Maternal Deaths in the Maldives: 2009-2011

Short Report

Maternal and Perinatal Morbidity and Mortality Review Committee

1. Introduction

The Maldives Government has committed itself to achieve the Millennium Development Goals (MDG) by 2015. One of the key goals (MDG 5a) is to reduce maternal deaths by three quarters and (MDG 5b) to provide universal access to reproductive health by 2015. The Maldives have had a formal maternal death review system since 1990. In 2009 the maternal death review process was assessed and a new committee the Maternal and Perinatal Morbidity and Mortality Review Committee (MPMMRC) was formed with a few additional functions. The main aim of the MPMMRC is to help the Ministry of Health to achieve MDG 5 and once achieved to maintain progress in reducing preventable maternal deaths. The MPMMRC terms of reference are to collect and analyse all the factors surrounding maternal deaths and from this analysis to make recommendations to the Ministry of Health which if implemented would result in the reduction of preventable maternal deaths.

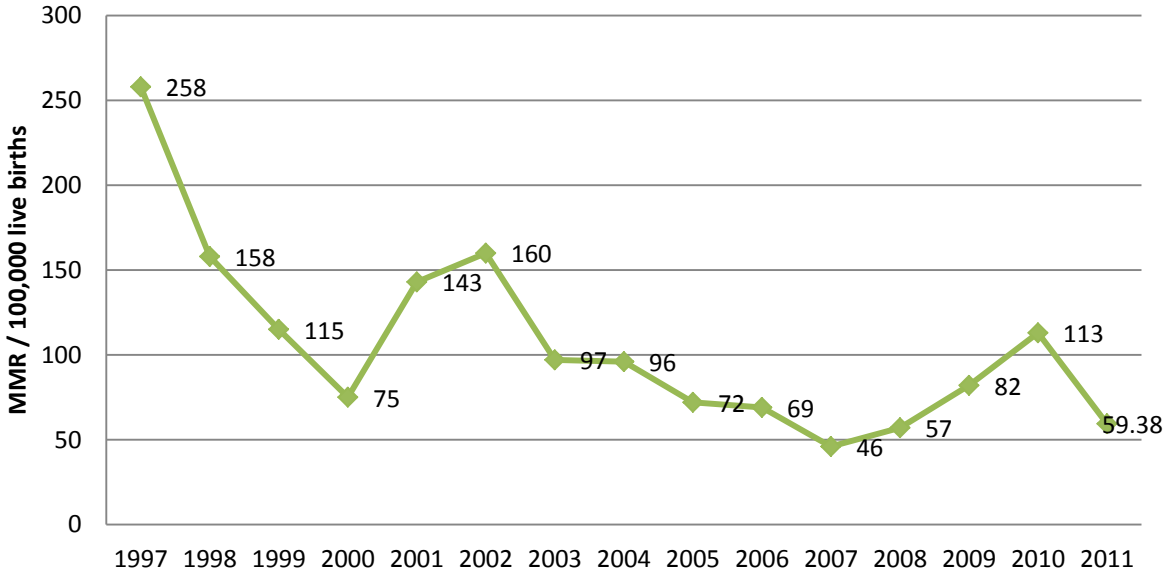
The MPMMRC expanded remit includes evaluating maternal and child health programs, services, its status and lessons learned in relation to maternal and perinatal deaths. Maternal death review not only helps to count numbers, it also looks beyond the numbers to learn the causes and avoidable factors behind each death, leading to measures to improve quality of care. These reviews produce insights on the causes and guide actions to further improve services and avoid risks. These actions can be started at the level of individual, family and community.

The main aim of this brochure is to widely disseminate key information on maternal deaths of the past 3 years (2009 – 2012) to the policy makers, clinical staff and other relevant stakeholders. A glimpse on the function of the maternal death review process is included in addition to some of the Key health indicators.

2. Findings

There were 6, 8 and 4 maternal deaths giving a Maternal Mortality Ratio (MMR) of 82, 113 and 59/100000 live births for the years 2009, 2010 and 2011 respectively (Vital Registration System, MOH -2011). The wide variation in MMR is due to the small numbers of maternal deaths. The MMR in 1997 was 258/100000 live births sSee Table 1). This indicates that MDG 5a has been achieved, but that considerable work remains to ensure that the lower levels of maternal mortality are maintained.

Table 1. Maternal Mortality Ratio (MMR) from 1997 – 2011*(Vital Registration System, MoH – 2011)*



Most women attend antenatal care (over 95% at least once and 85% having four or more visits). Most women (95%) are delivered by a skilled birth attendant (Table 2). However the unmet need for family planning is 28% (MDHS 2009). MDG 5b is also close to being met, but more attention will need to be focused on the family planning services.

Table 2. Key Indicators of Maternal and Newborn care

Indicators	Status	Year
At least one ANC visit during pregnancy	>95%	2009
Four or more ANC visits during pregnancy	85%	2009
Skilled Birth Attendance Rate	95%	2009
Contraceptive Prevalence Rate (All methods including traditional methods)	35%	2004
Unmet Need for Family Planning	28.10%	2009

MDHS - 2009

The common causes of maternal death were Obstetric Haemorrhage (28%), complications of hypertension in pregnancy (17%), embolus (17%) and sepsis (11%). The Table 3 below summarises the maternal deaths.

Table 3. Maternal Deaths 2009-2011

AGE	GPAL	Underlying Cause	Immediate cause	Stage of Pregnancy at death
2009				
41yrs	G9P7A1	Malignant Hypertension	Intracranial haemorrhage	Post partum
26yrs	G1P0	Retained placenta	Hypovolaemic shock, Acute cardio-pulmonary collapse	Post partum
38yrs	G3P2	Puerperal sepsis	Septic shock	Post partum
24yrs	G4P3	Acute collapse (cause unknown)	Acute cardio-pulmonary collapse	Post partum
23yrs	P0G1	Eclampsia	Hypovolaemic shock, DIC, cardiac arrest	Post partum
30yrs	G3P2	Amniotic fluid embolus	Acute cardio-pulmonary collapse	Post partum
2010				
18yrs	G2P1	Septic abortion	ARDS with septicemia	undelivered
33yrs	G4P3	Amniotic fluid embolism	Hypovolemic shock	postnatal
38yrs	G4P4L3	Abruptio placentae	Hypovolemic shock with DIC	undelivered
36yrs	P4	Malignant hypertension	Cerebral Hemorrhage	postnatal
27yrs	G2P1	Rupture uterus post abortion	Hypovolemic shock with DIC	undelivered
28yrs	G2P1	Septic abortion	Septicemic shock	undelivered
29yrs	G3P1A1	Myocardial infarct	Cardiogenic shock	Immediate post partum
27yrs	G4P3	Asthma	Respiratory failure	undelivered
2011				
36yrs	G4P3	Postpartum Haemorrhage	Hypovolaemic shock	Postnatal
21yrs	G1	Lower respiratory tract infection	Respiratory failure	Postnatal
38yrs	G2P1	Rupture uterus	Hypovolaemic shock	Postnatal
27yrs	G1	Uncertain	Respiratory failure	Antenatal

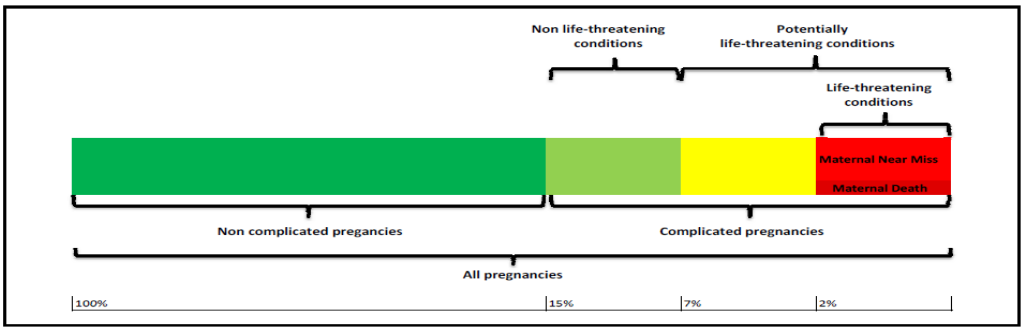
The analysis of a small number of maternal deaths might draw attention away for the major problems if the causes of those deaths do not reflect the problems in the health service. Great numbers of deaths make this problem very unlikely. Collecting and analysing maternal near miss data strengthens the maternal death review process in areas where maternal deaths are rare such as the Maldives. The WHO defines a maternal near miss as a woman who nearly died but survived a complication that occurred in pregnancy, childbirth or within 42 days of pregnancy. An analysis of maternal near misses in IGMH in 2010 revealed a similar distribution of causes of maternal near misses as deaths with obstetric haemorrhage, complications of hypertension and sepsis being the most common conditions (Table 4). The data on the maternal near misses in a tertiary hospital is important as it underlines the major causes of morbidity and mortality in pregnant women in the Maldives.

Table 4. Severe morbidity and mortality for IGMH (2010)

Condition	Potential Life Threatening Conditions	Life Threatening Conditions	Maternal Near Miss	Maternal Deaths	Mortality Index (%)	Severe Maternal Outcome Ratio (SMOR)
Haemorrhage	12	5	4	1	20.0	
Eclampsia	7	4	4	0	0.0	
Sepsis	3	3	1	2	66.7	
Other	6	6	4	2	33.3	
Total	28	18	13	5	27.8	6.3/1000 live births

The "other" causes were asthma, cholecystitis, myocardial infarct, ectopic pregnancy, post caesarean section pulmonary oedema, unknown cause requiring ventilation.

Figure 1. Illustration of maternal near miss terms



The most common health system failures for maternal deaths and maternal near misses were lack of postnatal care or attendance for care, inadequate communication between centres resulting in delayed referrals and lack of knowledge and skills in obstetric emergencies.

3. Recommendations

The committee has made three key recommendations that affect the community, health care policy makers and managers and health care providers. The three key recommendations are:

1. Ensure every pregnant woman has a birth plan
2. Ensure the knowledge and skills of health care providers are improved in recognising and managing obstetric emergencies and in using the partogram
3. Ensure better communication and referral through the use of the SBAR form

3.1 The Birth Plan

Ensuring every pregnant woman develops a birth plan with her health care provider will reduce the risk of complications because:

- Arrangements can be made for the woman to be delivered at the appropriate facility, for example in a hospital providing a caesarean section service if she has had a previous caesarean section
- Arrangements can be made for a woman with medical complications to see other specialists and the woman can be managed by a multidisciplinary team
- Plans can be made in the event of an emergency occurring, for example plan can be made to acquire blood in the event she requires a blood transfusion, or if she requires immediate transport to another health facility etc.
- Arrangements can be made for the postnatal care; where it will occur and how will the health system be notified for the women and her baby to be seen by the health care providers

Some of the women who died might have survived if a proper birth plan was developed when pregnant as unnecessary delays could have been avoided.

A 26 years old woman delivered at home attended by an untrained person. It was her first pregnancy. She had attended antenatal care and the course was normal. However, no plan was made on where she was to deliver and how she was to get to that institution. She had a normal birth, but unfortunately developed severe vaginal bleeding due to a retained placenta. She was rushed to hospital but arrived in severe shock and all resuscitation measures failed to resuscitate her and she died. The death was potentially preventable had she gone to an appropriately equipped maternity unit and her labour had been monitored by a skilled birth attendant.

3.2 Improving knowledge and skills of the health care providers in emergency obstetric care and the use of the partogram

Ensuring improved knowledge and skills of health care providers in emergency obstetric care and use of the partogram could have prevented the deaths in women who died resulting from obstetric haemorrhage and complications of hypertension.

This can be achieved by

- Ensuring all health care providers undergo emergency obstetric care training for example by completing the ALSO course
- Ensuring that fire-drills in emergency obstetric conditions are carried out in all facilities with a maternity unit. Emergencies are rare and if health care providers are not practiced in their management, confusion, panic and poor care can result.
- Ensuring that basic emergency care is provided in all health posts and clinics and comprehensive care in all district hospitals and higher levels of care.
- Specific training is conducted on the use and interpretation of the partogram

- Ensure that every woman in labour is monitored by using a partogram
- Ensuring the standard protocols are available and used for the common emergencies such as eclampsia, postpartum haemorrhage, septic shock.

Emergency obstetric care (EmOC) refers to the functions necessary to save lives of pregnant women and their babies. They are called Signal Functions and these are:

Basic emergency obstetric care(to be provided a health post and clinics providing maternity services)

- Administer parenteral antibiotics
- Administer parenteral oxytocic drugs
- Administer parenteral anticonvulsants for pre-eclampsia and eclampsia
- Perform manual removal of placenta
- Perform removal of retained products
- Perform assisted vaginal delivery
- Bag and mask ventilate a neonate

Comprehensive emergency obstetric care (to be provided at district hospitals and all levels of health care above

- The above 7 signal functions and
- Perform caesarean section
- Perform blood transfusions

3.3 The SBAR form

The SBAR form is a mechanism that if used will ensure that communication between health care providers is structured and comprehensive. The form follows a standard procedure of transferring information by firstly giving the current situation of the patient (her blood pressure pulse, temperature etc.); the background to the present situation; the assessment of the person giving the information; and the recommendation of the person giving the information, i.e. come at once to the labour ward, or this patient needs transferring to another hospital. The person giving and the person receiving the information is documented as is the time. This document is then kept as a record.

Use of this form would ensure

- Comprehensive, relevant information is given
- Clear instructions are given and recorded.
- A record is kept of the communication

Thus delays and poor communication between health care providers and institutions can be limited.

A woman 38 years, old who is a mother of 3 children arrived to hospital at 28 weeks of her 4th pregnancy with abdominal pain in a status of shock. Immediate measures revived the patient. On request of the patient the patient was allowed to go home for a shower where she collapsed. She was transferred to atoll hospital and diagnosed as abruption placenta. Facilities were not adequate for surgical intervention and she was planned to transfer to a regional hospital where she died on the way.

In this case a systematic approach to the history and examination of the patient as given on the SBAR chart would probably identified that the woman was not fit to go home and should have been transferred immediately.

4. Implementation of Recommendations

Recommendations are not useful unless implemented. Below are suggestions by the MPMMRC of ways in which the 3 key recommendations could be implemented. Everyone involved in maternal and child care will need to be involved (including the community) to be successful.

Recommendation	Level of intervention	Suggested task	Facilitator
1. The Birth Plan	Policy makers	Support and promote the introduction of birth plans for all pregnant women	MPMMRC, Reproductive Health Unit, Policy Planning Division/MoH
	Health care managers	Develop the structure of the birth plan ensuring it includes: • Planned place of birth • Plan for transport to get to the birth place • Plan for acquiring blood in case it is needed • Plan for postnatal care Provide resources to be able to deliver Birth Plan to all pregnant women Ensure health care providers are trained in the development and implementation of Birth Plans with pregnant women Develop multidisciplinary teams to manage high risk pregnancies	Reproductive health Unit and health facilities Quality assurance and improvement division/MoH
	Health promotion managers	Develop a health promotion strategy to: • Explain the concept of the birth plan and why it is necessary • Explain why each point is necessary • Encourage all pregnant women to develop a birth plan with her health care provider Implement strategy	Reproductive Health Unit and health facilities
	Community	Provide methods (e.g. TV, radio) to spread the messages concerning Birth Plans	Reproductive Health Unit/Centre for Community Health and Disease Control
	Health care providers	Attend training in how to develop and implement a Birth Plan with a pregnant woman Ensure multidisciplinary teams for managing high risk pregnancies are established and function	Reproductive Health Unit/Centre for Community Health and Disease Control Quality assurance and improvement division/MoH
	Monitoring and evaluation	Indicator: Percent women delivering with a birth plan	

The following is suggested for the private sector:

Private centre providing ANC & PNC services should have information displayed (specific poster) for the clients receiving the services on adherence to ANC care, investigation and birth plan by 38 weeks

Recommendation	Level of intervention	Suggested task	Facilitator
2. Emergency obstetric and neonatal care and the partogam	Policy makers	Establish a policy such that: • Every site conducting births uses the partogram to monitor every pregnant woman's labour • Every Health Post and Clinic conducting births should provide Basic Emergency Obstetric Care • Every district hospital and higher level of care should provide Comprehensive emergency obstetric care • Emergency obstetric simulation training exercises (fire-drills) are conducted in all institution managing pregnant women and their babies	MPMMRC, Reproductive Health Unit, Policy Planning Division/MoH
	Health care managers	Ensure that the **resources** are available for: • Every site conducting births has partograms to monitor every pregnant woman's labour • Every Health Post and Clinic conducting births can provide Basic Emergency Obstetric Care • Every district hospital and higher level of care can provide Comprehensive emergency obstetric care • For conducting emergency obstetric training exercises Ensure that the health care providers are **trained** in: • The use of the partogram • Emergency obstetric and neonatal care, e.g. ALSO course • Participating in emergency obstetric simulation training exercises (fire-drills)	Reproductive health Unit and health facilities Quality assurance and improvement division/MoH
	Health care providers	Ensure they are trained in: • The use of the partogram • Emergency obstetric care • Participate in emergency obstetric training exercises (fire-dirlls)	Reproductive Health Unit/Centre for Community Health and Disease Control Quality assurance and improvement division/MoH
	Monitoring and Evaluation	Indicators: Percent women monitored in labour with a partogram Percent Health posts and clinics performing basic emergency and neonatal care functions Percent District Hospitals and above performing comprehensive emergency and neonatal care Number doctors and nurses trained in emergency obstetric care Number of Emergency Obstetric Simulation Training exercise conducted per institution per month	

Suggested recommendations for the private sector providing MCH services also should be included.

Recommendation	Level of intervention	Suggested task	Facilitator
3. The SBAR form	Policy makers	Establish a policy such that all communications concerning the emergency referral of pregnant women and their babies use the SBAR form	MPMMRC, Reproductive Health Unit, Policy Planning Division/MoH
	Health care managers	Ensure the resources are available to provide the SBAR forms to all health care institutions conducting births Ensure the health care providers are trained in the use of the SBAR form	Reproductive health Unit and health facilities Quality assurance and improvement division/MoH
	Health care providers	Ensure they are trained in the use of the SBAR form	Reproductive Health Unit/Centre for Community Health and Disease Control Quality assurance and improvement division/MoH
	'Aasandha' (Health insurance scheme)	To mandate the Health Insurance Agency to utilize and use SBAR form to support for obstetric emergency referral	Health Facilities National Social Protection Agency Quality assurance and improvement division/MoH
	Monitoring and evaluation	Indicator: Percent pregnant women and their babies are transferred using the SBAR form	

5. Requested tasks

The MPMMRC requests the following actions from the various levels of policy makers, health care managers and providers and the community.

5.1 Policy makers

- Support and promote the introduction of birth plans for all pregnant women
- Establish a policy such that:
    - Every site conducting births uses the partogram to monitor every pregnant woman's labour
    - Every Health Post and Clinic conducting births should provide Basic Emergency Obstetric Care
    - Every district hospital and higher level of care should provide Comprehensive emergency obstetric care
    - Emergency obstetric simulation training exercises (fire-drills) are conducted in all institution managing pregnant women and their babies
    - All communications concerning the emergency referral of pregnant women and their babies use the SBAR form

5.2 Health care managers

- Develop the structure of the birth plan ensuring it includes:
    - Planned place of birth
    - Plan for transport to get to the birth place
    - Plan for acquiring blood in case it is needed
    - Plan for postnatal care
- Develop multidisciplinary teams to manage high risk pregnancies
- Ensure that the **resources** are available for:
    - to deliver Birth Plan to all pregnant women

    - Every site conducting births has partograms to monitor every pregnant woman's labour
    - Every Health Post and Clinic conducting births can provide Basic Emergency Obstetric Care
    - Every district hospital and higher level of care can provide Comprehensive emergency obstetric care
    - For conducting emergency obstetric training exercises
    - The SBAR forms to be available in all health care institutions conducting births
- Ensure that the health care providers are **trained** in:
    - The development and implementation of Birth Plans with pregnant women
    - The use of the partogram
    - Emergency obstetric and neonatal care, e.g. ALSO course
    - Participating in emergency obstetric simulation training exercises (fire-drills)
    - The use of the SBAR form

5.3 Health Care Providers

- Ensure multidisciplinary teams for managing high risk pregnancies are established and function
- Ensure they are trained in:
    - Developing and implementing a Birth Plan with a pregnant woman
    - The use of the partogram
    - Emergency obstetric care
    - Participate in emergency obstetric training exercises (fire-drills)
    - Ensure they are trained in the use of the SBAR form

5.4 Health promotion managers

- Develop a health promotion strategy to:
    - Explain the concept of the birth plan and why it is necessary
    - Explain why each point is necessary
    - Encourage all pregnant women to develop a birth plan with her health care provider
- Implement strategy

5.5 Community

- Provide methods (e.g. TV, radio) to spread the messages concerning Birth Plans

5.6 Monitoring and Evaluation

Indicators

- Percent women delivering with a birth plan
- Percent women monitored in labour with a partogram
- Percent Health posts and clinics performing basic emergency and neonatal care functions
- Percent District Hospitals and above performing comprehensive emergency and neonatal care
- Number doctors and nurses trained in emergency obstetric care
- Number of Emergency Obstetric Simulation Training exercise conducted per institution per month
- Percent pregnant women and their babies are transferred using the SBAR form

6. Conclusion

The Maldives is right on track to achieve both aspects of MDG 5, however, to ensure this happens and is maintained the MPMMRC feels it essential that the above recommendations are implemented. No woman should die unnecessarily; implementing these recommendations will go a long way to ensuring this does not happen in the Maldives.

Appendix 1

Members of the MPMMRC

Dr. Mohamed Aseel Jaleel/Obstetrician and Gynaecologist – Chairperson

Dr. Jabeen Ali Shareef / Obstetrician and Gynaecologist – Co –Chairperson

Dr. Niyasha Ibrahim /paediatrician

Ms Hafsa Ali / Nurse Midwife

Ms Fathmath Fazeela / Nurse Midwife

Ms Nazeera Najeeb /Public health Program Coordinator