## 1. Foreword: Minister of Health

It is a pleasure for me to write the foreword for this important document, which is the third report on the confidential enquiries into maternal deaths for our country. The well being of mothers has long been acknowledged to be a building block of public health. Thus attention to the levels of maternal mortality has been on the agenda of global health organisations for the last 20-30 years and has resulted in a decline in maternal death rates in high and middle-income countries mainly due to the introduction of improved technologies and new drugs. Change however, has and is occurring at different rates and times in different countries. This is mainly due to the fact that the recognition of enabling conditions such as civil society's awareness that women's social, economic and political emancipation is a prerequisite for social development; and the involvement of the health professionals in promoting women's empowerment is important in reducing maternal mortality. Thus all countries have a challenge in addressing poverty, and improving maternity services in order to reduce maternal mortality.

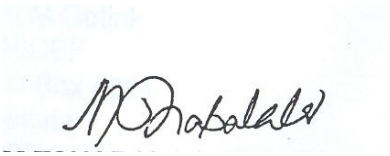
The National Department of Health's role in setting up a Confidential Enquiry into Maternal Mortality is pivotal, not only in providing information on the major causes of maternal deaths and the factors related to the deaths, but in disseminating the information to society at large so that they are aware of it and support the various initiatives to improve maternal health. The recommendations arising from confidential enquiries into maternal deaths have resulted in an action plan to be implemented. The provision of clinical management guidelines to address the major causes of maternal deaths and the changes in health policy where relevant will benefit all communities. Provinces are required to ensure that the recommendations and the action plan are implemented in accordance to the DOH policies, guidelines and protocols. The effective monitoring of this must be conducted and reviewed quarterly and annually.

The establishment of confidential enquiries and the provision of accessible and free health services for pregnant women and children must also be supported by the empowerment of women, the improved provision of essential services and the improvement of the socio-economic environment. The health educational curricula must ensure that the skills and competences of all professional health workers are improved so that both the prevention and the management of obstetric complications

are of a sufficiently high quality to minimize morbidity and mortality. We need to work together to achieve this as the report identifies the competence of the health workers and the use of clinical guidelines to be important in preventing maternal deaths.

This report must be used as a tool that will improve the care of pregnant women and reduce maternal deaths in our country. As this is the only confidential enquiry into maternal deaths to our knowledge in Africa, we have a duty to demonstrate its value in ensuring that pregnancy and its outcome are safe events in a woman's life.

Finally, I would like to thank all health professionals in the country for participating in the process of maternal death notification. I would also like to show my gratitude to the NCCEMD for producing the latest Saving Mothers Report. The dissemination of the report and the implementation of the recommendations arising from the report are essential as this action will reduce maternal deaths and improve the health of our nation.



**DR M TSHABALALA-MSIMANG MP**
**MINISTER: HEALTH**
**DATE: 28th June 2006**

## Contents



## List of abbreviations

| Abbreviation | Meaning |
|---|---|
| **Provinces** | |
| EC | Eastern Cape |
| FS | Free State |
| Gau | Gauteng |
| KZN | KwaZulu-Natal |
| Lim | Limpopo |
| Mpu | Mpumalanga |
| NW | North West |
| NC | Northern Cape |
| WC | Western Cape |
| **Causes of maternal deaths** | |
| AA | Anaesthetic related death (Anaesthetic accidents) |
| AB | Abortion |
| AC | Acute collapse and embolism |
| AIDS | Acquired Immune Deficiency Syndrome |
| APH | Antepartum haemorrhage |
| EP | Ectopic pregnancy |
| HT | Hypertensive conditions in pregnancy |
| MD | Pre-existing medical conditions (Medical disease) |
| NPRI | Non-pregnancy related infections |
| PPH | Postpartum haemorrhage |
| PRS | Pregnancy related sepsis |
| TB | Tuberculosis |
| Unk | Unknown |
| UTI | Urinary tract infection |
| **Other** | |
| CHC | Community Health Centre |
| NCCEMD | National Committee on Confidential Enquiries into Maternal Deaths |
| TOP | Termination of pregnancy |

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## 2. Introduction

Confidential enquiries into maternal deaths (CEMD) can be defined as "*a systematic multidisciplinary anonymous investigation of all or a representative sample of maternal deaths occurring at an area, region (state) or national level which identifies the numbers, causes and avoidable or remediable factors associated with them. Through the lessons learnt from each woman's death, and through aggregating the data, confidential enquiries provide evidence of where the main problems in overcoming maternal mortality lie and an analysis of what can be done in practical terms, and highlight the key areas requiring recommendations for health sector and community action as well as guidelines for improving clinical outcomes."*[1]

The Confidential Enquiries system of recording and analysing maternal deaths has been in operation in South Africa since 1 October 1997. The first comprehensive report into maternal deaths was published in October 1999, and dealt in detail with maternal deaths occurring during 1998[2]. The second comprehensive report covered the triennium 1999-2001[3]. Both describe the trends in maternal deaths, the pattern of disease causing maternal deaths, the avoidable factors, missed opportunities and substandard care related to these deaths, and made recommendations concerning ways of decreasing the number of maternal deaths. This is the third comprehensive report in the series and deals with the triennium 2002-2004.

The definitions used in this report are the same as those used in all the "Saving Mothers" reports. Data used for this report consist of the maternal deaths that occurred from 1st January 2002 to 31st December 2004 and were reported to the National Committee on Confidential Enquiries into Maternal Deaths (NCCEMD) secretariat before 31st July 2005. This cut-off date was selected to enable the report to be written in 2005 and be published early in 2006.

## 3. Demographic data

During 2002-2004, a total of 3406 maternal deaths were reported. Table 1.1 illustrates the number of cases reported per province from 2002-2004. As expected the most populous provinces have the most maternal deaths.

***Table 1.1 Maternal Deaths recorded per province 2002-2004***

| Province | N | % |
|---|---|---|
| Eastern Cape | 370 | 10.9 |
| Free State | 432 | 12.7 |
| Gauteng | 669 | 19.6 |
| KwaZulu-Natal | 722 | 21.2 |
| Limpopo | 281 | 8.3 |
| Mpumalanga | 293 | 8.6 |
| North West | 326 | 9.6 |
| Northern Cape | 106 | 3.1 |
| Western Cape | 207 | 6.1 |
| **Total** | **3406** | **100.0** |

Note: includes 110 coincidental deaths

Figure 1.1 illustrates the number of maternal deaths occurring at the various levels of care. The deaths occurring outside health facilities, reflected as home deaths in figure 1.1, are only those that were reported to health institutions or in some cases by state mortuaries. The CEMD system should capture all the maternal deaths occurring in the country. It is not clear whether all home deaths and those occurring outside health facilities are reported to the NCCEMD. Investigations are to be instituted to establish whether all these deaths are reported.

There is an increase in deaths at all level 1 and 2 institutions.

Figure 1.1. Distribution of deaths per level of care

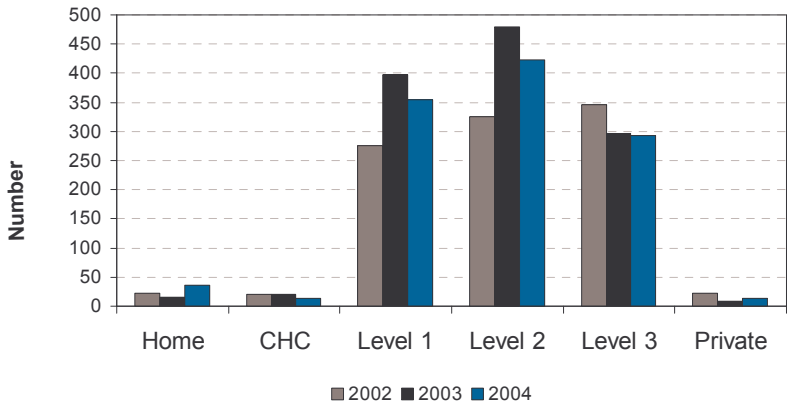


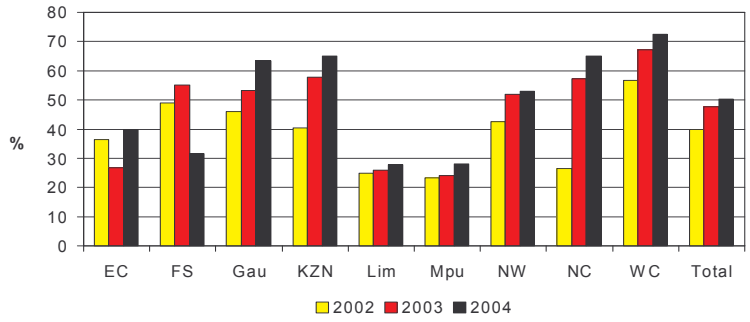
Table 1.2 shows the HIV status of women who died and Figure 1.2 shows the percentage of HIV testing of maternal deaths per province. There has been a steady increase in testing, probably reflecting the expansion of the Prevention of Mother to Child Transmission Programme. Although the testing was variable, the total testing shows an improvement. This is likely to improve with further extension of the implementation of the Comprehensive Care, Management and Treatments Plan (CCMTP) for HIV and AIDS.

***Table 1.2. HIV status of maternal deaths 2002-2004***

| | 2002-2004 | |
|---|---|---|
| **HIV Status** | **N** | **%** |
| **Positive** | 1226 | 36.0 |
| **Negative** | 351 | 10.3 |
| **Unknown** | 1829 | 53.7 |

The percentage of HIV positive women amongst those women who died is similar to the figure from the antenatal sentinel HIV survey in the country.

Figure 1.2. Percent HIV testing of maternal deaths per Province: 2002-2004




In this report, non-attendance for antenatal care carried an approximately four times increased risk of maternal death compared with the general pregnant population[4]. Health messages promoting early and regular attendance at antenatal care should continue and be strengthened. Antenatal care must be able to identify risk factors and manage them accordingly to prevent maternal deaths. Table 1.3 shows the antenatal usage in the conditions where antenatal care can potentially make a difference. The majority of women attended antenatal care, giving the health care system a good opportunity to intervene and prevent the death.

*Table 1.3. Antenatal care usage in selected maternal deaths*

| Condition | Attended | Not attend | % Attended |
|---|---|---|---|
| **Pre-existing medical disease:** | 121 | 40 | 75.2 |
| **Cardiac disease** | 55 | 22 | 71.4 |
| **Non pregnancy related infections:** | 721 | 333 | 68.4 |
| **AIDS** | 410 | 163 | 71.6 |
| **Hypertension** | 420 | 116 | 78.4 |

**Note:** Cardiac disease is a subset of pre-existing medical disease and AIDS is a subset of non-pregnancy related infections.
Maternal deaths classified as being due to AIDS had to fill the following criteria; a positive HIV test; **and either** a $CD_4$+ count of less than 200/$mm^3$; **or** an AIDS defining condition such as tuberculosis, Kaposi cell sarcoma, pneumocyctis carinii pneumonia or cryptoccoccal meningitis.

## 4. Primary obstetric causes of death

Table 1.4 gives the primary obstetric causes of death. The top five conditions have remained the same as in previous reports[2,3], namely non-pregnancy related infections (37.8%), complications of hypertension (19.1%), obstetric haemorrhage (antepartum and postpartum haemorrhage 13.4%), pregnancy-related sepsis (8.3%) and pre-existing maternal disease (5.6%).

*Table 1.4. Primary obstetric causes of death 2002-2004*

| Primary Obstetric Cause | 2002-2004 | | |
|---|---|---|---|
| | N | *% Group* | % All deaths |
| **Direct** | | | |
| Hypertension | 628 | *35.5* | 19.1 |
| Postpartum haemorrhage | 313 | *17.7* | 9.5 |
| Antepartum haemorrhage | 129 | *7.3* | 3.9 |
| Ectopic pregnancy | 47 | *2.7* | 1.4 |
| Abortion | 114 | *6.5* | 3.5 |
| Pregnancy Related Sepsis | 274 | *15.5* | 8.3 |
| Anaesthetic related | 91 | *5.1* | 2.8 |
| Embolism | 64 | *3.6* | 1.9 |
| Acute collapse | 107 | *6.1* | 3.2 |
| **Total** | **1767** | ***100.0*** | **53.6** |
| **Indirect** | | | |
| Non-pregnancy related Infections | 1246 | *87.1* | 37.8 |
| Pre-existing Medical Disease | 184 | *12.9* | 5.6 |
| **Total** | **1430** | ***100.0*** | **43.4** |
| **Unknown** | **99** | | **3.0** |
| **Total** | **3296** | | **100.0** |

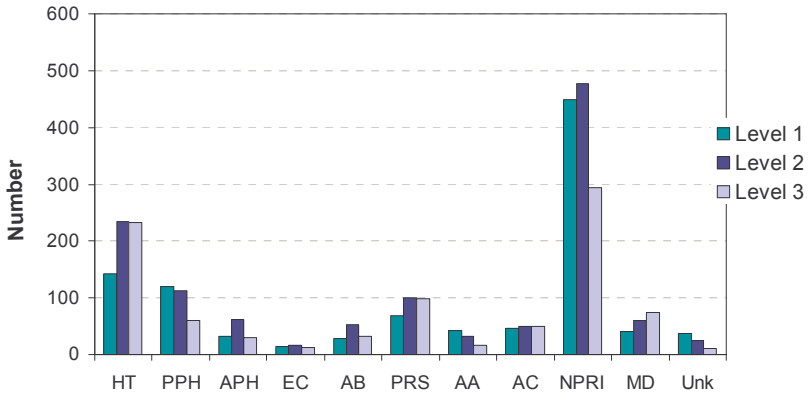
Table 1.5 lists the sub-categories of non-pregnancy related infections and pre-existing maternal disease.

***Table 1.5. Indirect causes of death 2002-2004***

| Indirect causes of death | Total n | % *Sub-category* | % All deaths |
|---|---|---|---|
| **Non-pregnancy related infections** | | | |
| Pneumonia | 316 | *25.4* | 9.6 |
| AIDS | 662 | *53.1* | 20.1 |
| TB | 104 | *8.3* | 3.2 |
| Endocarditis | 1 | *0.1* | 0.03 |
| UTI | 6 | *0.5* | 0.2 |
| Malaria | 16 | *1.3* | 0.5 |
| Meningitis | 79 | *6.3* | 2.4 |
| Other | 62 | *5.0* | 1.8 |
| **Total** | **1246** | ***100.0*** | **37.8** |
| **Pre-existing medical disease** | | | |
| Cardiac disease | 74 | *40.2* | 2.2 |
| Endocrine | 14 | *7.6* | 0.4 |
| Gastrointestinal tract | 21 | *11.4* | 0.6 |
| Central Nervous System | 22 | *12.0* | 0.7 |
| Respiratory | 14 | *7.6* | 0.4 |
| Haematological | 17 | *9.2* | 0.5 |
| Genito-urinary | 3 | *1.6* | 0.1 |
| Auto-immune | 4 | *2.2* | 0.1 |
| Skeletal | 2 | *1.1* | 0.1 |
| Other | 13 | *7.1* | 0.4 |
| **Total** | **184** | ***100.0*** | **5.6** |
| **Grande Total** | **1430** | | **43.4** |

Figure 1.3 illustrates the numbers of deaths and their causes at 1, 2 and 3 levels of care. Non-pregnancy related infections were the most common cause at all levels of care. Postpartum haemorrhage and anaesthetic related deaths occurred most commonly at level 1 hospitals whereas complications due to hypertension and pregnancy related sepsis occurred at the same frequency at level 2 and 3 hospitals. Only in maternal deaths due to pre-existing medical disease did level 3 hospitals have more deaths than level 2 hospitals. Referral protocols should ensure that complicated cases are referred timeously to level 3 facilities. Ideally therefore, most deaths should occur in level 3 institutions. The apparent excess of deaths in level 1 and 2 institutions is a cause for concern, as risk factors should be identified in pregnant women that require referral to high level. .

Figure 1.3. Primary obstetric cause of reported maternal deaths:
Numbers at Level 1,2 and 3 Hospitals (2002-2004)




## 5. Avoidable factors, missed opportunities and substandard care

Tables 1.6-1.8 give a summary of the avoidable factors, missed opportunities and substandard care for 2002-2004.

***Table 1.6. Avoidable factors, missed opportunities and substandard care for all cases***

| Category | % of avoidable factors in assessable* cases 2002-2004 |
|---|---|
| **Patient orientated** | 43.9 |
| **Administrative factors** | 32.1 |
| **Health worker related emergency management problems** | |
| Primary level# | 53.8 |
| Secondary level# | 48.3 |
| Tertiary level# | 36.5 |
| Resuscitation | 22.3 |

* Not all cases could be assessed

# Some women first attended primary or secondary levels or care before being referred to higher levels. The care of the woman at each level of care was assessed. Hence of the women that died and were seen at primary level of care and could be assessed, 53.8% had avoidable factors related to the health care workers.

***Table 1.7. Avoidable factors, missed opportunities and substandard care with respect to patient orientated problems for all cases***

| Major Problems | % of avoidable factors in assessable* cases 2002-2004 (n=2836) |
|---|---|
| No antenatal care | 18.1 |
| Infrequent antenatal care | 5.9 |
| Delay in seeking medical help | 26.8 |
| Unsafe abortion# | 21.1 |
| Other | 6.0 |

* Not all cases could be assessed. Of the 3296 maternal deaths 2836 could be assessed for patient orientated factors.
#- Denominator is women who died due to abortions (n=114), not all maternal deaths

***Table 1.8. Avoidable factors, missed opportunities and substandard care with respect to administrative problems for all cases***

| Major Problems | % of avoidable factors in assessable* cases 2002-2004 (n=3079) |
|---|---|
| Transport problem home to institution | 3.0 |
| Transport problem between institutions# | 9.7 |
| Barriers to entry | 0.5 |
| Lack of accessibility | 1.0 |
| Lack of specific health care facilities$ | 11.2 |
| Lack of blood for transfusion## | 9.2 |
| Lack of appropriately trained staff | 12.8 |
| Communication problems | 3.4 |
| Other | 5.0 |

* Not all cases could be assessed. Of the 3296 maternal deaths 3079 could be assessed for administrative problems.
# - Denominator is the number of cases that were referred between institutions (n=1440).
## - Denominator was the number of cases that required urgent blood transfusions namely ectopic pregnancies, abortions due to trauma, ante and postpartum haemorrhage (n=498).
$ - Lack of specific health care facilities – Insufficient intensive care beds and/or emergency laboratory services

Table 1.9 gives the health worker orientated avoidable factors per level of care. The rankings of the avoidable factors is the same in all levels with level 1 institutions being consistently higher than level 2 institutions which are again consistently higher than level 3 institutions.

***Table 1.9. Health worker orientated problems per level of care***

| 2002-2004 | Level 1 | | Level 2 | | Level 3 | |
|---|---|---|---|---|---|---|
| **Assessable* deaths (n)** | **1709** | **%** | **1427** | **%** | **929** | **%** |
| Initial assessment | 234 | 13.7 | 184 | 12.9 | 73 | 7.9 |
| Problem with recognition / diagnosis | 371 | 21.7 | 286 | 20.0 | 129 | 13.9 |
| Delay in referring patient | 282 | 16.5 | 88 | 6.2 | 12 | 1.3 |
| Managed at inappropriate level | 214 | 12.5 | 66 | 4.6 | - | - |
| Incorrect management (Incorrect diagnosis) | 116 | 6.8 | 92 | 6.4 | 37 | 4.0 |
| Substandard management (Correct diagnosis) | 390 | 22.8 | 352 | 24.7 | 205 | 22.1 |
| Not monitored / Infrequently monitored | 132 | 7.7 | 117 | 8.2 | 71 | 7.6 |
| Prolonged abnormal monitoring without action | 112 | 6.6 | 86 | 6.0 | 48 | 5.2 |

* Not all cases could be assessed.
**Note:** The percentages do not add up to 100% as a woman might have had more than one avoidable factor.

In the 2002-2004 triennium assessors were asked to classify each maternal death as to whether the death was clearly preventable within the health system, i.e. all preventable deaths *excluding* the patient orientated factors (Table 1.10).

***Table 1.10. Avoidable deaths per disease category***

| Primary Obstetric Cause | Total deaths | Number Avoidable* deaths | % Primary cause | % Avoidable deaths (n=1208) |
|---|---|---|---|---|
| **Direct** | **1767** | **1059** | **59.9** | **87.7** |
| Hypertension | 628 | 331 | 52.7 | 27.4 |
| Postpartum haemorrhage | 313 | 261 | 83.4 | 21.6 |
| Antepartum haemorrhage | 129 | 100 | 77.5 | 8.3 |
| Ectopic pregnancy | 47 | 30 | 63.8 | 2.5 |
| Abortion | 114 | 57 | 50.0 | 4.7 |
| Pregnancy Related Sepsis | 274 | 158 | 57.7 | 13.1 |
| Anaesthetic related | 91 | 82 | 90.1 | 6.8 |
| Embolism and acute collapse | 171 | 40 | 23.4 | 3.3 |
| **Indirect** | **1430** | **149** | **10.4** | **12.3** |
| Non Pregnancy Related Infections | 1246 | 113 | 9.1 | 9.4 |
| Pre-existing Maternal Disease | 184 | 36 | 19.6 | 3.0 |
| **Unknown** | **99** | | | 0.0 |
| **Total** | **3296** | **1208** | **36.7** | **100.0** |

* **Avoidable deaths** are those classified by the assessors as being clearly avoidable within the health system (i.e. patient orientated factors are excluded).
**% Primary cause** is the percentage of avoidable deaths that occurred in each primary cause category. For example assessors classified 331 of 628 women who died due to complications of hypertension in pregnancy as being avoidable, that is 52.7%.
**% Avoidable death** is the percentage of the deaths that were thought, by the assessors, to be avoidable of the total number of avoidable deaths. For example assessors thought 331 deaths due to hypertension were avoidable, that is 27.4% of all the avoidable deaths (n=1208).

This is clearly a subjective measure, but was aimed at getting a measure of the potential for improvement. The vast majority of deaths classified as anaesthetic related and postpartum haemorrhages were thought to be clearly avoidable, i.e. 90.1% and 83.4% respectively. Hypertension (27.4%), obstetric haemorrhage (antepartum and postpartum haemorrhage) (30.1%), puerperal sepsis (13.1%) and anaesthetic complications (6.8%) were responsible for three-quarters of avoidable deaths.

## 6. Discussion

This third comprehensive report on confidential enquiries into maternal deaths continues to demonstrate the value of such a system. This report has once again clearly identified the numbers, causes and avoidable or remediable factors associated with maternal deaths.

Non-pregnancy related infections were the most common primary cause of maternal death comprising 37.8% of all deaths. The most common sub-category in non-pregnancy related infections was AIDS and it was the single most common sub-category of deaths comprising 20.1% of all deaths. Few of the non-pregnancy related infections were thought to have been avoidable by the assessors, although deaths due to non-pregnancy related infections are potentially preventable. The introduction of the Comprehensive Care Management and Treatment (CCMT) Plan for HIV and AIDS only started at the end of this triennium and thus at the beginning of the triennium there were no standard guidelines against which to assess the woman's treatment. This explains this apparent anomaly in the proportion of deaths assigned by the assessor's as being avoidable. It is anticipated that extension and adherence to the CCMT Plan will result in a reduction of maternal deaths due to non-pregnancy related infections.

Complications of hypertension in pregnancy remain the most common **direct** cause of maternal deaths and second most common primary cause of death comprising 19.1% of all deaths. Deaths due to obstetric haemorrhage (antepartum and postpartum haemorrhage) and pregnancy related sepsis were the second and third most common direct causes of death. Hypertension, postpartum haemorrhage, antepartum haemorrhage, pregnancy related infections and anaesthetic related deaths were

responsible for three-quarters of the avoidable deaths in the opinion of the assessors. The ways to prevent these deaths are known. Specific protocols have been developed and these have been included in the recommendations given in the previous report. Despite this, the most common avoidable factor is still the lack of adherence to standard protocols. Renewed efforts must be put into ensuring that the protocols are known and used. The most effective method of outreach has been shown to be face-to-face teaching on-site by a respected clinician. This ideal is difficult to attain but some systematic sustainable method of outreach must be devised. All medical schools and nursing colleges and all post-graduate degrees that involve pregnant women should emphasize the ways to prevent and manage the major causes of maternal deaths in their curricula.

The relatively low number of deaths occurring in level 3 institutions compared with level 1 and 2 is a cause for concern. Are the level 1 and 2 hospitals not referring the patients because the problem is not recognised; is there no transport available or are the level 3 institutions not accepting the referrals'? Part of the answer is in lack of recognition of the problem as this is a common avoidable factor in both level 1 and 2 institutions. Delay in referral is a problem at level 1 institutions reflecting lack of recognition of the problem or lack of transport. Lack of transport between institutions was associated with 1 in 10 of maternal deaths where transport between institutions was required. There is no indication whether level 1 or 2 institutions tried to refer patients but the level 3 institutions were unable or unwilling to accept the patients, thus the magnitude of this problem is unknown at present.

Lack of attendance at antenatal clinics continues to be a common patient related avoidable factor and these women have a four times greater risk of dying than those that attend the antenatal clinic early in pregnancy. Health messages must continue to stress the need to attend antenatal clinic early in pregnancy. Attention will need to be paid to the quality of antenatal care so that opportunities to intervene timeously are not missed. Antenatal care is important in identifying risk factors and providing appropriate management that will prevent deaths.

Delay in seeking help was the most common patient related avoidable factor. The exact meaning of this is hard to establish as assessors can only use the data available

in the case notes. If lack of transport or other factors inhibiting the woman seeking help is not recorded in the notes, the assessor will not be able to document them. Independent research has indicated most of the delays are due to the inability to access transport especially at night leading to delay, rather than lack of knowledge or concern by the patient.

## 7. Conclusion

Every woman who becomes pregnant and continues with her pregnancy does so in the expectation of delivering a healthy child and the joy and satisfaction of watching the child grow. Surely, it is the duty of society and the health care profession to do the utmost to fulfil this expectation?

Confidential Enquiries into Maternal Deaths have been associated with massive reductions in maternal deaths[5]. It is expected that identification of the problems delineated in this report and the recommendations that have arisen from the findings, when implemented, will have the same results in South Africa. For the sake of our pregnant women, the deficiencies identified in this report must be urgently addressed.

## 8. References


1. Lewis G. Confidential enquiries into maternal deaths. In: Beyond the numbers: Reviewing maternal deaths and complications to make pregnancy safer. World Health Organisation, Geneva 2004, 77-102
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## 9. Ten Key Recommendations

The National Committee for the Confidential Enquiries on Maternal Deaths (NCCEMD) reviewed the recommendations as outlined in the **Saving Mothers 1999-2001** report, assessing whether the recommendations are still relevant. New targets and indicators are identified for those recommendations that are still crucial for this report. For the first time in the **Saving Mothers** report, the NCCEMD, with inputs from the Provincial Assessors and the Provincial and National Coordinators for Maternal Health Services in the country, identified the key strategies to accelerate implementation of the recommendations. The team identified the Golden Threads to the implementation strategies as:

- Introduction of recommendations into managers Key Performance Areas
- Outreach on-site, face to face teaching and training that is documented

Areas for implementation of the recommendations are classified into policy and management, administration and monitoring and clinical practice where applicable. Targets to be achieved have been specified and should be fully in place by December 2007. The Maternal, Child, Women's Health and Nutrition Cluster of the National Department of Health will supply detail on the action plan for the implementation and monitoring of the recommendations.

### Recommendation 1.

**Protocols on the management of important conditions causing maternal deaths must be available and utilised appropriately in all institutions where women deliver. All midwives and doctors must be trained on the use of these protocols.**

The following are key conditions of which relevant protocols must be available:

- Hypertensive disorders in pregnancy
- Obstetric haemorrhage,
- Septic abortion,
- Puerperal Infections,
- Communicable Diseases: STI's including HIV and AIDS, TB and Malaria

- Resuscitation: Maternal and Neonatal.
- Non-communicable diseases: Diabetes mellitus and cardiac disease in pregnancy

**Note:** Protocols are derived from guidelines and are specific to each institution. For example the protocol for managing a woman with severe pre-eclampsia will be different in a primary health care clinic from a secondary level hospital, however, they will both comply with the guidelines for managing severe pre-eclampsia. Protocols will also differ between similar levels of institutions as referral routes; telephone numbers, types of emergency transport differ in different areas. Protocols are very detailed instructions for managing a condition and are specific to that institution. Guidelines contain the principles on how the woman should be managed. Protocols are derived from guidelines by the institution. (For more detail see **Saving Mothers: Policy and management guidelines for common causes of maternal death.** Government Printer, Pretoria, 2001**,** pp2-4**)**

**Indicators**

1. Availability of relevant written protocols in the form of posters, individual booklets or tool kits in relevant sections of health facilities
2. Availability of a functioning training programme for all institutions at district level
3. Availability of the functioning program on quality assurance for proper use of guidelines by midwives and doctors at district level

**Targets**

1. All institutions must have relevant written protocols in the form of posters, individual booklet or tool kit in relevant sections of these facilities
2. All districts must have a written functioning training programme in all institutions
3. All districts must have a written functioning program on quality assurance for proper use of guidelines by all health professionals including midwives and doctors

**Implementation strategy**

- Policy and Management
  - Clinical guidelines on management of important conditions causing maternal deaths should be updated, strengthened and distributed to all health institutions
  - The clinical guidelines should be included in undergraduate and postgraduate curricula for doctors and nurses. Motivations to the appropriate health professional bodies must be performed
  - Recommend to policy makers that implementation of the guidelines be incorporated into the Key Performance Areas of the appropriate managers.
- Administration and monitoring
  - Systems must be developed to facilitate training by institutional managers
- Clinical practice
  - On-site face-to face training should involve academic institutions and referral centres. Academic institutions and referral centres, including medical schools and nursing colleges, should be allocated areas of responsibilities In addition medical schools and nursing colleges should improve the teaching of relevant clinical competencies and skills.

**Recommendation 2.**

**All pregnant women should be offered information on, screening for and appropriate management of communicable and non-communicable diseases.**

- Sexually transmitted infections
- Tuberculosis
- Malaria
- Urinary tract infections

- Non-communicable diseases – Pregnancy specific conditions and pre-existing medical diseases (See recommendation 1)

**Indicator**

Percentage institutions providing appropriate maternity care offering information on screening for and appropriate management of communicable and non-communicable diseases.

**Target**

1. All institutions that perform maternity care should provide:
    a. Comprehensive Care, Management and Treatment (CCMT) of HIV and AIDS in all districts and sub-districts
    b. Syphilis screening and treatment
    c. Dipstick urine testing for protein, leucocytes, nitrites and investigations- treatment for positive cases
    d. Appropriate history taking and examination for tuberculosis and where necessary for continued anti-tuberculosis therapy.
    e. Malaria screening in malaria areas and malaria prophylaxis
    f. Appropriate antenatal, intrapartum and postpartum screening and treatment of non-communicable diseases and obstetric conditions e.g. anaemia, hypertensive disorders in pregnancy, diabetes mellitus and cardiac disease

**Implementation strategy**

- Policy and Management
    - Key information must be developed and made available for everyone
    - Recommend to policy makers that the implementation of informing, screening and managing the communicable and non-communicable diseases be incorporated into the Key Performance Areas of the appropriate managers.
- Administration and monitoring
    - Screening tools and treatment facilities and schedules must be available

- Clinical practice
  - On-site face-to face training should include screening and treating HIV, syphilis, TB, UTI, malaria and non-communicable diseases (which includes appropriate antenatal, intrapartum and postpartum care). Preferably academic institutions, including medical schools and nursing colleges, should be allocated areas of responsibilities In addition medical schools and nursing colleges must improve the teaching of relevant clinical competencies and skills.

### Recommendation 3.

### Criteria for referral and referral routes must be established and utilized appropriately in all provinces.

**Indicator**

Availability of referral routes and criteria for referral in the relevant areas in hospitals and emergency services

**Target**

All facilities providing maternity services must have functional referral routes and referral criteria.

**Implementation strategy**

- Policy and Management
  - Referral systems must be clearly stated
  - Recommend to policy makers that the implementation of referral criteria and routes be incorporated into the Key Performance Areas (KPA's) of the appropriate managers
  - Recommend that patients clinical records/charts accompany the patient on transfer
  - Build into referral system, transfer directly to appropriate health care level if necessary rather than from level 1 to 2 them to 3
- Administration and monitoring
  - Establish written agreements between different health districts/regions, and provinces, and include emergency services in negotiations

  - Develop risk classification guidelines
- Clinical practice
  - Training in criteria for referral for all health professionals (doctors, nurses and emergency services)

**Recommendation 4.**

**Emergency transport facilities must be available for all pregnant and post partum women and their babies with complications (at any site).**

**Indicator**

Time from call for and ambulance to arrival of the ambulance at site

**Target**

70% of ambulances must arrive at the emergency site within 1 hour of call.

**Implementation strategy**

- Policy and Management
  - Make obstetric emergencies (including ectopic pregnancies and major gynaecological haemorrhages), red code (highest priority)
  - Recommend to policy makers that the implementation of transport policy be incorporated into the KPA's of the appropriate managers
  - Consideration should be given to "waiting mothers areas" where required.
  - Telecommunication networks must be extended to cover rural areas so that contact can be made with clinics and ambulances
- Administration and monitoring
  - Monitor transport times
  - Inform all health professionals of policies at least twice a year because of staffing changes
- Clinical practice
  - Emergency medical personnel to be trained on obstetric emergencies

## Recommendation 5.

## Staffing and equipment norms must be established for each level and for every health institution concerned with the care of pregnant women.

**Indicator**

1. Availability of guidelines on allocation of human resources for maternal and neonatal health services
2. Availability of guidelines on essential equipments for provision of maternal and neonatal health care al different levels.

**Target**

Written guidelines for human resource allocation and for essential equipment must be available at national, provincial, district and facility level.

**Implementation strategy**

- Policy and Management
  - Establish staffing norms
  - Recruit new health workers and institute processes to retain staff
  - Establish training sites for new recruits
  - Recommend to policy makers that establishing staffing norms and methods of retaining staff be incorporated into the Key Performance Areas of the appropriate managers
- Administration and monitoring
  - Essential equipment must be available
  - Equipment lists for managing pregnant and post partum women and their babies be updated regularly
  - Measure staffing against norms

## Recommendation 6

## Blood for transfusion must be available at every institution where caesarean sections are performed.

**Indicator**

Percentage of applicable institutions having adequate emergency blood available

**Target**

All applicable institutions

**Implementation strategy**

- Policy and Management
  - Ensure that blood and all other blood products are available in all relevant facilities; Plasma expanders should also be available in the labour wards
  - Facilitate immediate replacement of depleted emergency blood supplies
  - Recommend to policy makers that availability of blood for transfusion be incorporated into the KPA's of the appropriate managers
- Administration and monitoring
  - Ensure blood availability in facility
  - Audit use and availability of blood
- Clinical practice
  - Training health workers on proper use of blood and blood products
  - Training health workers on measures to prevent the need for blood transfusion, e.g. use of iron and folic acid prophylaxis for all pregnant and post partum women; advice on proper nutrition; active management of the third stage of labour and the antenatal transfer of women at risk of Post Partum Haemorrhage (PPH) to the appropriate level of health care.

## Recommendation 7.

**Contraceptive use must be promoted through education and service provision and the number of deaths from unsafe abortions must be reduced.**

**Indicators**

1. Percentage of functioning Termination of Pregnancy (TOP) services in relation to designated public sector units separately for first and second trimester pregnancies.

2. Availability of strategies for advertising TOP services within the district.
3. Percentage of tubal ligations in women over 35 years of age and parity 5 or more.
4. Sustained increase in women using contraceptive services having tubal ligations

**Targets**

1. All sub-districts must be able to provide for first trimester TOPs
2. 70% of sub-district must be able to provide for second trimester TOPs
3. All districts must provide information on all forms of contraceptives, family planning and CTOP.

**Implementation strategy**

- Policy and Management
  - Expand sites for second trimester TOP
  - Ensure availability of all contraceptive methods, especially emergency contraception
  - Ensure public is advised on rights and sites
  - Recommend to policy makers that promotion of use of contraceptives through education and service provision as well as reduction of numbers of deaths from unsafe abortion is incorporated in the KPA's of the appropriate managers
- Administration and monitoring
  - Make institutions available for TOPs
  - Provision of facilities and staff for tubal ligation
  - Ensure availability of all contraceptives
- Clinical practice
  - Training in TOPs
  - Training in contraceptive use
  - Training of clinical personnel in tubal ligation techniques
  - Regular value clarification workshops

**Recommendation 8.**

**Correct use of the partogram should become the norm in each institution conducting births. A quality assurance programme should be implemented, using an appropriate tool.**

**Indicators**

1. Percentage institutions conducting births that use the partogram
2. Institutions having a quality assurance programme,
3. Percentage scoring satisfactory on the quality assurance programme.

**Targets**

1. All institutions conducting births must use the partogram
2. 80% of institutions having quality assurance programme

**Implementation strategy**

- Policy and Management
  - Recommend to policy makers that quality assurance programmes on the use of the partogram be incorporated into the Key Performance Areas of the appropriate managers
- Administration and monitoring
  - Availability of quality assurance programme and the partogram
  - Ensure training programme exists on intrapartum care
  - Strengthen supportive supervision of doctors and midwives
  - The partogram guidelines should be included in undergraduate and postgraduate curricula for doctors and nurses.
- Clinical practice
  - Face-to-face, on-site outreach training programmes for use of the partogram

## Recommendation 9.

## Skills in anaesthesia should be improved at all levels of health care particularly at level 1 hospitals.

**Indicator**

Number of medical officers appointed at level 1 hospitals with documented anaesthetic experience and training in obstetric anaesthesia

**Target**

75% of medical officers appointed at level 1 hospitals must have documented anaesthetic experience and training in obstetric anaesthesia.

**Implementation strategy**

- Policy and Management
  - Current anaesthesia curricula for medical students and interns must include "hands-on" experience. (Guaranteed by a case list minimum signed by the supervisor.)
  - Develop a tool kit for regional anaesthesia to guide doctors at lower level institutions
  - Recommend to policy makers that improving anaesthesia skills be incorporated into the Key Performance Areas of the appropriate managers
  - Involve academic institutions, the HPCSA and the College of Anaesthesiology in negotiations on this matter
- Administration and monitoring
  - Appropriate courses must be available, additional to those on current curricula, to improve basic anaesthetic and resuscitation skills
- Clinical practice
  - Outreach programmes in anaesthesia should exist in every province. Leadership should be provided by a designated post (new or existing) at senior level, exclusively devoted to this purpose, within each academic department of anaesthesia

**Recommendation 10.**

**Women, families and communities at large must be empowered, involved and participate actively in activities, projects and programmes aiming at improving maternal and neonatal health as well as reproductive health in general.**

**Indicators**

1. Percent functioning community empowerment programmes at district level
2. Availability of appropriate Information, Education and Communication Material (IEC) or Behaviour Change and Communication (BCC) material addressing major issues around maternal deaths for women and general population.

**Targets**

1. 50% of sub-districts must be able to conduct regular activities targeting women and the general population to raise awareness and facilitate change of behaviour regarding maternal and neonatal health plus reproductive and sexual health in general;
2. 50% of sub-district must be able to provide appropriate IEC or BCC material addressing major issues around maternal deaths for women and general population at all times.

**Implementation strategy**

- Policy and Management
  - Develop and disseminate relevant information, education and communication material
  - Encourage male participation in reproductive health
  - Encourage a healthy lifestyle (including proper nutrition) as preventative measure
  - Recommend to policy makers that empowering the community in maternal and child care be incorporated into the Key Performance Areas of the appropriate managers
- Administration and monitoring

  - Create opportunities for linkages with stakeholders within the community
  - Involve the communications dept/unit and health promotion unit in disseminating information and encouraging community participation
- Clinical practice
  - Train health professionals on culture and traditions of their community
  - Train all health workers to be empathic towards patients and their families

## 10. Action Plan:

The terms of reference of the NCCEMD stipulate that the committee must make recommendations on ways to reduce maternal deaths to the Minister of Health. The Minister has accepted the recommendations made by the committee as indicated in the foreword to this report. The responsibility for implementation and monitoring of the implementation of the recommendations falls to the Department of Health. To this end the Cluster: Maternal, Child, Women's Health and Nutrition at the National Department of Health has produced a detailed **Action Plan**.

Amongst the plans are dissemination workshops to be conducted in each province by the provincial Maternal Child and Women's Health (MCWH) units with the assistance of the provincial facilitator on the NCCEMD and the provincial assessors. The workshops will discuss the findings of the report, the recommendations of the report and the implementation of the action plan. Further the Department will engage the relevant stakeholders namely the Health Sciences Faculties of the Universities, the nursing colleges, the Health Professions and Nursing Councils and the Colleges of Medicine of South Africa to gather support for implementation of the recommendations.