



National
Department of
Health

Ministerial Taskforce on Maternal Health in Papua New Guinea



Report

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Preface

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 could all know what 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 shown 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 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 Hon. Mr Sasa Zibe
Minister for Health and HIV/AIDS
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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 Higher 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 whilst 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.

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 high². A substantial proportion of maternal deaths take place in hospital³. **88–98% of maternal deaths are preventable**⁴

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 children⁵. 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-5⁶. 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 service⁷”. Their concerns included facilities closed, lack of personnel, drugs and supplies, charges for health services and staff rude and disrespectful. **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

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

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 the reproductive age range that is Too young; 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 AIDS⁸, survivors of Sexual & Gender Violence, 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, 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 PNG⁹**. 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 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)%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 status¹¹” - as demonstrated by:

- Proportion of delivery rooms with running water and sinks decreased
- Perennial drug supply problems
- 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

⁸⁸ Mola G 2007

⁹ NHIS 2008

¹⁰ NSO 1996, NSO 2008

¹¹ ADB, AusAID and World Bank 2007

- especially community health workers
- Antenatal coverage much lower (and especially for the lowest asset quintile)
- Contraceptive use low (especially in the lowest 2 quintiles of income)
- TB control poor
- Shortage of antimalarial drugs
- Decrease access to ambulatory care
- Declining health infrastructure”.
- 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 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 CEOs¹².

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 Initiatives¹³

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 improved¹⁴. **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 shortcuts¹⁵. **Medical supply logistics procurement and management** are poor in 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. Slow progress has been made to date on implementing these recommendations and this must be addressed urgently.

i.ii Policy Setting for Maternal Health

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 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 her own income is more important to improvement of maternal health than household socioeconomic status¹⁶. 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 death¹⁷. 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 have 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 addressed¹⁸. 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 globally¹⁹. Scaling up towards universal access to and utilisation of maternal health services requires tackling social, economic and political conditions²⁰.

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

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

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 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 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 scale²¹. 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, 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 and National Department of Health and related Medical and Nursing Boards** is required to support these actions.

Mechanisms to **strengthen the voice of the poor and marginalized to make claims²² 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 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 increase a woman's risk of a safe pregnancy) and its policy on voluntary access to free quality family planning services for men, women and couples, and sexually

²¹ Freedman et al 2005

²² Freedman et al 2005

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 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 challenges²³:

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
5. Recent inaugural meeting of Parliamentarians on Population and Development

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. Statistics indicate that for each additional year of education achieved by 1,000 women, two maternal deaths will be prevented²⁴. 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' education²⁵. 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.

²³ Shiffman and Smith 2007

²⁴ World Bank 2002

²⁵ UNICEF 2003

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 person²⁶, the levels of investment in maternal health, both by governments and development partners goes nowhere near reaching the requirements²⁷. Scaling up coverage of skilled deliveries will have the consequent impact of halving the number of maternal deaths by 2015. 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 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 it the low amount of health financing a problem, so to **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 periphery²⁸. 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 burden²⁹. 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 $\frac{3}{4}$ of maternal deaths³⁰.

²⁶ Only 2% of donor funding goes to maternal health globally.

²⁷ Berer M 2007

²⁸ IMRG 2008

²⁹ ADB, AusAID and World Bank 2007

³⁰ Freedman et al 2005

Twenty percent of maternal deaths are due to an underlying disease that is aggravated by pregnancy – such as malaria, iron deficiency anaemia, hepatitis, tuberculosis, heart disease³¹. 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 capacity³². Major reductions in MMR have occurred in developed and developing countries with evidence based cost effective health system and social interventions.

Maternal mortality rates are contributed to by health systems and service delivery constraints³³.

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 services³⁴)
- Models of care 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, ensuring rational use of evidence based treatment
- Logistics management: ensuring drugs, supplies and basic diagnostic sets available
- Policy framework: ensuring treatment standards available, other policy support
- Financial management including accountability, equity and sending on 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

³¹ WHO 1994

³² Freedman et al 2007

³³ George A 2007

³⁴ Cecatti et al 2007

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.

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 providers³⁵ 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

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.

- 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 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 ‘*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:

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, 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 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 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 a 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.

i.vi Recommendations

There are 7 key recommendations from the Ministerial Taskforce on Maternal Health:

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;
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;
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;
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;
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;

6. Every woman should have access to Comprehensive Obstetric Care from the Aid Post level upwards by 2030; and
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.

The details that comprise these recommendations are included under section '6.0 Recommendations'.

i.vii Proposed Plan of Action

The Plan of Action draws on the details of the Taskforce's recommendations and provides a means of actioning those recommendations. It centres on the key tasks that need to be completed in order to achieve change through the framework set out by the Taskforce. The major objectives of the proposed plan of action are:

1. Build **leadership** by creating advisory and coordination bodies at the national, provincial and local level, with community involvement, that can oversight the implementation of the Taskforce's recommendations.
2. Work with the Department of Education to **strengthen the education system** so that it is able to provide improved sexual and reproductive health education into the school curriculum; the removal of policies that prevent pregnant women from continuing their studies; and developing avenues for women to return to studies following pregnancy.
3. **Build strength in the health system** so that it can respond to the maternal health needs of Papua New Guinea's women.
4. Provide a **comprehensive family planning service** that has coverage to allow access by all Papua New Guineans so that 65% of the adult population is utilising the service by 2020.
5. Undertake workforce development to ensure that **every woman in PNG has access to supervised delivery** by a trained health professional by 2030.
6. Develop **standards for comprehensive obstetric care** from the aid post level upwards.
7. Implement a program to **extend emergency obstetric care to all hospitals** in Papua New Guinea and develop a system of referral that will ensure all women who require emergency obstetric care have access.

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 births³⁷ 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 cause³⁸. 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:

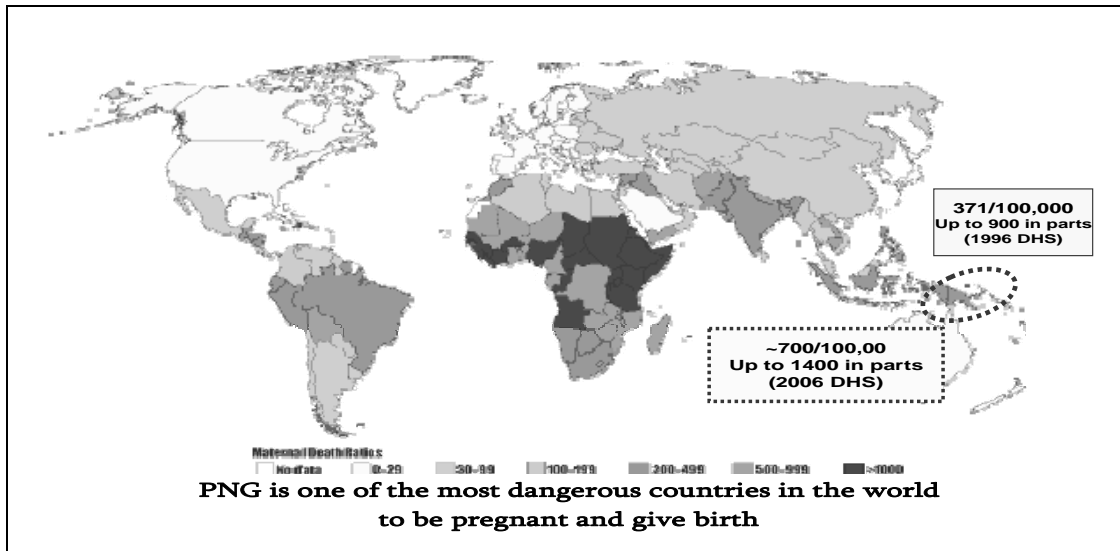
- 2 hours from Post Partum Haemorrhage

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 considered³⁸: 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.

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



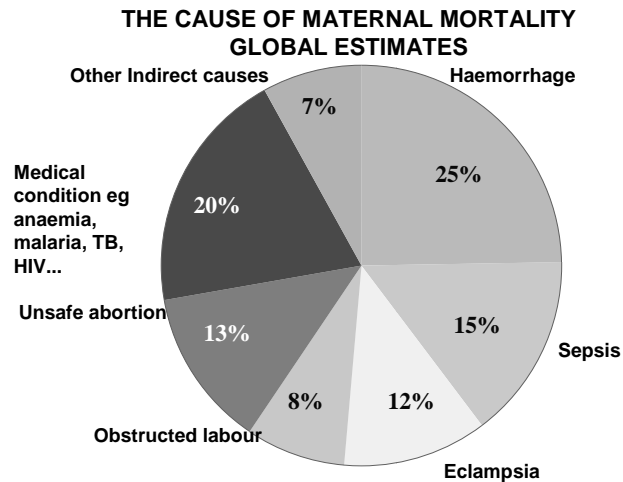
Most complications are not in pregnant women assessed as higher risk, but in those who are considered low risk. The magic number is 15%: 15% of antenatal women will develop complications (and only 15% of those can be predicted), 15% will develop some level of complication in labour or delivery (and only 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 high³⁹. A substantial proportion of maternal deaths take place in hospital⁴⁰. 88–98% of maternal deaths are preventable⁴¹

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-conditions⁴². 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 children⁴³. 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-5⁴⁴. Women develop physical or mental disabilities every year as a result of complications or poor management.

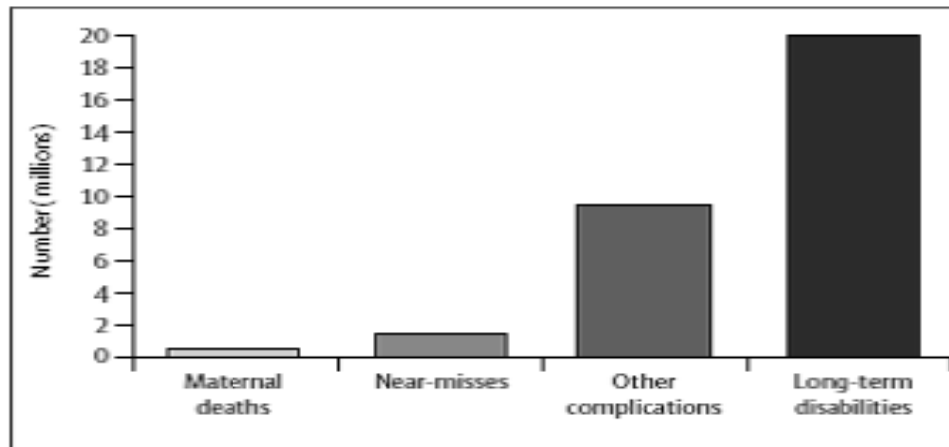


Figure 1: Extent of maternal mortality, morbidity, and disabilities
Calculations assume 136 millions births, 1% near-miss, 7% serious complications, and 20 million disabilities a year.^{13,22,23}

⁴² WHO 2006; Manandhar et al 2004; WHO, 2001

⁴³ WHO 2006

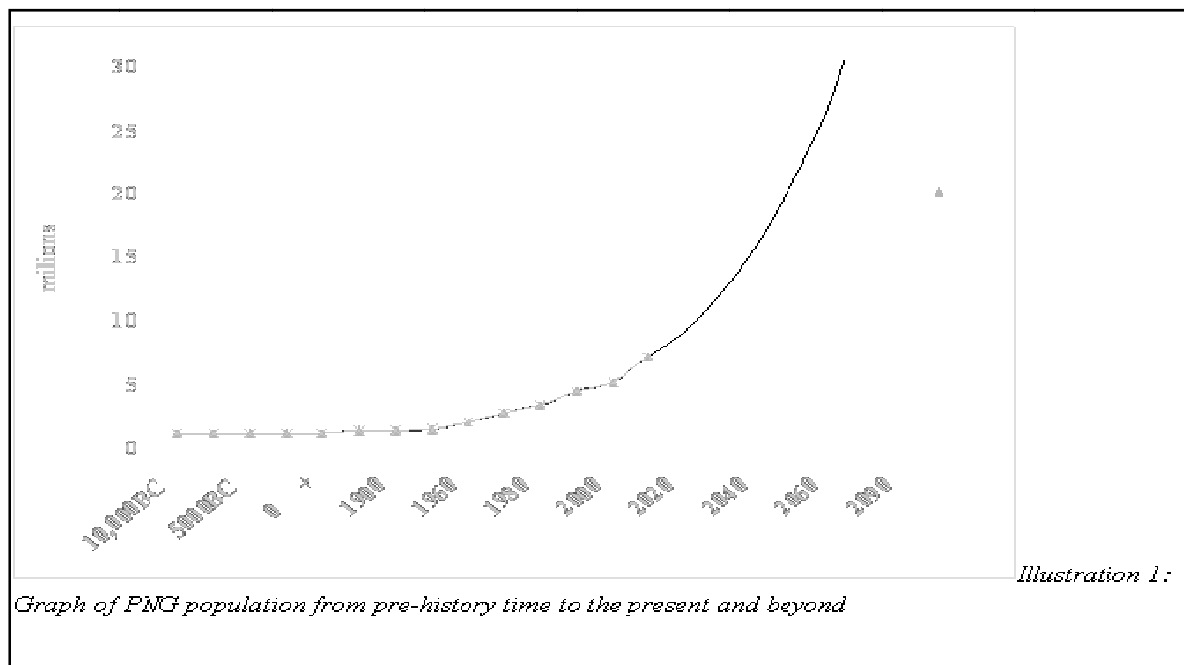
⁴⁴ Gwatkin 2005

Inequalities in the risk of maternal death exist everywhere, both between and within countries⁴⁵. “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 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 million⁴⁷. 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 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 34/1000⁴⁸. 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.



⁴⁵ Ronsmans et al 2006

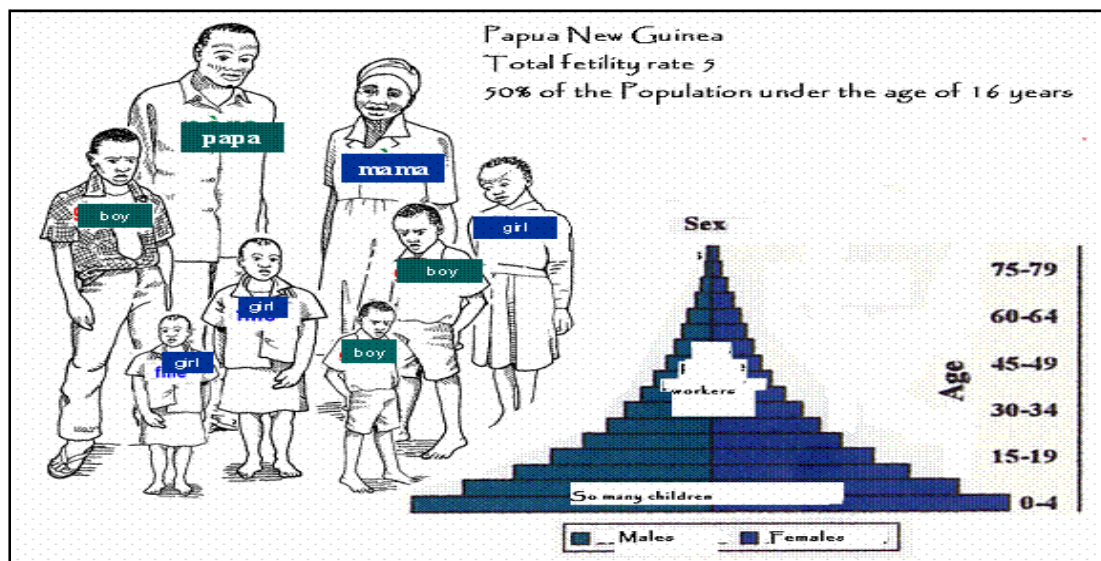
⁴⁶ Morgan et al 2008 Submission to the Task Force

⁴⁷ NSO 2000

⁴⁸ NSO 1996

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.

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 substantially⁴⁹. The HIV/AIDS epidemic will have an impact on population change in the future. Population growth will 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 services⁵⁰. One of the contributing factors to this is the lack of matching of the population growth to the services availability and health human resources number. 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.



⁴⁹ UNFPA 2008

⁵⁰ ADB, AusAID, World Bank 2007

⁵¹ Ditto

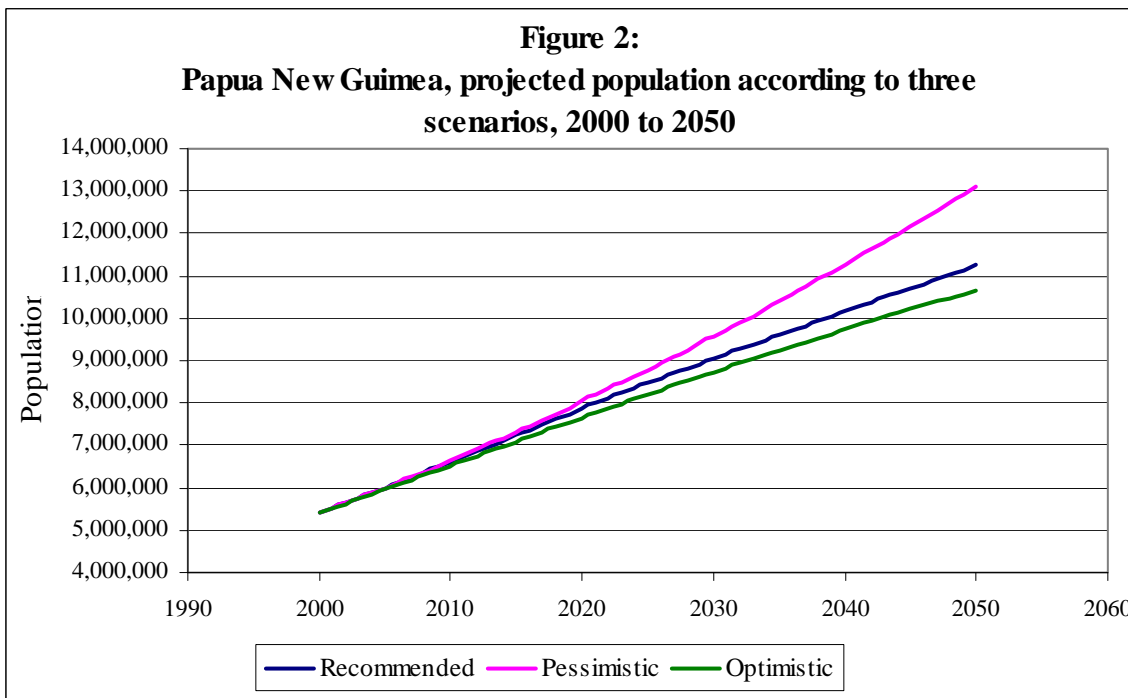
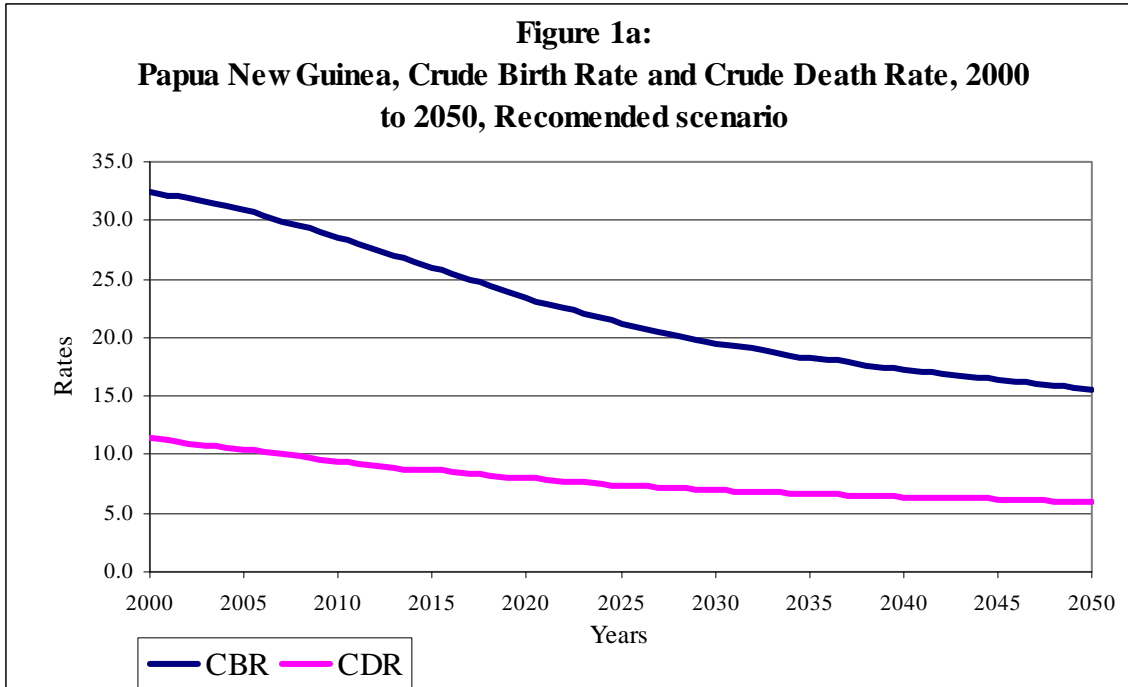
It takes time to reach population stability because it takes at least one generation to change attitudes towards fertility and to convince people that having 2-3 children is an advantage.

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 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	7900	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'.



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; 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 AIDS⁵², 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 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.

⁵² Mola G 2007

⁵³ NSO 1996, NSO 2008

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 too.

1.2 Cultural, 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.

Even if the first 4 characteristics of 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 to the 4 delays framework⁵⁴. Basically it analyses the delays in a system, from the family to the health facility that 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 decision to seek care.
- Delay Three: Delay in reaching appropriate care.
- Delay Four: Delay 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 service⁵⁵” Their concerns included facilities closed, lack of personnel, drugs and supplies, charges for health services and staff rude and disrespectful. **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.

⁵⁴ Based on Thaddeus, S., Main A 1990

⁵⁵ Decock, Hiawalyer and Katz 1997

.....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

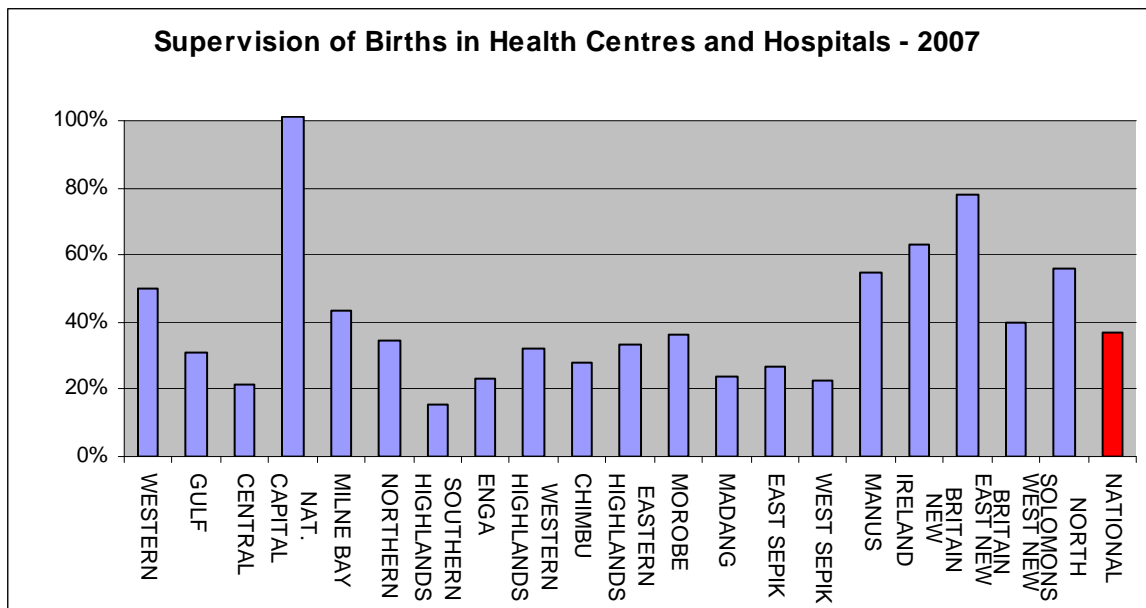
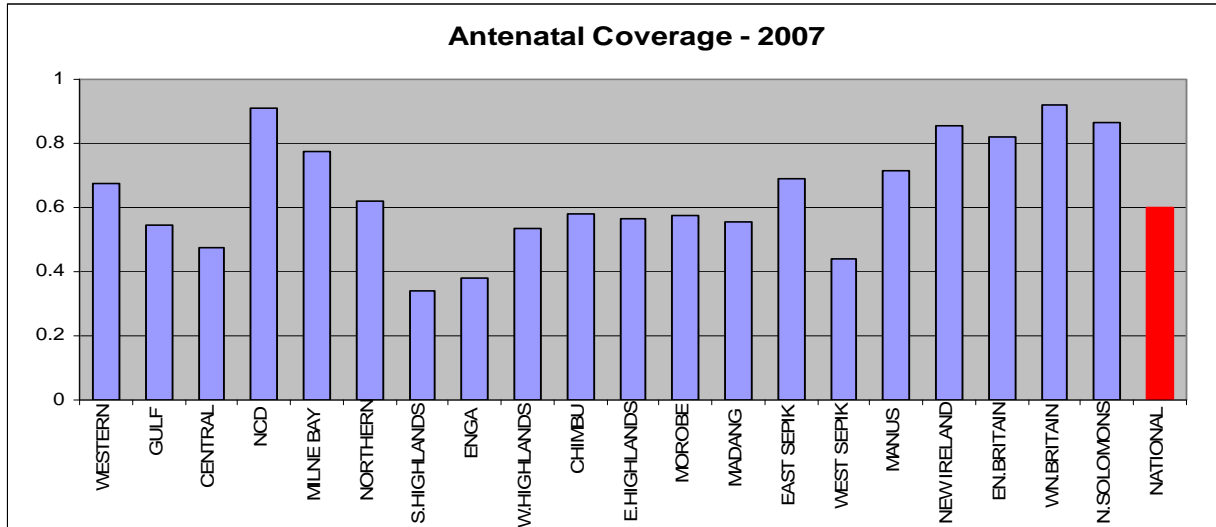
Staff who feel under-valued and appreciated by their employers and the community they serve. **Workforce morale** is contingent upon feeling competent, supplied and supported, cared for and appreciated. If the health system does not support the worker in this regard then they cannot lay the problem of 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 PNG⁵⁶**. 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 worker;
- Access to water and to 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 procedures⁵⁷.
- Women also note that family support, ease of access to transport and transport available in a timely manner also increase utilisation of health facilities⁵⁸.

Additionally even with a strong positive knowledge of the role and need for family planning, the level of practice is far lower⁵⁹.

Family Planning			Family Planning		
Characteristics	2006	1996	Characteristics	2006	1996
% of all men with knowledge of any FP method	88.8	-	% of all men who have ever used any FP method	46.1	-
% of all women with knowledge of any FP method	85.3	71.8	% of all women who have ever used any FP method	41.4	29.0
% of all men with knowledge of source of FP method	76.0	-	% of currently married men using any FP method	42.3	-
% of all women with knowledge of source of FP method	74.9	64.5	% 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 people⁶⁰

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. Some provinces such as Western, Eastern Highlands and Sandaun, that health services in those provinces are not accessible for at least 40% of the population⁶¹.

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

⁶⁰ Decock et al 1997b

⁶¹ Data Source: NDoH 2006 TB Strategy

Concerns about the costs 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* of Accessing care such as transport costs for woman and guardian, food whilst away from home, work at home not 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 services⁶².

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 facility⁶³.

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 stories⁶⁴; 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, 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;

⁶² Impact 2005

⁶³ Popon 1993

⁶⁴ Ktumusi and Lee 2008

- Dilapidated and unusable buildings;
- Unsupportive policies and regulations.

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

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

- Universal primary education
- Comprehensive national health promotion campaign
- Include men as partners in Making Pregnancy Safer
- Raising awareness in communities about the signs of life-threatening complications;
- 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;
- 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 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.

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 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; Too socially marginalized: survivors of Gender Based Violence, some language groups, People Living With HIV and AIDS, teenagers; Men particularly regarding population and resource planning as it affects them as fathers and partners; they 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 fees 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 baby⁶⁵. Some customs (e.g. putting dung ashes on the cord) are positively dangerous....and we need to work with communities to establish new and

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

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 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, role-modelling in relation to Making Pregnancy Safer. The recent work on detailing a Public Private Partnership policy for the whole of government and implementation of the PNG Health Sector Partnership Policy 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.

1.3 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 status⁶⁶” - as demonstrated by:

- Proportion of delivery rooms with running water and sinks decreased
- Perennial drug supply problems
- 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 much lower (and especially for the lowest asset quintile)
- Contraceptive use low (especially in the lowest 2 quintiles of income)
- TB control poor
- Shortage of antimalarial drugs

⁶⁶ ADB, AusAID and World Bank 2007

- Decrease access to ambulatory care
- Declining health infrastructure”.
- 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 centre and community level services- “required for safe motherhood programs’ was not achieved in PNG – as hospital were made autonomous, further exacerbating the “conflict” between provincial health and hospital CEOs⁶⁷. 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 2004⁶⁸. 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 above, the thing that made maternal health services more effective in the past was a functioning rural health and referral system⁶⁹. 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 and the peripheral units (aid posts).
- A capacity and designated responsibility and power at provincial health level to manage service or personnel problems.
- 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 1996⁷⁰. These included:

- Supervision of the rural health service has been decentralized to the district administration. However, the District Manager has no knowledge or experience of how a health service operates. The end result is that it is difficult to get health system problems effectively resolved or sorted out, health workers are mostly not supervised, many do not turn up to work.
- The provincial health office team merely has a technical advisory role. If their advice is not sought they may actually have nothing much to do. When they see that things are not going well, they cannot themselves do anything about it. This has resulted 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) have closed down because

⁶⁷ Aitken 1999

⁶⁸ ADB,, AusAID and World Bank 2007

⁶⁹ Mola, G 2008 Submission to Taskforce

⁷⁰ PSRMU 2001

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 changes⁷¹”
- “Furthermore declining health budgets made it almost impossible to invest resources in expanding training and control programs⁷²”.
- Provincial and local level governments and MPs accepting no responsibility for primary health care and essential public health functions⁷³
- Provincial declines in real health expenditure by 45.1% between 1997 and 2004
- 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
- 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 Initiatives⁷⁴

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 improved⁷⁵. **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 shortcuts⁷⁶. **Medical supply logistics procurement and management** are poor in 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. Slow progress has been made to date on implementing these recommendations and this must be addressed urgently.

⁷¹ Aitken 1999 page 124

⁷² Aitken 1999 page 125

⁷³ ADB, AusAID and World bank 2007

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 a sign of women’s place in society and their access to social, health and nutrition services and to economic opportunities.

Women’s participation in economic activities & control of her own income is more important to improvement of maternal health than household socioeconomic status⁷⁸. 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 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 death⁷⁹. Maternal deaths due to abortion are highest in countries where abortion is largely illegal – in many countries contributes to 13% of maternal deaths⁸⁰. 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 have 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 addressed⁸¹. 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 globally⁸². Scaling up towards universal access to and utilisation of maternal health services requires

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

tackling social, economic and political conditions⁸³. In 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 possible⁸⁴. 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 indeed⁸⁵. 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; 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 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.

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

⁸³ Freedman et al 2005

⁸⁴ Ronsmans and Graham 2006

⁸⁵ NSO 2008

the duty to take steps to fulfil those rights⁸⁶”.

Changes in human resource policies are necessary to deliver the maternal health intervention package to scale⁸⁷. These include: the provision of pathways and practices to enable mid-level providers to perform procedures they can be trained effectively to practice, but are presently restricted to obstetricians and gynaecologists; 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 and National Department of Health and related Medical and Nursing Boards** is required to support these actions.

Mechanisms to **strengthen the voice of the poor and marginalized to make claims⁸⁸ 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 eg 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, 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 through its promotion of a limited number of children per household (high numbers of birth and closely spaced births increase a woman’s risk 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 – both indirect – such as costs of transportation and 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

⁸⁶ Freedman, I et al 2005

⁸⁷ Freedman et al 2005

⁸⁸ Freedman et al 2005

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 challenges⁸⁹:

6. Build cohesion in the policy community to speak with authority and unity to the political leaders;
7. Create an enduring guiding institution/partnership to sustain the initiative
8. Develop convincing themes of the importance of maternal health
9. Develop strong links between other national initiatives and civil society organisations
10. Recent inaugural meeting of Parliamentarians on Population and Development

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.*

2.2 Education and Maternal Health

Universal free compulsory primary education will have a positive impact on maternal health, and the 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 prevented⁹⁰. 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' education⁹¹. 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 no completed primary education than other groups of Papua New Guineans. This reflects the trend seen around the world – that people who have no completed a basic education have

⁸⁹ Shiffman and Smith 2007

⁹⁰ World Bank 2002

⁹¹ UNICEF 2003

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 which reflected 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.

Recommendations

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 well⁹²”. 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

⁹² Adam et al 2005

deaths by 2015 at between US\$ 0.22 - \$1.18 per person⁹³, the levels of investment in maternal health, both by governments and development partners goes nowhere near reaching the requirements⁹⁴. Additionally the **equity in financing**- that is are the poor, marginalized and 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 death of a women in the prime of her economic and family life⁹⁵
- Relationship between burden of disease and **economic growth** – in countries like PNG⁹⁶ maternal death 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; 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 health⁹⁸:

- There is 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
- 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 care⁹⁹”. 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**. 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 US\$440. The cost per user falls as the number of users rises. In some countries for every dollar spent on family planning saved US\$12 in health and education costs for the government¹⁰⁰.

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.

⁹³ Only 2% of donor funding goes to maternal health globally.

⁹⁴ Berer M 2007

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 2???

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 declined¹⁰¹. 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 – only 6% of total with 1% of government funding and 18% of development budget¹⁰². Only 13% of total health expenditure spent on supplies and equipment not 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, as only K80 million was allocated – which was the same of 2008 with an inflation increase only. Comparing these levels of expenditure on health one sees 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 **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 periphery¹⁰⁶.

Hospitals account for about 30.1% of government expenditure. However hospitals are most heavily used by the richest quintile of income. Despite this % 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 burden¹⁰⁷. Absolute levels of health financing must be increased as well as the efficiency and effectiveness of that expenditure.

¹⁰¹ ADB, AusAID and World Bank 2007

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 status¹⁰⁸”

“Countries ... with the weakest health systems have the highest number of maternal deaths¹⁰⁹”.

“Reaching the MDGs 4 and 5 means having functioning health systems¹¹⁰”

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 $\frac{3}{4}$ of maternal deaths¹¹¹.

Twenty percent of maternal deaths are due to an underlying disease that is aggravated by pregnancy – such as malaria, iron deficiency anaemia, hepatitis, tuberculosis, heart disease¹¹². Therefore a strong primary health care and prevention program is a necessary foundation for maternal health– therefore need strong PHC as a basis for maternal health. **The district is the basic unit for planning and implementing the Making Pregnancy Safer package**. Need to shift focus to the challenges of effective implementation of services with districts and strengthening of the district health system capacity¹¹³

¹⁰⁸ ADB, AusAID and World Bank 2007

¹⁰⁹ Obaid T 2007 page 1288

¹¹⁰ MDG gateway 2008

¹¹¹ Freedman et al 2005

¹¹² WHO 1994

¹¹³ Freedman et al 2007

Major reductions in MMR have occurred in developed and developing countries with 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 improved¹¹⁴. 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 shortcuts¹¹⁵.

Maternal mortality rates are contributed to by health systems and service delivery constraints¹¹⁶.

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 services¹¹⁷)
- Models of care 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, ensuring rational use of evidence based treatment
- Logistics management: ensuring drugs, supplies and basic diagnostic sets available
- Policy framework: ensuring treatment standards available, other policy support
- Financial management including accountability, equity and sending on the right priorities and interventions
- 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
8. Supportive supervision and management

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 2.28 health workers per 1,000 population can help the

¹¹⁴ Pathmanathan et al 2003

¹¹⁵ Maine D 2007

¹¹⁶ George A 2007

¹¹⁷ Cecatti et al 2007

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). According to the Asia Pacific Action Alliance for Human Resources for Health¹¹⁸, PNG has a ratio of 0.58 (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
- motivation¹¹⁹
- performance management
- retention
- planning – numbers, mix and distribution

The required workforce must a) the Right cadre mix for PNG ; b) be in the Right numbers [yet to be decided]; c) be 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 Determinants¹²⁰ 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 competencies¹²¹ 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 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.

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,

¹¹⁸118 Asia Pacific Action Alliance on Human Resources for Health, 2008

¹¹⁹ Rath et al 2007

¹²⁰ See Briefing Paper I

¹²¹ Global Health Trust 2004

demographics, attrition rates (related to transfer, resignation, retirement and death).and geographic distribution of skilled care providers (in-post and otherwise¹²²). 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 intervention¹²³.

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 evidence¹²⁴ it is anticipated that in PNG three to four midwives together in a team with double the number of midwife assistants is the minimum to allow for 24-h coverage 7 days a week. There are considerable opportunities to expand their role into that of Midwives' Assistants. To achieve this would require an appropriate competency-based training package, career structure and supportive supervision by midwives. These CHWs, upskilled as Community Midwife, would improve staff: patient ratios at *every* level of care.

The capacity to train adequate numbers of doctors (in Diploma and Masters), midwives, community health workers and midwife assistants is below requirements. In additional 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 unregistrable according to the minimum requirements of the Nursing Council of PNG. A recent review of the midwifery curricula at the 4 schools¹²⁵ has made clear recommendations, and although a successful Curriculum Review process has been conducted in 2008¹²⁶ 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 the PNG Midwifery Education Review 2006¹²⁷ 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 2010¹²⁸) will require close relationships with the Office of Higher Education and the universities¹²⁹. It is not an immediate action that can be taken staff/student ratios are less than required, and the physical capacity of the hospitals, training

¹²² There are thought to be many health professionals either not working, or working outside the Public Sector but the numbers have not been quantified.

¹²³ WHO 2005

¹²⁴ Koblinsky et al 2007

¹²⁵ Kruske 2006

¹²⁶ Final report pending

¹²⁷ Kruske 2006

¹²⁸ NDoH 2000

¹²⁹ GHWA Financing taskforce 2008

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, 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 them¹³⁰. Incentives to 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 useful starts. **Career structure options** also impact upon workforce being where they are needed. Unless remuneration, pay and employment conditions, transfer packages, 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 addition, most midwives are female; most will be married 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 that of their families) and safety 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

¹³⁰ The NDoH HR Development Strategy has called for a review of incentives and partnerships with villages and local governments

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, 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 notes the demoralizing conditions that health staff work in – especially with shortages of drugs and supplies, no supervision, 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 higher rates of absenteeism¹³¹.

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 re 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 population¹³²
- Proportion of births attended by skilled health personnel by place of delivery
- Proportion of births with caesarean section¹³³
- Population based Caesarean section rates (as a proxy for unmet need of EmOC services) using facility based data
- Proportion of births with life saving surgery¹³⁴
- Proportion of women who stayed in a health facility for 24 h or more after delivery
- Mortality rate among women of reproductive age

¹³¹ Schneider, et al 2006; Gerein et al 2006

¹³² UNICEF, WHO 1997

¹³³ Stanton ey al 2005

¹³⁴ Ronsmans et al 2002

- Age-specific mortality rates
- Parity specific mortality rates
- Relevant Family Planning indicators¹³⁵

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 to be addressed a 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 roads 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
- 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/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), the data derived from the provincial health office. The development of a health sector assets register has been mooted for several years, but has never 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:

¹³⁵ See current Draft National Family Planning Policy

- 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 staff accommodated on location;
- 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.
- 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 issue. The reform of the medical supplies procurement and logistics system is a major priority for the health sector and for saving women's lives¹³⁶. 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 supplies¹³⁷ that should be referred to by the expert clinicians (medical and midwives) who develop/update the PNG 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

¹³⁶ Ministry of Health 2008; Ministry of Health 2007

¹³⁷ WHO 1991; WHO 1994; WHO 2004; WHO, IPPF, JSI, PATH, PSI, UNFPA, World Bank 2006; WHO, UNFPA, PATH 2006

have deteriorated in the last 5 years.

The PNG health sector has an 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
- 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
- Between facilities and other key agencies (e.g. police)
- Make staying in remote and rural areas attractive they 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”
- 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, 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*
- *Health and management information management*
- *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

4. Comprehensive, integrated reproductive health services, with an emphasis on strong **family planning** services, plus
5. Skilled care for all pregnant women by trained providers¹³⁸ with strong midwifery skills during pregnancy and especially during childbirth i.e. **Supervised Delivery**, plus
6. **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.

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 mortality¹³⁹

In PNG:

- Voluntary family planning alone could reduce maternal death by a third and child deaths by as much as 35%.
- 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

¹³⁸ 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"¹³⁸.

¹³⁹ Senanayake 1995

during pregnancy and childbirth. These services are collectively known as Emergency Obstetric Care (EmOC)¹⁴⁰. 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.

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 development word. And the technology to prevent them exists and is affordable for PNG¹⁴¹.

The patterns of maternal mortality in PNG requires prioritization of

3. **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
4. **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 in PNG, across most provinces, and in some locations evidence exists of poor quality¹⁴². There is a decrease in tetanus toxoid immunisation provided for those women who

¹⁴⁰ Prof. D. Maine, Women Deliver conference, London, 2007.

¹⁴¹ Rohde 1995

¹⁴² 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%.

attend 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.

No single intervention alone can address the diverse range of causes of maternal death. Many proven single interventions¹⁴³ and composites of these are available and have been assessed¹⁴⁴. Such single interventions are thus not given alone, but rather together in varying combinations 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;

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 achieved¹⁴⁵.

¹⁴³ WHO 2007

¹⁴⁴ 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

¹⁴⁵ Papiernik, E 1995

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 deaths¹⁴⁶ and 25–62% of intrapartum stillbirths¹⁴⁷ 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%¹⁴⁸. 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* EmOC¹⁴⁹.

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, 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 needed¹⁵⁰. Intrapartum women can opt for supervised deliveries in preference to alternatives (village, unsupervised birth and its 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, and if staff in facilities have the necessary client-focused interpersonal skills to support women, the infrastructure is clean and in good repair and that the health facility is well supplied according to minimum standards. Some women will still choose other alternatives including home birth with a relative or Village Birth Attendant, particularly 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

¹⁴⁶ Darmstadt et al 2005

¹⁴⁷ Lawn et al 2005

¹⁴⁸ WHO 1994

¹⁴⁹ UNICEF, WHO, UNFPA 1997

¹⁵⁰ Li et al 1996

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 mortality¹⁵¹ 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 delay¹⁵²) and in gaining timely access to appropriate emergency obstetric care facilities (the second delay)¹⁵³ including Emergency Obstetric advice and transfer where indicated and possible. Capacity to provide adequate and timely emergency obstetric care is, however, the minimum standard 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 recommendation that *intrapartum-care strategies need to cover the very high-risk period up to 24 hrs postpartum*. Available international data suggest that between a quarter and two-fifths of maternal deaths could be eliminated if unplanned and unwanted pregnancies were prevented¹⁵⁴. Unsafe abortion in circumstances of unintended, mistimed and unwanted pregnancy, in addition to those where the mother's life is endangered, 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) with 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 helminthes), 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

¹⁵¹ Paxton et al 2005

¹⁵² See Briefing Paper: *Overview*

¹⁵³ Thaddeus and Maine 1994

¹⁵⁴ Campbell et al 2006

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. 20% of pregnant women with infective syphilis will have an abortion – which can lead to death and morbidity and social stigma; 30% to stillbirths with same consequences¹⁵⁵. 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 PID which may cause ectopic pregnancy with health consequences¹⁵⁶. In a study at PMGH¹⁵⁷, found high maternal and perinatal mortality, and 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 the 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 undiagnosed. 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 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 term acting) methods, for males and females*
 - *Sustained community mobilisation and health promotion efforts to normalise community attitudes towards 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 full 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.*

¹⁵⁵ Van Dam 1995

¹⁵⁶ Van Dam 1995

¹⁵⁷ Heywood and colleagues (1999)

Strong monitoring implementation to ensure the national policy on free services for sexual and reproductive health is implemented 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. 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 will include ensuring adequate and reliable remuneration as well as secure housing and living conditions.*
- *Ensuring access to quality management of complications of unsafe abortion at all levels of the health service.*
- *Recognition that access to safe abortion services is an evidence based intervention that can reduce **maternal morbidity and mortality**.*

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”¹⁵⁸.

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 (Lepani 2009). 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 endorsement¹⁵⁹, 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 increase risks of maternal death¹⁶⁰. 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 harm¹⁶¹ – 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 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

¹⁵⁸ WHO 1999

¹⁵⁹ UNICEF 2007

¹⁶⁰ Gill et al 2007

¹⁶¹ UNICEF 2007

allowing the girl child 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 care¹⁶² (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 the bone and pelvic growth and if not good can lead when a woman to obstructed labour, being iron deficient as a adolescent female and during pregnancy can lead to increased chances of haemorrhage and of death due to haemorrhage; not having access to sleeping under a net because of being a woman and so getting malaria can affect pregnancy outcomes and anaemia¹⁶³. Addressing maternal mortality and morbidity requires greater acknowledgement that unsafe abortion carries a huge risk for obstetric haemorrhage. Briefing Paper 9 (p. 5) points out how 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 deaths 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"². 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 so much compounded the reproductive health situation thus does contribute though indirectly 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 problems¹⁶⁴. The urgency to expand **provision of post-exposure prophylaxis** (STI and 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.

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 children¹⁶⁵. **Low status of women** also subjects

¹⁶² Kerber et al 2007

¹⁶³ Saweri, W 2008 Submission to Taskforce

¹⁶⁴ Heise et al 2002, Campbell et al 2004

¹⁶⁵ MIDEGO submission to Taskforce

them to abusive behaviour a 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 health¹⁶⁶. Because men- and men as leaders – often control access to information and services, finances and transport, they wield power over women’s lives, but also can use this power positively, if encouraged and supported. Gender norms and roles influence the ways in which men relate to their wives, children, others. Social changes such as unemployment, 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 settings¹⁶⁷. The men as partners approach recognizes the influence men have on reproductive health options and decision and encourages men and women to deal jointly with issues like family planning, emergency plans for labour and deliver, 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 not against the law, to safe abortion services. All laws, regulations and practices that jeopardize women’s health must be reviewed and revised¹⁶⁸.

“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 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 right 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 purpose of which is the enhancement of life and personal relations, and not merely counselling and care related to reproductive and sexually transmitted diseases¹⁶⁹”

Male partnership in sexual and reproductive health as 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

¹⁶⁶ UNFPA 2005

¹⁶⁷ UNFPA 2009

¹⁶⁸ Freedman et al 2005

¹⁶⁹ UNFPA 1995

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, and 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 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. The Health Human Resources workforce planning should include TOR 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 the 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"*¹⁷⁰

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 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 a **greater risk of a maternal death** than negative women¹⁷¹. 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 risks¹⁷². So addressing HIV and AIDS is an important maternal health issue¹⁷³, especially in PNG where HIV is a major and emerging health problem. The pattern of causes of maternal deaths is changing in many countries

¹⁷⁰ Mataka E 2007; Druce and Nolan 2007

¹⁷¹ Mataka E 2007

¹⁷² Druce and Nolan 2007

¹⁷³ Ramogale, et al 2007., McIntyre, J 2003; Graham and Hussein 2003

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”¹⁷⁴. 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 therapy¹⁷⁵. Joint strategies to address HIV and maternal health problems make sense, are cost effective and increased sustainability of both efforts. “If the impact of HIV on maternal mortality is to be controlled and reversed, appropriate use of antiretroviral treatment is essential¹⁷⁶” 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 involved 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, newborn, children and families”¹⁷⁷. **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”¹⁷⁸ – increases the chances the 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 addressed¹⁷⁹. Denying them the right to this basic right “to the full enjoyment 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

¹⁷⁴ McIntyre 2003

¹⁷⁵ McIntyre 2003

¹⁷⁶ McIntyre 2003

¹⁷⁷ WHO 2008

¹⁷⁸ Cohen S 2008

¹⁷⁹ Guttmacher Institute 2006

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 need¹⁸⁰. 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 services¹⁸¹. **Health services and staff often are reported to discriminate against HIV positive women** who try access to maternal health related services, especially delivery, obstetric related surgery and invasive interventions¹⁸².

¹⁸⁰ UNAIDS 1998

¹⁸¹ WHO 2007

¹⁸² EngenderHealth and UNFPA 2006

6.0 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, 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
 - Health and management information management
 - District and provincial health services, including hospital management.

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 term acting) methods, for males and females
 - Sustained community mobilisation and health promotion efforts to normalise community attitudes towards 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 full 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.
 - Strong monitoring implementation to ensure the national policy on free services for sexual and reproductive health is implemented 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. 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 will include ensuring adequate and reliable remuneration as well as secure housing and living conditions.
 - Ensuring access to quality management of complications of unsafe abortion at all levels of the health service.
 - Recognition that access to safe abortion services is an evidence based intervention that can reduce **maternal morbidity and mortality**.
- 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.

7.0 Proposed Plan of Action

National Department of Health

The proposed plan of action presents the Government proposed response to the Ministerial Taskforce on Maternal Health's recommendations. The proposed plan of action should be considered in the context of these recommendations. The actions proposed in the plan of action are not intended to commit the Government of Papua New Guinea to those actions. The proposed actions are intended to guide the development of complimentary programs and policy so support improved maternal health in Papua New Guinea. The proposed plan of action's duration is 2010- 2020 to coincide with the National Health Plan 2010-2020. All costings provided are estimates that cover the proposed start of the activity to 2020 and represent only the National Department of Health funding requirement.

Action	Activity	Target	Estimated Cost (2010-2020)
1. Build leadership by creating advisory and coordination bodies at the national, provincial and local level, with community involvement, that can oversight the implementation of the Taskforce's recommendations.	Appointment of a Maternal Health Advisor.	Maternal Health Advisor appointed by 2010.	K 400,000
	Establish a National Maternal Health Clinical Reference Group.	Reference Group established by 2010.	K 100,000
	Establish a Maternal Health Coordination Reference Group in each province.	Reference Group established in each province by 2011.	K 500,000
	Establish a Maternal Health Taskforce Community Reference Group in each district.	Reference Group established in each district by 2012.	K 500,000

2. Build strength in the health system so that it can respond to the maternal health needs of Papua New Guinea's women.	Develop strategies to strengthen the primary health care system.	Incorporate maternal health into the National Health Plan 2010-2020.	K 30,000,000 (for maternal health services development components)
	Develop a comprehensive human resource development plan to strengthen the primary health care workforce in Papua New Guinea.	Develop human resource development plan by 2010.	K 0 (workforce costs attributed against item 5)
3. Provide a comprehensive family planning service that has coverage to allow access by all Papua New Guineans so that 65% of the adult population is utilising the service by 2020.	Incorporate family planning into the National Health Plan 2010-2020 in line with the National Family Planning Policy.	Incorporate into 2009-2010 planning.	K 5,000,000 (for family planning services and support component)
	Increase the supply of short and long term contraceptive options for males and females.	Scope by 2010 and introduce system by 2011.	K 10,000,000
	Develop family planning standards for implementation in government and non-government health services. These standards should include a role for men as partners.	Develop standards by 2010.	K 50,000 (cost for developing standards only, does not include implementing standards)
	Develop training in line with national family planning standards for community health workers and other health professionals.	Develop a training curriculum and introduce by 2011.	K 1,000,000 (cost for the development and operation of training courses)

<p>4. Undertake workforce development to ensure that every woman in PNG has access to supervised delivery by a trained health professional by 2030.</p>	<p>Introduce a 6 month training package developed by the PNG Obstetrics and Gynaecology Society to enable community health workers to specialise as community midwives.</p>	<p>Introduce training package by 2010.</p>	<p>K 2,000,000 (cost for the development and operation of training courses and training equipment)</p>
	<p>As part of the development of a broader human resources development strategy, identify the maternal health workforce shortage in PNG and strategies to address the shortfall.</p>	<p>2015: 1 registered midwife in all district hospitals; 1 community midwife in all health centres. 2020: 1 registered midwife in all health centres; 1 community midwife in all aid posts.</p>	<p>K 40,000,000 (K 15,000,000 in the first 5 years, then increasing to K 25,000,000 for the final 5 years as the workforce continues to increase)</p>
<p>5. Develop standards for comprehensive obstetric care from the aid post level upwards.</p>	<p>Strengthen the primary health care setting (including first level referral hospitals).</p>	<p>20 years of sustained service development</p>	<p>K 100,000 (component related to improvement of first level referral)</p>
	<p>Determine suitable evidence based interventions for inclusion in PNG's minimum service delivery family planning and obstetric care packages.</p>	<p>Incorporate into the National Health Plan 2010-2020.</p>	<p>K 10,000,000 (implementation cost of obstetric care packages)</p>

	Scope the feasibility of introducing new contraceptive technologies, emergency contraception and misoprostol for the management of postpartum haemorrhage.	Introduce technologies by 2010	K 10,000,000
	Develop a strategy to retain Community Health Workers, Midwives, Health Extension Officers and Doctors in rural and remote clinical practice that provides adequate and reliable remuneration as well as secure housing and living conditions.	Develop a strategy by 2011.	K 50,000 (cost for developing standards only; does not include implementing strategy)
	National Health Board to consider a statement on suitability of safe abortion practices for Papua New Guinea.	Statement developed by 2010.	K 0
6. Implement a program to extend emergency obstetric care to all hospitals in Papua New Guinea and develop a system of referral that will ensure all women who require emergency obstetric care have access.	Scope the feasibility of a national referral transport policy to improve access and safe transport for the urban poor, rural and remote populations.	Scoping to be completed by 2012.	K 50,000 (cost for scoping only; does not include implementation)
	Undertake a systematic review of the role of maternity waiting homes and their effectiveness and acceptability in a range of different PNG cultural and geographic locations.	Review to commence in 2010.	K 50,000 (cost for review only; does not include implementing findings)
ESTIMATED TOTAL COST (over 10 years – 2010-2020):			K 109,800,000

National Department of Education

XXX

Action	Activity	Target	Estimated Cost (20XX-20XX)
1. XXX			K 000 (XXX)
			K 000 (XXX)
ESTIMATED TOTAL COST (over XX years – 20XX-20XX):			K 000

8.0 Appendices

8.1 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

8.2 List of Public submissions

1. Abala, Schola (Member of the public)
2. Aila, Margaret (Member of the public)
3. Alotau General Hospital
4. Alpers, Michael (Professor)(Curtin University)
5. Apeng, Douglas (Program Officer, Momase region, NDoH)
6. Archbishop Douglas Young, Mt Hagen
7. Asian Development Bank (Dominic Mellor, Country Economist, PNG Resident Mission)
8. Bereina Diocese Health (Leo Suan Bamban, Church Health Secretary)
9. Bradley, Christine (Dr)(Gender Advisor NDoH and NACS)
 10. Business and Professional Women of Port Moresby Club
 11. Capacity Building Support team (Highlands region)
 12. Catholic Health Kiunga (Seginami, Anna)
 13. Chalau, Polapoi (Dr)(Angau Memorial Hospital)
14. Charles Darwin University, Darwin (Professor Lesley Barclay)
15. Church health Service, Simbu Province (Sr Kinga Czerwonka, Church Health Secretary))
16. Churches Medical Council PNG (Joseph Sika)
17. Dickson-Waiko, Anne (Dr) Member PNG Country Coordinating Mechanism – GFATM
18. Diva, Nona (Member of the public)
19. Divine Word University, Faculty of Health Sciences (Professor Francis Hombange and Dr John Sairere)
20. Dunn, Maree (Midwife trainer)
21. Hope Worldwide (PNG Office)
22. Japanese International Cooperation Agency (PNG)
23. JTA International (Dr Jane Thomason)
24. Kenyon Maggie (consultant, sexual and reproductive health)
25. Kintwa, James (Dr), (Mt Hagen Hospital)
26. Kwe, Wakin, HEO Tabubil Hospital
27. Macfarlane Burnet institute for medical research and public health (Dr Chris Morgan)
28. Marie Stopes International (PNG Office)
29. Matasororo, Emily (member of the public)
30. MIDEGO (Dr Elvira Berochochea)
31. Mola, Glen (Professor) School of Medicine and Health Sciences
32. Mt Hagen General Hospital Management Team
33. National AIDS Council Secretariat (David Passirem)
34. Nursing Council of PNG (Ms Laitte Moses)
35. O’Callaghan, Margaret (International consultant)
36. Population Services International (PNG Country Representative, Cynde Robinson)
37. Porgera Joint Venture (Andrew Ame)
38. Roedde, Gretchen (Dr)(Independent consultant in sexual and reproductive health)
39. Sandaun Provincial Administration Division of health (Mr Desak Drorit, Provincial Health Adviser)
40. Saweri, Wila (Nutritionist)
41. Sinebare, Musawe (National Research Institute)
42. The Salvation Army PNG Territory (Christine gee, Assistant to Secretary Social Program)
43. UNFPA (PNG Office)
44. United Church Health Services : Aid Post Services, Papuan Gulf region, (Mr Auma Bori, Aid post Supervisor, Orokololo health centre)
45. United Nations Agencies in PNG (UNDP, UNICEF, UNFPA, WHO, UNIFEM)

46. Vince, John, Member PNG Paediatrics Society and head of Postgraduate Studies, UPNG Faculty of Health Sciences
47. Wandu, Francis (Provincial Paediatrician and acting director of medical services, Kundiawa hospital)
48. Williams, Desley (Midwife trainer)

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8.4 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)