrangements if full services are not provided.*
    - *Supporting men as partners and adolescent health services in sexual and reproductive health programs.*
    - *Improvements in the quality of all health professional training programmes to ensure graduates have the required competencies in quality voluntary client focussed family planning service provision*
    - *Developing formal post basic courses in sexual and reproductive health.*
    - *Monitoring the national policy on free services for reproductive health to ensure implementation at all health service delivery points.*

[157] Van Dam 1995
[158] Van Dam 1995
[159] Heywood and colleagues (1999)

5. *Every woman in PNG must have access to Supervised Delivery by a trained health care provider by 2030. This will be achieved through reaching the interim targets of 60% of all pregnant women having access by 2015 and 80% by 2020. This will be achieved by:*
   - *In 2009, in consultation with local experts, NDoH must define the suite of 'best bet' evidence based interventions for inclusion in PNG's minimum service delivery FP and Essential Obstetric Care 'packages'.*
   - *Immediately develop the cadre of community midwife, ie. a Community health worker who has received at least 6 months of competency based training and certification in midwifery. The competencies of a community midwife and the required 6 month training package should be determined by the PNG Obstetrics and Gynaecology Society with the NDoH in 2009 and training commence no later than 2010.*
   - *Urgently identifying the human resource requirements for trained health care providers to deliver the basic essential and comprehensive obstetric care packages, with a priority focus on midwifery and community midwives. Estimates should focus on reaching the following minimum requirements, with priority for the remote and poorly accessible rural facilities and districts with high levels of maternal mortality and morbidity:*
     a> *By 2015 one Registered midwife in all district hospitals and in provincial hospitals for the first 1000 live births/year 2 midwives per shift (3 shifts) and an extra midwife per shift for every 1000 annual births more*
     b> *By 2015 every health centre must have a Community Midwife*
     c> *By 2020 every health centre must have a Registered Midwife*
     d> *By 2020 every aid post/community health post that is providing birthing services should have a Community MW*
     e> *Once these projections are achieved the training institutional implications and needs can be identified and the costing can then be finalized and funding sought and secured*

   - *Development of the appropriately equipped health facilities, (including water, sanitation, waste disposal, power, security) with well defined minimum standards to support quality safe acceptable client focused obstetric services. This includes the concept of the Community health post which must have the capacity to provide basic antenatal care & screening, normal delivery and family planning and postnatal and neonatal care as well as a functional referral pathway for obstetric emergencies and support for 24 hour on call services.*

6. ***Every woman should have access to Comprehensive Obstetric Care from the Aid Post level upwards by 2030.*** *This will require, in addition to the capacities defined for essential obstetric care (recommendation 3):*
   - *Major investment in primary health care strengthening (incl. first referral level hospitals) over at least the next 20 years.*
   - *Immediate planning for the introduction of evidence-based, cost-effective reproductive health technologies that would support quality family planning and obstetric services (including new contraceptive technologies, emergency contraception and misoprostol for the management of postpartum haemorrhage).*
   - *Increase retention rates of Community Health Workers, Midwives, Health Extension Officers and Doctors in clinical practice particularly in rural and remote settings, this*

includes ensuring adequate and reliable remuneration and secure housing and living conditions.

- *Ensuring access to quality management of complications of unsafe abortion at all levels of the health service.*

7. *Every woman should have access to quality emergency obstetric care if she requires it at the first referral level, with supporting of a functional referral chain, adequate communications and transport. This will require:*
    - *Access to roads and transport for clients and workers; and of particular importance to the most marginalized: the urban poor and those living in rural and remote areas*
    - *Safe and secure passage along roads and water routes for clients and workers*
    - *Availability of transport up and down the referral pathway, which will require consideration of resourcing for road, river, sea and air transport according to location.*
    - *Systematic review of the role of maternity waiting homes and their effectiveness and acceptability in a range of different PNG cultural and geographic locations and based on the findings, guidance on minimum standards for infrastructure, location and management of the facility if recommended must be developed.*

5.0 Cross Cutting Issues

5.1 Gender

> *"Maternal mortality is an indicator of disparity and inequity between men and women and their access to social, health and nutrition services and to socio-economic opportunities"*[160].

The observation that the Maternal Mortality Ratio is the most sensitive indicator of the quality and level of functioning of health services also indicates the extent to which this indicator reflects the degree of gender equality in the society overall. In this sense, addressing the factors of high maternal mortality requires a fundamental assessment of the gender disparities in society. The health sector is limited in its ability to address gender issues relating to maternal health in isolation of a national gender policy framework for implementation, enforcement, monitoring and evaluation of gender development policies more broadly. Recognising and addressing the underlying gender dynamics affecting planning and decision-making about supervised delivery and access to services is essential for improving services and enabling people to make informed decisions that will reduce the risk of maternal mortality. Although CEDAW (Convention on the elimination of all forms of discrimination against women) has gained widespread endorsement[161], including in PNG, its acceptance, ratification and implementation has not been universally successful. This must be addressed as part of a broad based and sustainable approach to maternal health.

Addressing gender issues at the local level also represents the most strategic approach for a country as culturally diverse as PNG. Equal opportunity for women to participate in consultative and decision-making processes regarding district health services is essential to adequately represent the specific needs and concerns of local women.

Gender issues cannot be separated from health issues. A women's status in the family, community and society at large often prevents them from making decisions about their health and from accessing care. It also prevents them from accessing development opportunities such as education, employment, access to credit- which means they have an increased risk of maternal death[162]. Women's autonomy (ability to control their own lives) and to participate in making decisions that affect them and their families, is associated with improved maternal health. Women whose rights are fulfilled are more likely to ensure girls have access to adequate nutrition, health care, education and protection from harm[163] – which will then decrease their daughter's risk of maternal death and disability. A subtle form of harmful practice is the discriminatory upbringing and socialization of girls and boys leading to malnutrition and anaemia in the girl

[160] WHO 1999
[161] UNICEF 2007
[162] Gill et al 2007
[163] UNICEF 2007

child. Poor nutritional status of children and especially the girl child from birth adversely affects their reproductive health during adolescence progressing into their childbearing years. Not allowing the girl child to reach her educational potential has implications for her and her future family's health seeking behaviour.

Addressing maternal health issues needs to look at the continuum of care[164] (the lifecycle approach) – the health and wellbeing of a female from adolescence to pregnancy to childbirth to postnatal period to childhood – and between places of care-giving – including households, communities, outpatient and outreach services, and clinical care settings. For example: the nutrition of a girl child affects her bone and pelvic growth and. if not good, can lead to obstructed labour; being iron deficient as an adolescent female and during pregnancy can lead to increased chances of haemorrhage and of death due to haemorrhage; and not having access to sleeping under a bed net because of being a woman and getting malaria can affect pregnancy outcomes and anaemia[165]. Addressing maternal mortality and morbidity requires greater acknowledgement that unsafe abortion carries a huge risk for obstetric haemorrhage. The present laws regarding termination of pregnancy increase the risk for many women of unsafe and often fatal abortions, and limit access to safe abortion and post-abortion care. The present laws also create confusion among health workers regarding the management of septic abortion, which often results in women's death and disability. A critical area requiring strategic priority is advocating the importance of ***abortion services as a safe option*** for women who choose not to carry a pregnancy to term.

The unequal status and power relations of women's conditions in PNG, is perhaps most graphically illustrated in the personal insecurity faced by women and girls due to extreme forms of **gender-based violence**, including rape. Violence against women is defined as "any act of gender-based violence that results in, or is likely to result in**,** physical, sexual and psychological harm or suffering to women, including threats of such acts, coercion or arbitrary deprivation of liberty, whether occurring in public or private life". Worldwide, it has been estimated that between 16 percent and 52 percent of women suffer physical violence from their male partners, and at least one in five suffer rape or attempted rape in their lifetime. The most common forms of violence are wife battering, rape, some form of "arrest" etc. These have both short and long-term detrimental effects on women's health, thus violating the right to the enjoyment of the highest attainable standard of physical and mental health. Gender-based violence is pervasive and is triggered by a breakdown of traditional methods of social control and it has compounded the reproductive health situation and indirectly contributes to maternal deaths. Various harmful practices may be encountered throughout the life cycle. They not only contribute to reproductive ill health, but constitute a violation of reproductive rights. Physical and/or sexual violence by a husband or other intimate partner is known to be linked with a range of maternal health problems[166]. The urgency to expand the **provision of post-exposure prophylaxis** (STI, HIV and emergency contraception) to all rape survivors presenting at health facilities should be an immediate to short-term priority, with the view to institutionalising provision as standard practice in the long-term.

[164] Kerber et al 2007
[165] Saweri, W 2008 Submission to Taskforce
[166] Heise et al 2002, Campbell et al 2004

The level of a mother's education is one of the most important factors affecting not only the health of the women herself, but also her ability to take care of her children[167]. **Low status of women** also subjects them to abusive behaviour at health services (see briefing paper 4), stigma and discrimination if HIV positive or affected by HIV in the family.

The cooperation and participation of men is required to achieve gender equality and sexual and reproductive health[168]. Because men – and men as leaders – often control access to information and services, finances and transport, they wield power over women's lives, but they can use this power positively if encouraged and supported. Gender norms and roles influence the ways in which men relate to their wives, children and others. Social changes such as unemployment and lack of opportunity can undermine their ability to live up to these norms, and may lead to risky or unhealthy behaviours for the man himself, or close by others. Programs that aim to increase men's comfort with being responsible, caring and non-violent partners are growing in many settings[169]. The men as partners approach recognizes the influence men have on reproductive health options and decisions, and encourages men and women to deal jointly with issues like family planning, emergency plans for labour and delivery, voluntary HIV counselling and testing etc. It also involves men more fully as agents of positive change.

Sexual and reproductive rights are essential to meet the MDG on maternal health. Universal access to reproductive health services need to be ensured. HIV and AIDS initiatives must be integrated into sexual and reproductive rights and health programs. Adolescents require explicit attention with services designed to meet their needs and sensitive to their vulnerabilities. Women should have access to quality services for the management of complications arising from abortion and, if it's not against the law, to safe abortion services. All laws, regulations and practices that jeopardize women's health must be reviewed and revised[170].

> "Reproductive health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and to its functions and processes. Reproductive health therefore implies that people are able to have a satisfying and safe sex life, and that they have the capability to reproduce, and the freedom to decide if, when and how often to do so".

Implicit in this last condition are the rights of men and women to be informed and to have access to: safe, effective, affordable and acceptable methods of family planning of their choice, as well as other methods of their choice for the regulation of fertility, which are not against the law; and the right of access to appropriate health care services that will enable women to go safely through pregnancy and childbirth and provide couples with the best chance of having a healthy infant.

In line with the above definition of reproductive health, reproductive health care is defined as a constellation of methods, techniques and services that contribute to reproductive health and well being by preventing and solving reproductive health problems. It also includes sexual health, the

[167] MIDEGO submission to Taskforce
[168] UNFPA 2005
[169] UNFPA 2009
[170] Freedman et al 2005

purpose of which is the enhancement of life and personal relations, and not merely counselling and care related to reproductive and sexually transmitted diseases[171].

Male partnership in sexual and reproductive health is an essential strategy in addressing maternal health, recommending that services to meet men's needs be established and scaled up. This is an important strategy, yet it is equally important to ensure that male engagement is not on the basis of male authority, power, and control over women's bodies and reproductive rights, but offers genuine opportunities for engendering ***equal partnerships in decision making*** on contraceptive use, family planning, pregnancy and childbirth. While strategies for ***involving male partners/husbands*** in family planning services are important for improving service delivery and changing attitudes and practices around the use of contraception, service providers must be sensitised to how such approaches might in fact limit women's reproductive rights and choices by reinforcing male dominance in decision-making and men's control over their partner's access to services. Strategies for involving male partners/husbands must not restrict access to family planning for young, unmarried women and female students whose relationship status might not be established enough to involve the male partner in accessing services.

Specific gender issues in ***human resource development and management***, specifically recruitment and career structure options that recognise: the particular needs of female workers in relation to security, housing, and partner and family concerns; and employee rights and discipline and how gender power dynamics inhibit effective job performance. Health Human Resources workforce planning should include terms of reference to address gender issues through disaggregation of collected data and analysis of projected needs and workforce scenarios required for essential and emergency obstetrics and family planning.

As noted earlier, it is important to ensure that services provided are supported to be ***client-focused service delivery*** in order to shift negative perceptions of health services, which affect women's willingness to access services. Gender norms related to women's status in the family and the value families and communities place on women's health influence women's ability to seek care. Such norms are reflected also in the disrespectful and abusive attitudes and behaviour of some health personnel towards pregnant women and women in labour.

5.2 HIV

> *"The AIDS pandemic makes the goal of reduction of maternal mortality elusive, in fact unachievable, unless maternal health and AIDS communities devise and implement joint strategies and solutions that build on each other's strengths"*[172]

HIV and AIDS have reversed the gains made in addressing maternal mortality in many countries, and exacerbates the numbers of maternal deaths in all, especially in countries with a generalized HIV epidemic. Maternal death and ill-health risks are increased in HIV positive women. **HIV**

[171] UNFPA 1995
[172] Mataka E 2007; Druce and Nolan 2007

positive women are (at least) 1.5 – 2 times at **greater risk of a maternal death** than negative women[173]. It has both an impact on the direct causes of obstetric death and disability as well as exacerbating malaria and TB in pregnancy – which also increase maternal ill health and death risks[174]. So addressing HIV and AIDS is an important maternal health issue[175], especially in PNG where HIV is a major and emerging health problem. The pattern of causes of maternal deaths is changing in many countries with a HIV burden, as AIDS complications account for a high proportion of maternal deaths. "The trio of AIDS, tuberculosis and malaria have become more important as causes of maternal mortality"[176]. However HIV positive women are likely to be able to sustain a healthy pregnancy and safely deliver a baby if they can avail themselves of appropriate therapy[177]. Joint strategies to address HIV and maternal health problems make sense, are cost effective and increase sustainability of both efforts. "If the impact of HIV on maternal mortality is to be controlled and reversed, appropriate use of antiretroviral treatment is essential[178]" to the care of the women, beyond the usual PPTCT programmes. Increasing access to family planning (and other sexual and reproductive health services) for HIV positive men and women can contribute cost effectively to reduction in maternal deaths and disability.

Health systems strengthening is the key to both HIV and maternal health issues. Skilled care includes considering the effects of HIV/AIDS on complications during pregnancy, childbirth and postpartum; paying attention to HIV-related treatment and care needs; and intervening to reduce HIV transmission to infants. Universal precautions to reduce the risk of transmission of all blood borne pathogens are essential in all health care settings. **Integration of HIV prevention, treatment and care into maternal health programs and maternal health intentions into HIV programs** makes sense and is important, especially in high prevalence HIV settings. However, these services will need health systems strengthening. "Integration of HIV interventions into maternal, newborn and child health services involves the reorganization and reorientation of health systems to ensure the delivery of a set of essential interventions for HIV prevention, treatment and care as part of a continuum of care for women, newborns, children and families"[179]. **Greater access to contraceptive services, for HIV positive women** in HIV treatment programs, PPTCT programs and counselling and testing programs, or in traditional MCH and FP services in high HIV prevalence countries is a "win-win-win"[180] – increases the chances that women living with HIV can prevent future pregnancies they may not want, avoid maternal health risks and reduce the incidence of perinatal transmission of HIV and potential child deaths. Frameworks for integration exist and should be adapted for local contexts. Care needs to be taken to ensure that the most efficient and coherent services in terms of cost, output and impact and acceptability and accessibility are ensured. Guidelines for the ***care and treatment of HIV positive women*** during pregnancy, childbirth, and postpartum period require prioritization in line with the Health Sector Strategic Plan for STI, HIV and AIDS 2008 – 2010, and the National Gender Policy and Plan on HIV and AIDS 2006-2010. A proportion of HIV positive women and men desire to have a child. This need must be addressed[181]. Denying them the right to this basic right "to the full enjoyment

[173] Mataka E 2007
[174] Druce and Nolan 2007
[175] Ramogale, et al 2007., McIntyre, J 2003; Graham and Hussein 2003
[176] McIntyre 2003
[177] McIntye 2003
[178] McIntyre 2003
[179] WHO 2008
[180] Cohen S 2008
[181] Guttmacher Institute 2006

of all human rights and fundamental freedoms" is discriminatory. Involving associations and networks of HIV positive people, and the community based organizations run by/serving HIV positive people, is an important part of developing and implementing programmes to meet these needs.

The impact of HIV and AIDS on a family can also contribute to increased risks of maternal health problems or death of women. Ill-health or death of the male partner may result in decreases in economic support and social support, increased workload of caring for the ill partner and family and increased expenditure on such activities, and may lead to poverty. Loss of property, especially where women have limited rights to ownership of land or inheritance also deepen the economic impact. Poverty can lead to malnutrition, anaemia, inability to afford the direct and indirect costs of maternal health services, and may increase risks for HIV in order to earn money for the family. **Fear of discrimination and/or ostracism** prevents many women and their families living with HIV from confiding in others or seeking care, including maternal health care and family planning or the support that they need[182]. Broad HIV programmes to address this discrimination are important to increase acceptability and accessibility and utilisation of maternal health services. Concerns have been raised that PICT in some settings may act as a barrier to seeking or returning for maternal health services[183]. **Health services and staff are often reported to discriminate against HIV positive women** who try access to maternal health related services, especially delivery, obstetric related surgery and invasive interventions[184].

[182] UNAIDS 1998
[183] WHO 2007
[184] EngenderHealth and UNFPA 2006

6.0 Appendices

6.1 Taskforce terms of reference and membership

A. Objectives of the Task Force

1. To develop National Framework of Action as Whole of Government response to address the high maternal mortality in PNG; and
2. To develop health sector response through short, medium and long-term strategies to address the high maternal mortality in PNG

B. Terms of Reference (TOR) for the Task Force

1. Review all available data and reports and advice the Health Minister on the Maternal Health situation in Papua New Guinea.
2. Review all data and reports available on the capacity of the present PNG health system, structures, management arrangements and processes, and whether the capacity is appropriate.
3. Conduct consultations with all relevant stakeholders both within and outside of PNG.
4. Undertake a gender analysis of the situation.
5. Make recommendations to the Minister and Secretary of Health on:
   a. The National Framework of Action to address the high maternal mortality in PNG
   b. immediate stop-gap interventions to assist in reducing maternal morbidity and mortality
   c. a plan of action for 2009 for NDoH in line with the NDoH Corporate Plan, and recommended strategies for provincial and local government implementation according to the National Health Administration Act's defined roles and responsibilities
   d. Strategies for including in the National Health Plan for 2010 – 2030 (including strategies to assist in reaching the MDG benchmarks for 2015) and the National Development Plan for the Government for 2010-2050.

C. Final Membership nominees (per Minister):

- Chairperson: Chief Obstetrician and Gynaecologist (Dr Ligo Augerea)
- Deputy Chair: Professor of Obstetrics and Gynaecology, School of Medicine & Health Sciences, UPNG (Professor Glen Mola)
- Deputy Secretary, National Health Services and Standards (Dr. Paison Dakulala)
- Director, National Research Institute, Dr. Thomas Webster (or nominee)
- Secretary, Department of Education, Mr Joseph Pagalio (or nominee)
- Secretary, Department of National Planning & Rural Development, Mr Joseph Lelang (or nominee)
- WHO Country Representative , Dr. Eigil Sorensen (or nominee)
- UNFPA Country Representative, Dr Asger Ryhl(or Nominee)
- Dr Apo Mathias, Obstetrician and Gynaecologist in private practice, Goroka
- Dr Ruby Kaul, A/Prof. Faculty of Health Sciences, DWU
- Dr. Maxine Whittaker, Expert in health systems development and scaling up/ design expertise

6.2 List of Public submissions

Abala, Schola (Member of the public)
Aila, Margaret (Member of the public)
Alotau General Hospital
Alpers, Michael (Professor)(Curtin University)
Apeng, Douglas (Program Officer, Momase region, NDoH)
Archbishop Douglas Young, Mt Hagen
Asian Development Bank (Dominic Mellor, Country Economist, PNG Resident Mission)
Bereina Diocese Health (Leo Suan Bamban, Church Health Secretary)
Bradley, Christine (Dr)(Gender Advisor NDoH and NACS)
Business and Professional Women of Port Moresby Club
Capacity Building Support team (Highlands region
Catholic Health Kiunga (Seginami, Anna)
Chalau, Polapoi (Dr)(Angau Memorial Hospital)
Charles Darwin University, Darwin (Professor Lesley Barclay)
Church health Service, Simbu Province (Sr Kinga Czerwonka, Church Health Secretary))
Churches Medical Council PNG (Joseph Sika)
Dickson-Waiko, Anne (Dr) Member PNG Country Coordinating Mechanism – GFATM
Diva, Nona (Member of the public)
Divine Word University, Faculty of Health Sciences (Professor Francis Hombange & Dr John Sairere)
Dunn, Maree (Midwife trainer)
Hope Worldwide (PNG Office)
Japanese International Cooperation Agency (PNG)
JTA International (Dr Jane Thomason)
Kenyon Maggie (consultant, sexual and reproductive health)
Kintwa, James (Dr), (Mt Hagen Hospital)
Kwe, Wakin, HEO Tabubil Hospital
Macfarlane Burnet institute for medical research and public health (Dr Chris Morgan)
Marie Stopes International (PNG Office)
Matasororo, Emily (member of the public)
MIDEGO (Dr Elvira Berochochea)
Mola, Glen (Professor) School of Medicine and Health Sciences
Mt Hagen General Hospital Management Team
National AIDS Council Secretariat (David Passirem)
Nursing Council of PNG (Ms Laitte Moses)
O'Callaghan, Margaret (International consultant)
Population Services International (PNG Country Representative, Cynde Robinson)
Porgera Joint Venture (Andrew Ame)
Roedde, Gretchen (Dr)(Independent consultant in sexual and reproductive health)
Sandaun Provincial Administration Division of health (Mr Desak Drorit, Provincial Health Adviser)
Saweri, Wila (Nutritionist)
Sinebare, Musawe (National Research Institute)
The Salvation Army PNG Territory (Christine gee, Assistant to Secretary Social Program)
UNFPA (PNG Office)
United Church Health Services : Aid Post Services, Papuan Gulf region, (Mr Auma Bori, Aid post Supervisor, Orokolo health centre)
United Nations Agencies in PNG (UNDP, UNICEF, UNFPA, WHO, UNIFEM)
Vince, John, Member PNG Paediatrics Society and head of Postgraduate Studies, UPNG Faculty of Health Sciences
Wandi, Francis (Provincial Paediatrician & acting director medical services, Kundiawa hospital)
Williams, Desley (Midwife trainer)

6.3 Bibliography

Abreu, E., Potter, D 2001 Recommendations for renovating an operating theatre at an emergency obstetric facility *Int Jnl Gyn Obs* 75:287-294

Acharya S 1995 How effective is antenatal care to promote maternal and neonatal health? *International Journal of Gynaecology and Obstetrics* 50 Suppl 2 : S35 – S42

Adam T, Lim SS, Mehta S, et al. Cost-effectiveness analysis of strategies for maternal and neonatal health in developing countries. *BMJ* 2005; **331:** 1107

ADB 2006 *Country Gender Assessment PNG,* ADB; 2006.

ADB, AusAID, World Bank 2007 Strategic direction for human development in Papua New Guinea Washington DC ; World bank

Afsana K, Rashid SF. The challenges of meeting rural Bangladeshi women's needs in delivery care. *Reprod Health Matters* 2001; **9:** 79–89

Afsana K. 2004 The tremendous costs of seeking hospital obstetric care in Bangladesh. *Reprod Health Matters* **12:** 1–11

Aitken, I 1999 Implementation and integration of reproductive health services in a decentralised system Chapter 7 pages 111 – 136 in Kolehmainen-Aitken, R-L 1999 Myths and realities about the decentralisation of health systems Boston: Management Sciences for Health

Alisjahbana A, Williams C, Dharmayanti R, Hermawan D, Kwast BE, Koblinsky M. An integrated village maternity service to improve referral patterns in a rural area in West-Java. *Int J Gynaecol Obstet* 1995; **48**(Suppl)**:** S83–94.

Anand S, Bärnighausen T. 2004 Human resources and health outcomes: cross country econometric study. *Lancet* **364:** 1603–09.

Ashford LS, Gwatkin D, Yazbeck AS. Designing health and population programs to reach the poor. Washington, DC: Population Reference Bureau, 2006

Asia Pacific Action Alliance on Human Resources in Health 2008 Annual review of the human resources in health situation in Asia-Pacific Region 2006 – 2007 Paper presented at annual conference, Beijing August

AusAID and World Bank 2007 Strategic direction for human development in PNG Washington DC : World Bank

Bacci, A., Lewis, G., Baltag, V., Betran, A. The introduction of confidential enquiries into maternal deaths and near-miss case reviews in the WHO European Region *Reproductive Health Matters 15(30); 145-152*

Backman, G., Hunt, P., Kholsa, R., Jaramillo-Stauss, C., Fikre, B., Rumble, C., Pevalin, D., Paez, D., Pineda, M., Frisancho, A., Tarco, D., Motlaugh, M., Farcasanu, D., Vladescu, C 2008 Health systems and the right to health: as assessment of 194 countries *Lancet* 372: 2047-85

Bale J, Stoll B, Mack A, Lucas A. Improving birth outcomes: meeting the challenges in the developing world. Washington, DC: National Academy of Sciences and Institute of Medicine, 2003.

Bhutta ZA, Ahmed T, Black RE, Cousens S, Dewey K, Giugliani E, Haider BA, Kirkwood B, Morris SA, Sachdev H P S, Shekar M, for the Maternal and Child Undernutrition Study Group (2008) What works? Interventions for maternal and child undernutrition and survival. Lancet 371: 417–40

Black RE, Allen LH, Bhutta ZqA, Caulfield LE, de Onis M, Ezzati M, Mathers C, Rivera J, for the Maternal and Child Undernutrition Study Group (2008) Maternal and child undernutrition: global and regional exposures and health consequences. Lancet

Bolger J, Mandie-Filer M, HauckV 2005. Papua New Guinea's health sector: A review of capacity, change and performance issues. Discussion Paper No 57F January 2005 European Centre for Development Policy Management

Borghi J, Ensor T, Somanathan A, Lissner C, Mills A. 2006 Mobilising financial resources for maternal health. *Lancet*; **368:** 1457–65

Brabin BJ, Hakimi M, and David Pelletier 2001 An Analysis of Anemia and Pregnancy-Related Maternal Mortality. J. Nutr. 131: 604S–615S

Campbell O M R, Graham W J et al. 2006 Strategies for reducing maternal mortality: getting on with what works *Lancet* 368: 1284–99 Published Online September 28, 2006 DOI:10.1016/S0140-6736(06)69381-1

Campbell, J., Garcia-Moreno, C., Sharps, P 2004 Abuse during pregnancy in industrialized and developing countries *Violence against women* http://vaw.sagepub.com

Carroli G, Rooney C, Villar J. 2001 How effective is antenatal care in preventing maternal mortality and serious morbidity? An overview of the evidence. *Paediatr Perinat Epidemiol* **15**(Suppl 1)**:** 1–42.

Cecatti, J., Souza, J., Parpinelli, M., de Sousa, M., Amaral, E 2007 Research on severe maternal mortalities and near-misses in Brazil: what we have learned *Reproductive Health Matters 15(30); 125-133*

Clarke HF, Laschinger HS, Giovannetti P, Shamian J, Thomson D, Tourangeau A. 2001 Nursing shortages: workplace environments are essential to the solution. *Hosp Q* **4:** 50–7.

Cohen, S 2008 Hiding in plain sight: the role of contraception in preventing HIV *Guttmacher Policy Review* 11(1) 2-5

Costello AdeL and Osrin D 2003 Micronutrient Status during Pregnancy and Outcomes for Newborn Infants in Developing Countries. J. Nutr. 133: 1757S–1764S

Darmstadt DL, Bhutta ZA, Cousens S, Adam T, Walker N, de Bernis L, for the Lancet Neonatal Survival Steering Team. Evidence-based, cost-effective interventions: how many newborn babies can we save? *Lancet* 2005. **365:** 977–88

Davis D, O'Brien MA, Freemantle N, Wolf FM, Mazmanian P, Taylor-Vaisey A. 1999 Impact of formal continuing medical education: do conferences, workshops, rounds, and other traditional continuing education activities change physician behavior or health care outcomes? *JAMA* **282:** 867–74

Decock, A-M; Hiawalyer, G and Katz, C. 1997 *Talking health – the wisdom of the village* Port Moresby: NDoH

Dieleman M, Toonen J, Toure H, Martineau T. The match between motivation and performance management of health sector workers in Mali. *Hum Resour Health* 2006; **4:** 2.

Druce, N., Nolan, A 2007 Seizing the big missed opportunities : linking HIV and maternal health services in sub-Saharan Africa *Reproductive health matters* 15:190 – 201

Dwivedu, H., Mavalankar, D., Abreu, E., Srinivasan, V 2002 Planning and implementing a program of renovations of emergency obstetrics care facility: experiences in Rajasthan, India *Int Jnl Gyn Obs* 78:283 – 291

EngenderHealth, UNFPA 2006 Sexual and reproductive health needs of women and adolescent girls living with HIV research report on qualitative findings from Brazil, Ethiopia and the Ukraine New York: EngenderHealth

Fournier, P., Dumont, A., Tournigny, C., Dunkley, G., Duana, S 2009 Improved accesses to comprehensive emergency obstetric care and its effects on institutional maternal mortality in rural Mali *Bull WHO* 87:30-38

Freedman LP, Waldman RJ, de Pinho H, Wirth ME, Chowdhury AMR, Rosenfield A. 2005 Who's got the power? Transforming health systems for women and children. London: UN Millennium Project, Task Force on Child Health and Maternal Health

Freedman, L., Graham, W., Brazier, E., Smith, J., Ensor, T., Fauveau, V., Themmen, E., Currie, S., Agarwal, K 2007 Practical lessons from global safe motherhood initiatives: time for a new focus on implementation *Lancet* 370:1383 – 91

Freedman, L., Waldman, R., de Pinho, H., Wirth, M, Chowdhury, A., Rosenfield, A 2005 Who's got the power? Transforming health systems for women and children London: Earthscan

Garrido, P 2007 Women's health and political will *Lancet* 370:1289

Gay J, Hardee K, Judice N, et al. What works: a policy and program guide to the evidence on family planning, safe motherhood, and STI/HIV/AIDS interventions: safe motherhood module 1. Washington, DC: Policy Project, 2003

George, A 2007 Persistence of high maternal mortality in Koppal District, Karnatakal, India: Observed service delivery constraints *Reproductive health matters* 15(30) 91 – 102

Gerein, N, Green, A., Pearson, S 2006 The implications of shortages of health professionals for maternal health in Sub-Saharan Africa *Reproductive Health Matters* 14(27) 40-50

Gill, K, Pande, R., Malhotra, A 2007 Women deliver for development. *Lancet* 370:1347-1357

Giri K 1995 "Active community participation especially with family members being made aware of its importance, increases its effectiveness" Discussion International Journal of Gynaecology and Obstetrics 50 Suppl 2 : S43

Giri K 1995 Discussion International Journal of Gynaecology and Obstetrics 50 Suppl 2 : S43

Global Health Trust 2004 The JLI strategy report: Human Resources for Health: overcoming the crisis. Cambridge, MA: Global Health Trust

Goodburn E., Campbell, O 2001 Reducing maternal mortality in the developing world: sector-wide approaches may be the key *BMJ* 322: 917 – 20

Graham W J. 1998 Every pregnancy faces risks. *Plan Parent Chall* **1:** 13–14.

Graham W, Bell JS, Bullough CHW 2001. Can skilled attendance at delivery reduce maternal mortality in developing countries? In: De Brouwere V, Van Lerberghe W, eds. Safe motherhood strategies: a review of the evidence. Antwerp: ITG Press, 97–129.

Graham WJ, Cairns J, Bhattacharya S, et al. 2006 Disease control priorities in developing countries, 2nd ed. New York: Oxford University Press, 499–529.

Greenwood AM, Greenwood BM, Bradley AK, et al. 1987 A prospective survey of the outcome of pregnancy in a rural area of the Gambia. *Bull World Health Organ* **65:** 635–43.

Guttmacher Institute 2006 Meeting the sexual and reproductive health needs of people living with HIV New York: Guttmacher Institute

Gwatkin DR. 2005 How much would poor people gain from faster progress towards the Millennium Development Goals for health? *Lancet* **365:** 813–17

GWHA Financing taskforce 2008 What countries can do to now: 29 actions to scale up and improve the health workforce NY; results for Development Institution

Hatcher RA, Rinehart W, Blackburn R, Geller JS, Shelton JD. The essentials of contraceptive technology. Baltimore: Johns Hopkins Bloomberg School of Public Health Population Information Program, 1997

Heise, L., Ellsberg, M., Gottemoeller, M 2002 Ellsberg, M., Gottemoeller, M 2002 Ending violence against women – lessons for the health sector *Population Reports* #27

Heywood, S., Amoa, A., Mola, G., Klufio, C 1999 A survey of pregnant women with tuberculosis at the Port Moresby General Hospital PNGMJ 42:63-70

Hussein, J 2007 Improving the use of confidential enquiries into maternal deaths in developing countries *Bull WHO* 85:68-69

Immpact 2005. Policy brief: implementation of free delivery policy in Ghana. Aberdeen: Immpact http://www.immpact-international.org/

IMRG 2008 Independent Monitoring and Review Group 1st Report 2008 Port Moresby: NDoH

IRIN News 2008 Ghana: race against time to cut maternal mortality 5 August. As reported in *Reproductive Health Matters* 16: page 208

Islam, M., Haque, Y, Waxman, R., Bhuiyan, A 2006 Implementation of emergency obstetric training in Bangladesh: lessons learned *Reproductive Health Matters* 14:61 – 72

Jamison DT, Breman JG, Measham AR, et al. 2006 Disease control priorities in developing countries, 2nd Edn. New York: Oxford University Press

Kabakian-Khasholian T, Campbell O, Shediac-Rizkallah M, et al. 2000 Women's experiences of maternity care: satisfaction or passivity? *Soc Sci Med* **51:** 103–13

Kasehagen LJ, Mueller I, Mcnamara DT, Bockarie MJ, Kiniboro B, Rare L, Lorry K, Kastens W, Reeder JC, Kazura JW, Zimmerman PA 2006. Changing Patterns Of Plasmodium Blood-Stage Infections In The

Wosera Region Of Papua New Guinea Monitored By Light Microscopy And High Throughput PCR Diagnosis. Am. J. Trop. Med. Hyg., 75(4): 588–596

Kerber, K., de Graft-Johnson, J., Bhutta, Z., Okong, P., Starrs, A., Lawn, J 2007 Continuum of care for maternal, neonatal and child health: form slogan to service delivery *Lancet* 370: 1358-69

Kirin Gill; Rohini Pande and Aniu Malhotre 2007 in Women Deliver for Development: *Lancet*, 370: 1347 – 57; 2007.

Koblinsky M, Matthews Z et al. 2006 Going to scale with professional skilled care (Maternal Survival Series, paper 3). *Lancet*, Vol 368 October 14, www.thelancet.com Published Online September 28, 2006 accessed March 24th 2007.

Koblinsky M, ed. 2003 Reducing maternal mortality: learning from Bolivia, China, Egypt, Honduras, Indonesia, Jamaica and Zimbabwe. Washington, DC: World Bank

Koblinsky MA, Campbell O, Heichelheim J. 1999 Organizing delivery care: what works for safe motherhood? *Bull World Health Organ* **77:** 399–406

Kruske, S. 2006 Papua New Guinea Midwifery Education Review Final Report 2006, NDoH/WHO

Ktumusi R., Lee, T 2008 Attitudes of women in Maprik District towards antenatal care and supervised birth paper presented at Nurse's Symposium Kavieng September 2008

Kureshy N. Review of select family & community practices for safe motherhood. Washington DC and Geneva: MotherCare, World Health Organization, 2000.

Laga M 1994 Epidemiology and control of sexually transmitted diseases in developing countries Sex Transm Dis 21(2) Suppl:S43

Law Reform Commission 1992 *Final report of domestic violence* Parliamentary Report No 14.

Lawn J, Cousens S, Darmstadt GL, et al, 2006 for the Lancet Neonatal Survival Series steering team. 1 year after The Lancet Neonatal Survival Series—was the call for action heard? *Lancet* **367:** 1541–47

Lawn J, Shibuya K, Stein C. 2005 No cry at birth: global estimates of intrapartum stillbirths and intrapartum-related neonatal deaths. *Bull World Health Organ* **83:** 409–17

Lewis, I., Maruia, B., Mills, D., Walker, S 2007 Final report on links between VAW and transmission of HIV in PNG (November) Port Moresby: NACS

Li XF, Fortney JA, Kotelchuck M, Glover LH. 1996 The postpartum period: the key to maternal mortality. *Int J Gynaecol Obstet* **54:** 1–10

Luo, C., Akwasa, P., Ngongo, N., Doughty, P., Gass, R., Ekpini, R., Crowley, S., Hayash, C 2007 Global progress in PMTCT and paediatric HIV care and treatment in low and middle income countries in 2004-2005. *Reproductive health matters* 15: 179 – 189

Maine. D. 2007 Detours and shortcuts on the road to maternal mortality reduction. *Lancet* 370: 1380–82

Malau, C 2008 Our vision for Health in PNG, Paper presented at the 2008 PNG Medical Symposium of the Medical Society of PNG, Rabaul, Sept.

Manandhar D, Osrin D, Shrestha B, et al. 2004 Effect of a participatory intervention with women's groups on birth outcomes in Nepal: cluster-randomised controlled trial. *Lancet* **364:** 970–79.

Marmot M, Wilkinson R. 2006 Social Determinants of Health: the solid facts. 2nd edition WHO library, available at www.euro.who.int/document/e81384.pdf , accessed Sep, 18th, 2006

Marshall MN, Shekelle PG, Leatherman S, Brook RH 2000. The public release of performance data: what do we expect to gain? A review of the evidence. *JAMA* **283:** 1866–74

Mataka E 2007 Maternal health and HIV: bridging the gap *Lancet* 370: 1290

Mathai M. 2008 Working with communities, governments and academic institutions to make pregnancy safer. Best Practice & research Clinical Obstetrics and Gynaecology,22; 3: 465-476.

Mavalankar, D., Abreu E 2002 Concepts and techniques for planning and implementing a program for renovation of an emergency obstetric care facility *Int. Jnl Gyn Ob* 78:263 – 273

Mazmanian PE, Davis DA. 2002 Continuing medical education and the physician as a learner: guide to the evidence. *JAMA* 2**88:** 1057–60

Mbonye A K, Bygbjerg I C, Magnussen P 2008 Intermittent preventive treatment of malaria in pregnancy: a new delivery system and its effect on maternal health and pregnancy outcomes in Uganda. Bull WHO 86:93–100

McDonagh, M. 1996 Is antenatal care effective in reducing maternal morbidity and mortality? *Health Policy Plan* **11:** 1–15.

McIntyte, J 2003 Mothers infected with HIB *BMJ* 67: 127-135

MDG gateway 2008 World leaders cannot fail our women and children http://www.mdg-gateway.org/MDG-Blog/?tag= maternal–and-child-health Downloaded 17/02/09has primary health care worked in countries? *Lancet* 372:950-961

Mehta S 1995 The Mother-baby Package L an approach to implementing safe motherhood International Journal of Gynaecology and Obstetrics 50 Suppl 2 : S113 – S120

Menéndez C, D'Alessandro U, Kuile FO 2007 Reducing the burden of malaria in pregnancy by preventive strategies. Lancet Infect Dis 7:126–35

Mengeap S 1993 A survey of origin of mothers attending urban clicnis and reason for bypassing rural facilities Papua New Guinea Health Systems research Studies Volume 2 Port Moresby : NDoH pages 89 -99

Michon P, Cole-Tobian JL, Dabod E, et al. 2007 The risk of malarial infections and disease in Papua New Guinean children. Am. J. Trop. Med. Hyg. 76(6): 997-1008.

Ministry of Health 2007 Ministerial Taskforce Brief on reforming medical Supplies (October) Port Moresby: Ministry of Health

Ministry of Health 2008 Medical supplies technical review mission: report on key findings and recommendations (March) Port Moresby: Ministry of Health

Mogobe, K., Tshiamo, W., Bowelo, M 2007 Monitoring maternal mortality in Botswana *Reproductive Health Matters* 15(30):163 – 171

Mola, G 2007 Consultancy on Family Planning for Women and Families living with HIV in PNG Unpublished paper

Morgan C 2008 Enhancing Pregnancy Outcomes (PNG) (PNG IMR, NDoH, UNICEF) www.unicef.org/eapro/activities_8626.html

NACS 2006 Country Progress Report, Monitoring the declaration of commitment on HIV/AIDS January 2004 – December, 2005. PNG UNGASS Report.

NACS 2006 National Gender Policy and Plan on HIV/AIDS 2006 – 2010, National Aids Council of Papua New Guinea.

NACS 2008 UNGASS 2008 Country Progress Report Port Moresby: NACS

NDoH 1995 Situation report in nurse workforce in Papua New Guinea Port Moresby; NDoH

NDoH 2000 Draft Report on Future of preservice nurse education Port Moresby: NDoH

NDoH 2001 Minimum Standards for District Health Services Port Moresby: NDoH

National Department of Health 2007 National Nutrition Survey, revised PowerPoint presentation.

NDoH 2008 A report on the work value of nurses employed in public health facilities, April 2008 (Papua New Guinea Conciliation and Arbitration Tribunal , Department of Personnel Management and the Papua New Guinea Nurses Association, supported by WHO).

NDoH 2008 Annual Sector Review 2007 national data, NHIS

National Statistical Office 2001 Papua New Guinea 2000 National Census Port Moresby: NSO

Nirupam S, Yuster EA. 1995 Emergency obstetric care: measuring availability and monitoring progress. *Int J Gynaecol Obstet* **50**(Suppl 2)**:** S79–88.

Nirupam S, Yuster EA. Emergency obstetric care: measuring availability and monitoring progress. *Int J Gynaecol Obstet* 1995; **50**(Suppl 2)**:** S79–88.

NSO 1996 PNG Demographic Health Survey 1996 Port Moresby: NSO

NSO 2008 Draft PNG Demographic Health Survey 2006 Port Moresby: NSO

O'Connor M 2008 Personal correspondence & interviews with selected rural health centre staff and Technical Advisers.

Obaid 2007 No woman should die giving birth *Lancet* 370: 1287 – 1288

O'Donnell A, Raiko A, Clegg J B, Weatherall D J. Allen SJ. 2006 Alpha+-Thalassaemia and pregnancy in a malaria endemic region of Papua New Guinea. British Journal of Haematology. 135(2):235-241.

Osrin D, Vaidya A, Shrestha Y, Baniya RB, Manandhar DS, Adhikari RK, Filteau S, Pathmanathan I, Liljestrand J, Martins JM. 2003 Investing in maternal health: Learning from Malaysia and Sri Lanka. Washington, DC: World Bank

Palmer, D 2006 Tackling Malawi's human resources crisis *Reproductive Health Matters* 14(27) 27-39

Papiernik, E 1995 The role of emergency obstetric care in preventing maternal deaths: an historical perspective on European figures since 1751 International Journal of Gynaecology and Obstetrics 50 Suppl 2 : S73 – S77

Papua New Guinea Conciliation and Arbitration Tribunal , Department of Personnel Management and the Papua New Guinea Nurses Association, 2008 A report on the work value of nurses employed in public health facilities, April

Pathmanathan I, Liljestrand J, Martins JM. Investing in maternal health: Learning from Malaysia and Sri Lanka. Washington, DC: World Bank, 2003.

Paxton A, Maine D, Freedman L, Fry D, Lobis S. 2005 The evidence for emergency obstetric care. *Int J Gynaecol Obstet* **88:** 181–93.

PNG IMR 1994 (National Sex and Reproduction Research Team, Jenkins, C) 1994 *National study of sexual and reproductive behaviour in PNG* (Monograph No. 10) Goroka: PNG IMR

Popon W 1993 The link between antenatal attendance and supervised deliveries in the star mountain census division of Western Province Papua New Guinea Health Systems research Studies Volume 2 Port Moresby : NDoH pages 19-26

PSRMU 2001 Functional and Expenditure Review of Health Services : Interim Report on Rural Health Services Port Moresby : PSRMU

Ramogale, M., Moodley, J., Sebitloane, M 2007 HIV associated maternal mortality - primary causes of death at King Edward VIII Hospital, Durban *South Africans Medical Journal* 97: 363 – 366

Ransom, E., Yinger, N 2002 making motherhood safer: overcoming obstacles in the pathway to care Washington DC : PRB

Rath, A., Basnett, I., Cole, M, Subedi, H., Thomas, D., Murray, S 2007 Improving emergency obstetric care in a context of very high maternal mortality: the Nepal Safe Motherhood program 1997 – 2004 *reproductive health matters* 15(30): 72 – 80

Rohde, J 1995 Removing risk from safe motherhood *International Journal of Gynaecology and Obstetrics* 50 Suppl 2: S3-S10

Ronsmans C, Graham WJ et al. 2006 Maternal mortality: who, when, where, and why. Maternal Survival Series, *Lancet* 368: 1189–200 Published Online September 28, 2006

Ronsmans C, Campbell OMR, McDermott J, Koblinsky M. 2002 Questioning indicators of need for obstetric care.*Bull World Health Organ* **80:** 317–24.

Ronsmans C, Vanneste AM, Chakraborty J, van Ginneken J. 1997 Decline in maternal mortality in Matlab, Bangladesh: a cautionary tale. *Lancet* **350:** 1810–14

Rosenfeld A, Maine D. 1985 Maternal mortality--a neglected tragedy. Where is the M in MCH? Lancet. Jul 13;2(8446):83-5

Rowe AK, de Savigny D, Lanata CF, Victora CG. 2005 How can we achieve and maintain high-quality performance of health workers in low-resource settings? *Lancet* **366:** 1026–35

Schneider, H., Blaauw, D., Gilson, L., Chabikuli, N., Goudge, J 2006 Health systems to access antiretroviral drugs for HIV in Southern Africa: Service delivery and Human resource challenges *Reproductive Health Matters* 14(27) 12-23

Senanayake P 1995 The impact of unregulated fertility on maternal mortality and child survival *International Journal of Gynaecology and Obstetrics* 50 Suppl 2 : S11 – S17

Shiffman, J., Smith S., 2007 Generation of political priority for global health initiatives : a framework and case study of maternal mortality *Lancet* 370:1370-1379

Sibley L, Ann Sipe T. 2004 What can a meta-analysis tell us about traditional birth attendant training and pregnancy outcomes? *Midwifery* **20:** 51–60.

Sibley L, Sipe TA, Koblinsky M. 2004 Does traditional birth attendant training improve referral of women with obstetric complications: a review of the evidence. *Soc Sci Med* **59:** 1757–68.

Stanton CK, Dubourg D, De Brouwere V, Pujades M, Ronsmans C. 2005 Reliability of data on caesareans sections in developing countries. *Bull World Health Organ* **83:** 449–55

Steketee RW, Nahlen BL, Parise ME, Menendez C 2001 The Burden Of Malaria In Pregnancy In Malaria-Endemic Areas Am. J. Trop. Med. Hyg., 64(1, 2)S: 28-35

Thaddeus S and Maine D. 1994 Too far to walk: maternal mortality in context. Soc Sci Med **38**: 1091-1110

Thaddeus, S., Main A 1990 Too far to walk: maternal mortality in context : Findings from a multidisciplinary literature review Washington DC : Colombia University

The Supplementation with Multiple Micronutrients Intervention Trial (SUMMIT) Study Group (2008) Effect of maternal multiple micronutrient supplementation on fetal loss and infant death in Indonesia: a double-blind cluster-randomised trial. Lancet 371: 215–27

Tomkins A, Costello A. 2005 Effects of antenatal multiple micronutrient supplementation on birthweight and gestational duration in Nepal: double-blind, randomised controlled trial Lancet 365: 955–62

UN 2000. Millennium Declaration, A/Res/55/2. New York: United Nations

UN Millennium Project Task Force on Child Health and Maternal Health 2005 Who's got the power? Transforming health systems for women and children. UN Millennium Project Task

UNAIDS 1998 Gender and HIV/AIDS : UNAIDS Technical Update Geneva: UNAID

UNFPA 2005 *State of the World's Population 2005* New York: UNFPA

UNFPA 2008 Report on population growth of PNG and possible effects of the HIV epidemic Unpublished report Port Moresby: UNFPA

UNFPA 2009 Promoting gender equality: involving men in promoting gender equality and women's reproductive health http://www.unfpa.org/gender/men.htm Downloaded 17/02/09

UNICEF 2003, *The State of the World's Children 2004: Girls, education and development,* UNICEF, New York, December 2003, p. 20

UNICEF 2007 State of the World's Children 2007 New York: UNICEF

UNICEF, WHO, UNFPA 1997 . Guidelines for monitoring the availability and use of obstetric services. New York: UNICEF

Vaidya A, Saville N, Shrestha BP, Costello A, Manandhar DS, Osrin D 2008 Effects of antenatal multiple micronutrient supplementation on children's weight and size at 2 years of age in Nepal: follow-up of a double-blind randomised controlled trial. Lancet 371: 492–99

Van Dam C 1995 HIV, STD and their current impact on reproductive health: the need for control of sexually transmitted diseases International Journal of Gynaecology and Obstetrics 50 Suppl 2 : S121 – S129

Villar J, Ba'aqeel H, Piaggio G, et al. 2001. WHO antenatal care randomized trial for the evaluation of a new model of routine antenatal care. *Lancet* 2001: **357:** 1551–64.

WHO 1986. Maternal mortality: helping women off the road to death. *WHO Chronicle* **40:** 175–83

WHO 1991 Essential elements of obstetrics care at first referral levels Geneva; WHO

WHO 1994 Care of mother and baby at the health centre: a practical guide Geneva: WHO

WHO 1994 Mother-Baby Package : Implementing safe motherhood in countries Geneva:

WHO 1999 Reduction of maternal mortality : A joint WHO/UNFPA/UNICEF/ World Bank Statement Geneva: WHO

WHO 2000 Managing complications of pregnancy and childbirth (IMPAC): a guide for midwives and doctors. Geneva: World Health Organization

WHO 2004 Beyond the Numbers: Reviewing maternal deaths and complications to make pregnancy safer. WHO Geneva 2004

WHO 2004 Mother-Baby Package: Implementing safe motherhood in countries Geneva: WHO

WHO 2005 WHO Multi-country study on women's health and domestic violence against women Summary report Geneva: WHO

WHO 2005. The World Health Report 2005: make every mother or child count. Geneva: World Health Organization

WHO 2006 Sexual and reproductive health of women living with HIV/AIDS: Guidelines on care, treatment and support for women living with HIV/AIDS and their children in resource-constrained settings Geneva: WHO

WHO 2006 The World Health Report 2005: Make every mother or child count. Geneva: World Health Organization.

WHO 2007 Reproductive Health Library, version 11. World Health Organization, http://www.rhlibrary.com/

WHO 2007 Addressing violence against women in HIV testing and counselling: a meeting report Geneva: WHO

WHO 2008 Technical consultation on the integration of HIV interventions into maternal, newborn and child health services Report of WHO meeting, Geneva, Switzerland 5-7 April 2006 Geneva: WHO

WHO 2008 WHO code of practice on the international recruitment of health personnel. *Bulletin of the World Health Organization* 86 (10)

WHO, IPPF, JSI, PATH, PSI, UNFPA , World Bank 2006 Interagency list of essential medicines for reproductive health Geneva: WHO

WHO, The UN Children's Fund, The UN Population Fund 2001. Maternal mortality in 1995: estimates developed by WHO, UNICEF, UNFPA. Document WHO/RHR/01.9. Geneva: World Health Organization

WHO, UNFPA, PATH 2006 Essential medicines for reproductive health: guiding principles for their inclusion in national medicine lists Geneva: WHO

WHO, UNICEF and UNFPA 2001 Maternal mortality in 1995: estimates developed by WHO, UNICEF, UNFPA. Document WHO/RHR/01.9. Geneva: World Health Organization.

Wilhelmson, K., Gerdtham, U 2006 *Impact on economic growth of investing in maternal-newborn care* Geneva: WHO
World Bank 2003 Responding to HIV/AIDS in the East Asia and the Pacific; World Bank Strategy 2003.

World Bank, 2002 Education and Development', Education Advisory Service, World Bank, Washington, D.C.

6.4 Briefing Papers

1. Evidence-based interventions available for reducing maternal morbidity and mortality
2. Trained and willing workforce
3. Infrastructure, equipment, drug and supplies (including communications and transport)
4. Is the population willing and able to access the interventions?
5. Health Systems in PNG and their influence on maternal health
6. Gender related issues in PNG and impact upon maternal health
7. HIV related issues in PNG and impact on maternal health
8. Projected PNG population needs in relation to maternal health
9. GoPNG policies and impact upon maternal health
10. GoPNG budget and spending on maternal health (current, historical and projected requirements)