



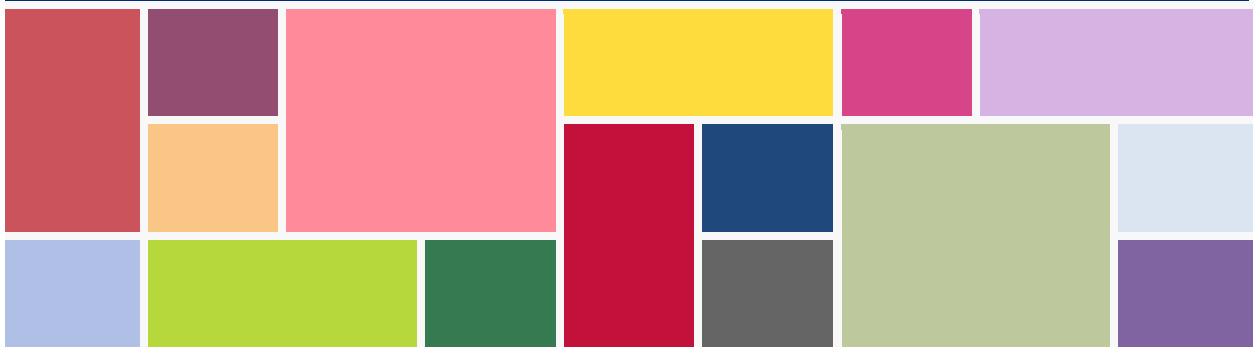
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Integrated Program

Assessment of Maternal and Perinatal Death Surveillance and Response Implementation in Zimbabwe



MCSP is a global USAID initiative to introduce and support high-impact health interventions in 24 priority countries with the ultimate goal of ending preventable child and maternal deaths (EPCMD) within a generation. MCSP supports programming in maternal, newborn, and child health, immunization, family planning and reproductive health, nutrition, health systems strengthening, water/sanitation/hygiene, malaria, prevention of mother-to-child transmission of HIV, and pediatric HIV care and treatment. MCSP will tackle these issues through approaches that also focus on household and community mobilization, gender integration, and eHealth, among others.

This report is made possible by the generous support of the American people through the United States Agency for International Development (USAID), under the terms of the Leader with Associates Cooperative Agreement GHS-A-00-08-00002-00 and Cooperative Agreement AID-OAA-A-14-00028. The contents are the responsibility of The Maternal and Child Health Integrated Program (MCHIP) and The Maternal and Child Survival Program (MCSP), and do not necessarily reflect the views of USAID or the United States Government.

November 2017

Table of Contents

Acknowledgements	v
Authors	vi
Acronyms	vii
Executive Summary	viii
Background.....	viii
Methodology.....	viii
Findings	viii
Discussion and Recommendations.....	ix
Conclusion	x
Introduction	1
Background.....	1
Maternal and Perinatal Death Surveillance and Response Terminology.....	1
Aim and Objectives.....	2
MPDSR in Zimbabwe	2
Methodology	5
Country Selection	5
Site Selection and Data Sources	5
Data Collection and Tools.....	6
Scoring and Analysis	6
Ethical Considerations	7
Findings	8
Stage of MPDSR Implementation.....	8
MPDSR Practice.....	9
Enablers and Barriers of MPDSR Implementation.....	13
Discussion	14
Alignment with Global MPDSR Guidance	15
Limitations of Assessment.....	15
Conclusion	16
Recommendations	17
National and Provincial Levels	17
Facility Level	17
References	18
Appendix A: Key Informant Questionnaires	19
Appendix B: MCSP MPDSR Implementation Scoring Scheme for Facilities	38

Appendix C: Medical Research Council of Zimbabwe Ethical Approval Letter	40
Appendix D: Oral Consent Form	41

Acknowledgements

The support and openness of the management and staff of participating health facilities is highly appreciated, as is the leadership provided by the national, provincial, and district health offices. A very special thanks to the Maternal and Child Survival Program (MCSP) team in the USA and the Maternal and Child Health Integrated Program (MCHIP) team in Zimbabwe for their exceptional support for this assessment as well as the members of the assessment teams:

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Acronyms

CRVS	civil registration and vital statistics
HMIS	health management information system
MCHIP	Maternal and Child Health Integrated Program
MCSP	Maternal and Child Survival Program
MDSR	maternal death surveillance and response
MOHCC	Ministry of Health and Child Care
MPDSR	maternal and perinatal death surveillance and response
MPMA	maternal and perinatal mortality audit
PDSR	perinatal death surveillance and response
WHO	World Health Organization

Executive Summary

Background

Nearly 540,000 babies were born in 2015 in Zimbabwe; 12,800 of these babies died in their first month of life (a neonatal mortality rate of 24 per 1,000 live births). There were nearly 11,500 stillbirths (a stillbirth rate of 21 per 1,000 births) and 2,400 women died of pregnancy- and childbirth-related complications (a maternal mortality ratio of 443 per 100,000 live births).¹⁻³ With all eyes focused on achieving the Sustainable Development Goals, Zimbabwe is looking to accelerate efforts to improve outcomes for women and babies. There is global consensus on the need for accurate information about causes of death using mortality audits to help inform efforts to end preventable maternal and perinatal deaths. Zimbabwe's Ministry of Health and Child Care (MOHCC), supported by the United States Agency for International Development's Maternal and Child Survival Program (MCSP) operating locally in Zimbabwe as the Maternal and Child Health Integrated Program (MCHIP), set out to document experiences in implementing maternal death review, perinatal death review, and/or integrated maternal and perinatal death surveillance and response (MPDSR) processes. Zimbabwe was one of four countries selected by MCSP as part of a multicountry assessment of MPDSR processes at the subnational level. The assessment sought to identify factors that facilitated or inhibited the uptake and sustainability of implementing MPDSR systems to improve quality of care and prevent future deaths.

Methodology

The assessment gathered data through key informant interviews with representatives involved in MPDSR implementation at national, regional, and facility levels and through visits to a sample of facilities to capture the current implementation status of mortality audits. Data collection took place in November and December 2016. MCSP selected 16 hospitals across six provinces, excluding health centres because they do not conduct MPDSR in Zimbabwe. Trained data collectors conducted semi-structured in-person interviews with MPDSR focal people and other key informants. Each facility surveyed was assigned a score of 0–30 using an adapted tool to determine the stage of MPDSR implementation. The scoring scale provides a systematic snapshot of a facility's MPDSR implementation status across three phases: pre-implementation, implementation, and institutionalisation. The Medical Research Council of Zimbabwe approved the study protocol and tools and the Johns Hopkins Bloomberg School of Public Health institutional review board approved the study, determining it to be non-human subjects research.

Findings

The results from the 16 facilities assessed and the 17 key informant interviews found a strong level of awareness of national MPDSR guidelines.⁴ All facilities demonstrated some evidence of practising maternal and perinatal death audits. Three-quarters of facilities demonstrated institutionalised practice, indicating that these facilities had robust systems in place with regular meetings, designated coordinators and committee members, and available tools and guidelines. The 16 facilities assessed scored a mean of 21.12 ranging from 12.21 and 27.38 out of the possible 30 points using the MPDSR implementation status scoring methodology.

Most facilities identified deaths well, especially maternal deaths, using standard national forms for death notification. Only six facilities consolidated neonatal mortality data across hospital departments. Nine facilities reported documenting maternal and perinatal deaths that occur in the community through regular notification by village health workers.

All facilities had a process or formal system for reviewing maternal and perinatal deaths, but five facilities acknowledged that they did not conduct regular audits for all perinatal death cases despite the guidance and commitment to do so. Data analysis and presentation of trends across sites varied. At the district and provincial levels, stakeholder knowledge and use of the numbers and trends of data from the facilities in their catchment area varied. Ten facilities displayed or shared relevant data trends. Standard cause-of-death categories are available on the national audit forms, but interviewees reported using multiple systems, and the

quality and accuracy of cause-of-death assignment varied widely for maternal and perinatal deaths on death certificates and in audit reports. All facilities demonstrated evidence of multidisciplinary participation in the review meetings from clinical staff in different units (obstetrics, paediatrics, unit in-charge) to information officers, hospital and district management, and community liaisons. Most facilities held interdisciplinary maternal mortality audit meetings, but fewer held interdisciplinary perinatal mortality audit meetings. The assessment also found that over half of the facilities conducted MPDSR meetings in a no-blame environment (62%). There were a number of gaps demonstrated in community maternal and perinatal death follow-up, and only seven facilities demonstrated evidence of reporting findings and progress to community.

Many facilities (69%) issued action plans with recommendations, though not all were comprehensive action plans. Recommendations ranged from very specific, time-bound, and feasible to broad and long term. Facilities were far more likely to complete actions that could be implemented locally (within the unit or department). Around a third of facilities (38%) reported an official documentation system for tracking follow-up, yet nearly all facilities could provide success stories related to sustainable changes implemented because of MPDSR processes. Such stories of change resulting from audit findings can motivate local facility staff and others.

The most common barriers to implementing recommendations from the death reviews included lack of essential commodities, qualified personnel, and resources/finances. Additional barriers included lack of notification forms and tools, health worker attitudes and fatigue, and general lack of funds overall and dependency on donor-funded programmes. Enabling factors for implementation of MPDSR included support from provincial-level management to orient and provide tools, enable cross-learning among districts, and ensure discussion at provincial meetings. Communication among health staff in facilities and among the hospital and surrounding clinics also supported implementation efforts. Regularity and familiarity with the MPDSR process also helped.

Discussion and Recommendations

There is a commitment among policy-makers and health workers to counting, understanding, and accounting for Zimbabwe's maternal and perinatal deaths. To strengthen the system, national- and provincial-level MPDSR committees should provide ongoing support to mortality audit processes through activities such as officially inaugurating the process in health facilities and supporting facilities in documenting and disseminating success stories arising from lessons learned through audits. Identifying champion sites and conducting learning visits for senior health workers and/or policy-makers to observe audit meetings and best practices might also be helpful. Strengthening the capacity to implement MPDSR processes at all system levels requires a more formal role for professional associations and partners to champion and support those processes.

Copies of the national guidelines and audit forms need to be provided to all facilities, along with further training on cause-of-death classification and better alignment and differentiation (as appropriate) of death certificates and mortality audit forms. Provincial MPDSR committees should counsel facilities to identify activities providers can address within their sphere of control (completing partograph, ensuring availability of commodities, and timely response to emergencies) and to use recommendations within their reach to implement and engage in regular advocacy for prioritised, higher-level change.

Facilities, especially larger hospitals, should compose perinatal mortality audit committees to ensure interdisciplinary participation. Maternal audit committees are already interdisciplinary. Facilities and district managers need stronger links to communities and village health workers; they also need funding from the MOHCC to conduct verbal autopsy interviews to fully operationalise the MPDSR processes as designed and laid out in the national MPDSR guidelines.

Conclusion

This assessment found high political will and capacity to collect and use data to implement change and track progress among stakeholders and facility staff. While some facilities appeared to be collecting data because it is mandated, other facilities had clear champions who are using the process to effect change. All facilities require support to communicate success stories while ensuring a no-blame environment and to access change agents at other levels to address larger, systemic concerns. Far too many mothers and babies continue to die in Zimbabwe because the right care was not available in the right place and at the right time. Learning from these cases through systematic implementation of MPDSR linked to broader quality improvement efforts can help end preventable maternal and perinatal deaths.

We may think it's too much to review every death, but each one death is crucial to someone. It might be a statistic to me, but every death matters.

—District medical officer, stakeholder interview

Introduction

Background

Nearly 540,000 babies were born in 2015 in Zimbabwe; 12,800 of these babies died in their first month of life (neonatal mortality rate of 24 per 1,000 live births).¹ There were nearly 11,500 stillbirths (a stillbirth rate of 21 per 1,000 births) and 2,400 women died of pregnancy- and childbirth-related complications (maternal mortality ratio of 443 per 100,000 live births).^{2,3} For many years, Zimbabwe has been committed to improving outcomes for women and babies, and the nation is looking to accelerate efforts and achieve the targets set out in the Sustainable Development Goals.

There is global consensus that accurate information about causes of death is needed to help inform efforts to end preventable deaths. In 2004, the World Health Organization (WHO), in a landmark publication entitled *Beyond the Numbers: Reviewing Maternal Deaths and Complications to Make Pregnancy Safer*,⁵ recommended that all countries that had not established maternal death audit systems should do so without further delay to help reduce maternal deaths. In 2012, the United Nations Commission on the Status of Women passed a resolution calling for the elimination of preventable maternal mortality.⁶ In 2016, WHO also released guidance on conducting mortality audits for stillbirths and neonatal deaths, along with tools to adapt them at national, subnational, and facility levels.⁷

A vital component of any elimination strategy is a surveillance system that can track the number of deaths and provide information about the cause of death, underlying contributing factors, and point to actions to prevent future deaths. One of the key actions recommended in the WHO's 2014 *Every Newborn Action Plan*⁸ and 2015 *Strategies toward Ending Preventable Maternal Mortality*⁹ is the institutionalisation of MPDSR systems to enable a country's use of audit data to track and prevent maternal and early neonatal deaths and stillbirths.

Despite global recommendations, few countries have robust operational MPDSR systems, even with the presence of favourable policies in many countries, particularly for maternal death notification.¹⁰ In some countries, MPDSR systems have been designed and/or are being implemented as standalone activities rather than as integrated elements of goal-oriented quality improvement efforts focused on improving coverage, quality, equity, and access to care to reduce preventable maternal and perinatal morbidity and mortality.

Currently, there is a lot of momentum behind MPDSR strategies. WHO is tracking global maternal death surveillance and response (MDSR) status through an MDSR technical working group and has recently completed a global survey of MDSR policy and implementation status at national levels. Additionally, the MDSR Action Network supports knowledge sharing and understanding of MDSR.¹¹ MCSP is working with global, regional, and country partners to understand experiences in implementing maternal death review, perinatal death review, and/or integrated MPDSR systems in selected countries in Africa, including Zimbabwe, with an aim to identify factors that facilitate or inhibit the uptake and sustainability of the audit system. In line with this work, MCSP, operating in Zimbabwe as MCHIP and guided by Ministry of Health and Childcare (MOHCC), set out to assess the implementation status of the mortality audit in Zimbabwe.

Maternal and Perinatal Death Surveillance and Response Terminology

A mortality audit is the process of capturing information on the number and causes of deaths—whether for maternal deaths, stillbirths, or neonatal deaths—and identifying specific cases for systematic, critical analysis of underlying demand- and supply-side contributors, including quality of care received, in a no-blame, interdisciplinary setting to improve the care provided to all mothers and babies. Audits help examine the circumstances surrounding each death, including any breakdowns in care from the household to the health facility that may have been preventable. This process is an important continuous action cycle for quality improvement that can link data from the local to the national level. The starting point for any MPDSR system is the definition and classification of maternal deaths, stillbirths, and neonatal deaths (see Table 1).

Table 1. Terminology related to maternal and perinatal deaths

Indicator	Numerator	Denominator
Maternal mortality ratio (expressed as maternal deaths per 100,000 live births)	The number of maternal deaths occurring in a defined period of time (usually 1 year). A maternal death is the death of a woman while pregnant or within 42 days of the termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management (but not from accidental or incidental causes). Can be direct (resulting from obstetric complications of the pregnancy state) or indirect (resulting from previously existing disease or disease that developed during pregnancy).	Total number of live births occurring in the same time period (usually 1 year)
Stillbirth rate (expressed as stillbirths per 1,000 total births)	Number of babies born per year with no signs of life who weigh at least 1,000 g and/or after 28 completed weeks of gestation	Total number of births per year (live and stillborn)
Neonatal mortality rate (expressed as newborn deaths per 1,000 live births)	Number of live-born infants per year dying before 28 completed days of age	Total number of live births per year
Perinatal mortality rate (expressed as perinatal deaths per 1,000 total births)	Number of foetal deaths per year in fetuses born weighing $\geq 1,000$ g and/or after 28 completed weeks of gestation, plus neonatal deaths through the first 7 completed days after birth (some definitions include all neonatal deaths up to 28 days)	Total number of births (live and stillborn) per year

Source: World Health Organization⁸

Aim and Objectives

The aim of this assessment was to measure and document the implementation process and results of the introduction and expansion of MPDSR systems in Zimbabwe.

The specific objectives of this assessment included:

1. To systematically measure the scope and institutionalisation of MPDSR implementation and describe barriers and facilitators to sustainable practice.
2. To describe outstanding implementation research questions and gaps within and across countries.
3. To compile and review MPDSR materials and describe similarities and differences across countries.

MPDSR in Zimbabwe

There are four tiers to Zimbabwe's public health delivery system:¹²

- Level 1: Primary Health Care (clinics/rural health centres and village health workers) includes approximately 1,000 primary health care facilities comprising rural clinics and urban municipal clinics. Rural health centres deliver the essential package of maternal, newborn, and child health services but do not conduct maternal and perinatal death reviews.
- Level 2: District/Mission Hospitals includes approximately 164 district hospitals, half of which are mission-run. At this level, services offered include surgical procedures, such as caesarean sections and

safe blood transfusions; comprehensive emergency obstetric and newborn care; and comprehensive management of childhood illness, such as paediatric emergency care.

- Level 3: Provincial Hospitals includes seven provincial hospitals. They are the highest levels of referral at province level and have positions available for specialised health services. However, these posts are largely vacant, meaning these centres currently provide similar services as district-level hospitals.
- Level 4: Central Hospitals includes five central hospitals—two in Harare, two in Bulawayo, and one in Chitungwiza. These offer the highest and most specialised levels of care, with specialty services for maternal and child health, including obstetrics, gynaecology, neonatology, paediatrics, and paediatric surgery.

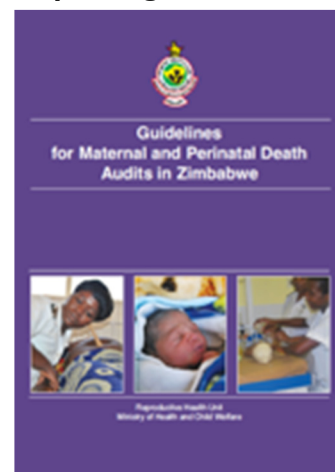
In addition to government-provided services (central and local government), there is also an active for-profit private sector.

Following its independence through the 1980s, Zimbabwe was widely recognised for its robust health delivery system, high-quality clinical services, and major gains in coverage of effective interventions associated with child survival. Beginning in the mid-1990s, however, the country experienced a prolonged socioeconomic collapse, which resulted in the deterioration of the national health system, a decline in the availability of public health services, and worsening of key health indicators, including maternal and under-5 mortality.¹²

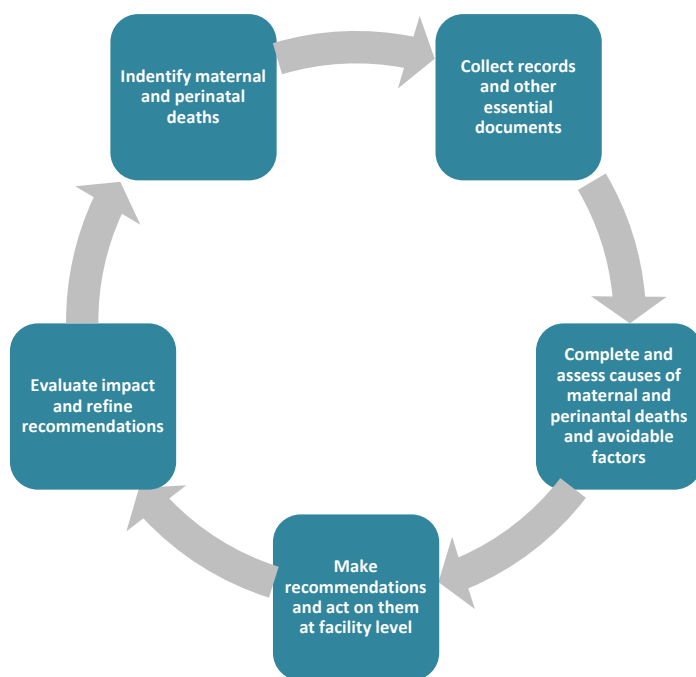
The central hospitals, including the Greater Harare Maternity Unit, had been conducting maternal and perinatal mortality audit (MPMA) meetings for over 30 years before 2007, when the system broke down due to severe attrition of experienced medical and nursing staff. Facilities used these meetings to improve quality of care at facilities, but the meetings were not coordinated nationally and did not report deaths for notification. The first change came with the publication and dissemination of the WHO guideline for maternal audit in 2004,⁵ which resulted in MOHCC insisting that notification forms be completed for every maternal death, in line with 2006 legislation. MOHCC (at the time, the Ministry of Health and Child Welfare) also conducted its own maternal and perinatal mortality study in 2007, revealing many related problems.¹³

In 2013, the Ministry of Health and Child Welfare developed guidelines for conducting maternal and perinatal death audits at health facilities (see Figures 1 and 2).⁴ In 2016, the MOHCC minister appointed a national MPDSR committee chaired by the Permanent Secretary. The overall purpose of the committee is to oversee and coordinate efforts to eliminate preventable maternal and perinatal mortality by obtaining and using facility mortality information to guide public health actions and monitor their impact. Provincial program leaders received national-level training on the new guidelines and all facilities received hard copies. Provinces received provincial-level training where partners were available to provide support, such as MCHIP in Manicaland and the Absolute Return for Kids program in Matabeleland North. Facilities in Manicaland Province received a whole-site orientation to the new guidelines from the provincial audit committees, with MCHIP support.

Figure 1. National maternal and perinatal death surveillance and response guidelines



**Figure 2. Five-step audit cycle for maternal and perinatal death surveillance and response
Recommendations**



Source: MOHCW⁵

Methodology

The assessment of current MPDSR implementation status included two components: key informant interviews with stakeholders at national, provincial, district, and facility levels to document the knowledge and uptake of mortality audits in general, and facility visits to capture the current implementation status of mortality audits in a sample of sites. Standardised questionnaires for health facility staff and other stakeholders, a systematic score based on the observations, and records review provided a comparable metric on MPDSR implementation scoring status across facilities, with feedback on the operation of the system as a whole.

Country Selection

Zimbabwe was one of four countries selected by MCSP as part of a multicountry assessment of MPDSR processes at the subnational level. Country selection criteria included:

- Existing national policy for MPDSR (or any form of maternal and/or perinatal audit policy)
- Funds available through MCSP for maternal and child health
- Existence of maternal and/or perinatal death review in the current MCSP country work plan
- Planned health facility assessment
- Other in-country partners working on maternal and/or perinatal death review

Site Selection and Data Sources

The aim was to include facilities operating throughout the country at various system levels and link them to key informant interviews. MCSP sampled facilities purposefully, not randomly. To be included in the sample, facilities needed to have:

- Current or previous experience conducting maternal and/or perinatal death reviews and/or
- Formal MPDSR processes or policies being implemented

Health centres were not included in the assessment because they do not conduct MPDSR, since few cases of maternal and perinatal mortality occur at these sites. MCHIP identified and contacted district- and provincial-level stakeholders involved in reproductive health and oversight of these sampled facilities' activities.

MCSP assessed 16 health facilities, including two private tertiary hospitals, two central hospitals, four provincial hospitals, and seven district hospitals (see Table 2). There were 17 key informants in all, including two from urban Bulawayo and three each from the provinces of Manicaland, Matabeleland North, Mashonaland West, Midlands, and Harare.

Table 2. Types of facilities and stakeholders visited in the assessment

Types of facilities visited	Number
Central hospital	2
Provincial hospital	4
General hospital	1
District hospital	7
Private tertiary hospital	2
Total	16
Types of stakeholders interviewed	Number
Provincial medical directors	3
District medical and nursing officers	8
Provincial medical chief health officer	2
Other (member of maternal and perinatal death surveillance and response committee, Ministry of Health and Child Care representative, deputy central nursing officer)	4
Total	17

Data Collection and Tools

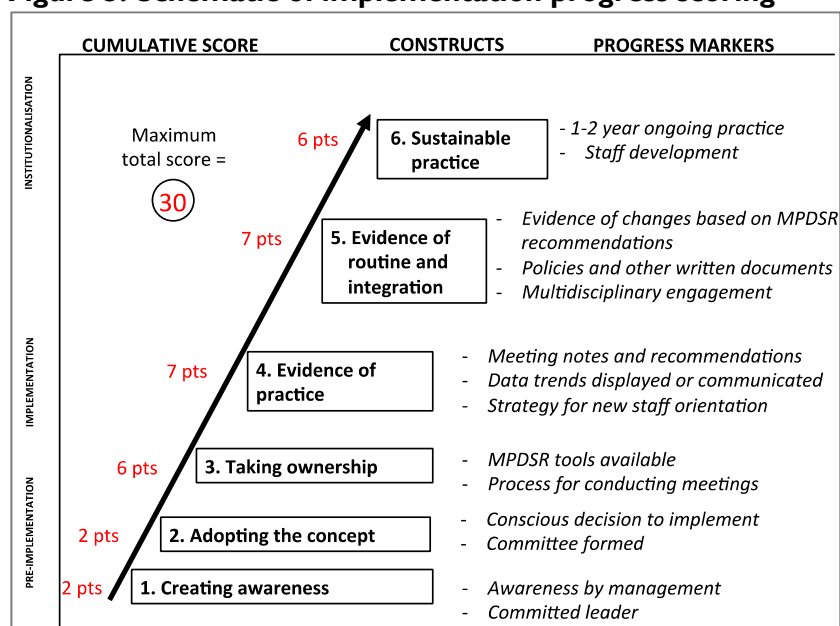
Data collection took place in November and December 2016. A team of local experts served as data collectors (see Acknowledgements for full list of the assessment team). The data collectors received training on the assessment methodology and use of the monitoring tools. They conducted key informant interviews one on one with national, provincial, and district medical and nursing officers, management team members, and MPDSR committee members using a standard questionnaire involving 33 to 43 questions. Facility assessment visits consisted of a semi-structured in-person interview with 66 questions and a document review with facility-based staff currently involved in supporting mortality audit processes (see Appendix A).

Scoring and Analysis

Facilities received a score up to 30 based on the key informant interviews and facility observations. The scoring scale includes three phases: pre-implementation, implementation, and institutionalisation. MCSP interpreted results using a model with six stages of change (see Figure 3). Facilities received a score out of 30 (see Table 3). A facility score of less than 10 demonstrated that a facility was in a pre-implementation phase. A score greater than 10 demonstrated some level of implementation of MPDSR or evidence of MPDSR practice. A score above 17 demonstrated institutionalisation of MPDSR through evidence of routine practice and integration. A score of more than 24 showed sustainable MPDSR practice. These tools and scoring methodology were adapted from a study of Kangaroo Mother Care implementation progress developed and tested by the South African Medical Research Council's Maternal and Infant Health Care Strategies unit.^{14, 15}

The score provides a snapshot of the facility's MPDSR implementation status or stage, allowing quantification of the current situation and a cumulative implementation progress score for each facility assessed. However, the model imagines progress as not merely linear, but also moving forward and backward. In other words, the facility does not need to fully complete one step before continuing with the next, and facilities can also regress in their implementation practices (additional details in Appendix B). Scoring does not assess the quality of MPDSR on its own but is a tool to complement qualitative assessment according to implementation stage.

Figure 3. Schematic of implementation progress scoring



Adapted with permission^{15,16}

Table 3. Interpretation of implementation progress scoring

Score	Interpretation
0	No implementation of MPDSR
1–2	Creating awareness of MPDSR
3–4	Adopting the concept of MPDSR
5–10	Taking ownership of the concept of MPDSR
11–17	Evidence of MPDSR practice
18–24	Evidence of routine and integrated MPDSR practice
25–30	Toward sustainable practice

Adapted with permission^{15,16}

Ethical Considerations

The Medical Research Council of Zimbabwe approved the study protocol and tools (see Appendix C). The study also was determined to be non-human subjects research by the Johns Hopkins Bloomberg School of Public Health institutional review board.

The data collected in this assessment did not include any personal information from respondents. The questions in the tools gathered data on the current state of practice and did not require respondents to provide personal reflection or opinions, nor did MCSP anticipate any risks associated with participation. Forms, registers, and meeting minutes collected did not include any identifying information of cases discussed through the MPDSR process. MCHIP Zimbabwe's office in Harare keeps hard copies of files in locked filing cabinets, accessible only by authorised staff from the study team. MCSP keeps electronic copies of the data in a password-protected computer, only accessible by the study principal investigators and co-principal investigators. Data will be stored for a period of 5 years, after which MCSP will destroy the data.

Before key informant interviews, participants were asked to participate using oral consent, given that the research presents no more than minimal risk of harm to respondents. The interviewers obtained oral consent before the start of the discussion by reading an oral consent script (see Appendix D) and asking the participant for a response.

Findings

Stage of MPDSR Implementation

The results from the 16 facilities assessed and the 17 key informant interviews found strong awareness of national MPDSR guidelines. All facilities demonstrated some evidence of practising maternal and perinatal death audits, and three-quarters of facilities demonstrated institutionalised practice with a score above 17. The 16 facilities assessed scored between 12.21 and 27.38 out of the possible 30 points using the MPDSR implementation status scoring methodology (see Table 4). The scores do not indicate the quality of the audit process, but rather evidence of practice and, in most cases, an institutionalised system from which to strengthen the quality of practice. The number of births per facility did not seem to affect MPDSR institutionalisation.

Table 4. Facility score and stage of implementation

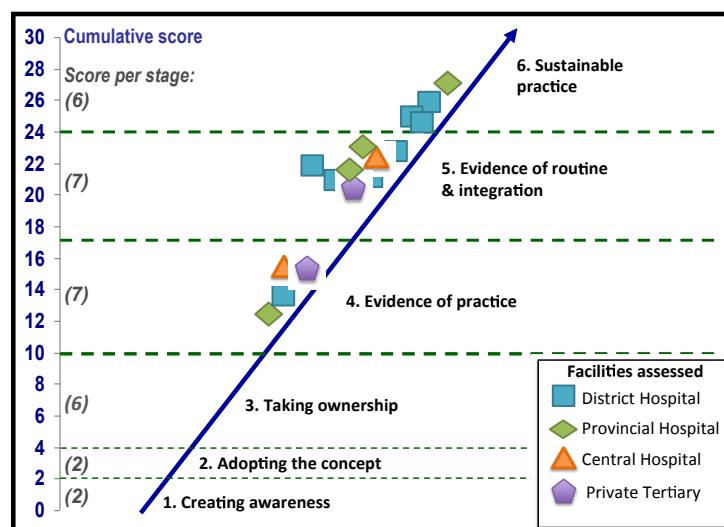
Code	Level	Births per month*	Level of implementation	Score (/ 30)
A	Provincial	100–399	Sustainable practice	27.38
B	General	100–399	Sustainable practice	26.79
C	District	100–399	Sustainable practice	25.75
D	District	< 100	Sustainable practice	24.13
E	District	100–399	Evidence of routine and integration	23.58
F	District	< 100	Evidence of routine and integration	23.04
G	Central	≥ 400	Evidence of routine and integration	22.50
H	Provincial	100–399	Evidence of routine and integration	22.50
I	District	< 100	Evidence of routine and integration	21.96
J	District	100–399	Evidence of routine and integration	21.50
K	Provincial	100–399	Evidence of routine and integration	21.42
L	Private tertiary	Unknown	Evidence of routine and integration	20.33
M	Central hospital	≥ 400	Evidence of practice	15.50
N	Private tertiary	< 100	Evidence of practice	15.46
O	District	100–399	Evidence of practice	13.83
P	Provincial	100–399	Evidence of practice	12.21

* Average in 2016. Categories: < 100, 100–399, ≥ 400

Figure 4 provides a graphic depiction of the position of each health facility on the progress-monitoring scale. The mean score was 21.12. At the time of assessment, four facilities had evidence of mortality audit practice,

eight had evidence of mortality audit being part of routine and integrated practice, and four showed sustainable practice.

Figure 4. Health facilities plotted by score



MPDSR Practice

This section provides a summary of findings from the facility questionnaires and stakeholder interviews that informed the scoring. These findings include information on the history of implementation, resources provided for implementation, frequency of meetings, differences in approaches, information flow, community and staff involvement, response to recommendations, and some of the benefits and challenges of conducting death reviews. The section structure follows the audit cycle as depicted in the national MPDSR guidelines (see Figure 2).

Overall, the assessment found that all facilities conducted review meetings regularly. However, the frequency of meetings ranged from after a death occurred (five facilities), to monthly (eight), every 2 months (one), and quarterly (two).

Some facilities reported different practices for maternal and perinatal deaths. For example, two district hospitals reported monthly meetings but also indicated that they meet for perinatal death reviews weekly or after a death. Another district hospital reported meeting after every maternal death and monthly for perinatal deaths. The central hospitals were conducting maternal death reviews in obstetrics and perinatal death reviews in the case of an intrapartum stillbirth or very early neonatal death. If a baby reached the special care baby unit or paediatrics unit of a central hospital and died there, neonatology or paediatrics would review the death. No facility reported reviewing all (or even a sample of) maternal and perinatal deaths in one single meeting, suggesting that multiple meetings were held in facilities with many deaths or that some deaths were not reviewed.

All facilities reported having an MDSR coordinator. Six facilities reported the same person coordinated perinatal death surveillance and response (PDSR) as well, and eight facilities reported a separate PDSR coordinator. Thirteen facilities reported having established MPDSR review committees.

Despite the widespread practice of mortality auditing, two facilities did not have any written policies, guidelines, or protocols regarding the practice of MPDSR, whereas all of the other facilities had copies of the national guidelines. Fourteen facilities reported carrying out educational activities to introduce MPDSR to staff.

Step 1: Identify Deaths

The minimum aim of the MPDSR system is to identify maternal deaths, stillbirths, and neonatal deaths that occur, whether in the labour ward, in other departments within a health facility, or in the community. Facilities did this very well, especially for maternal deaths, and there was clear commitment from stakeholders. However, five facilities reported they were not conducting audits for all perinatal death cases, despite the guidance and commitment to do so (see Figure 5).

Figure 5. Facility sign showing commitment to notification forms, even for perinatal deaths (“remember to line list the perinatal death”).



Respondents in larger facilities described systems in place for collecting information on maternal deaths occurring across hospital clinical departments. Only six facilities consolidated neonatal death data across hospital departments (obstetrics, special care baby unit, and paediatrics). Nine facilities reported documenting maternal and perinatal deaths that occur in the community through regular notification by village health workers.

Step 2: Collect Information

For every death, health facility staff must decide what information to record, where the information is recorded, who records it, and who collates it on a periodic basis, both for the death review process and for reporting to other levels within the system.

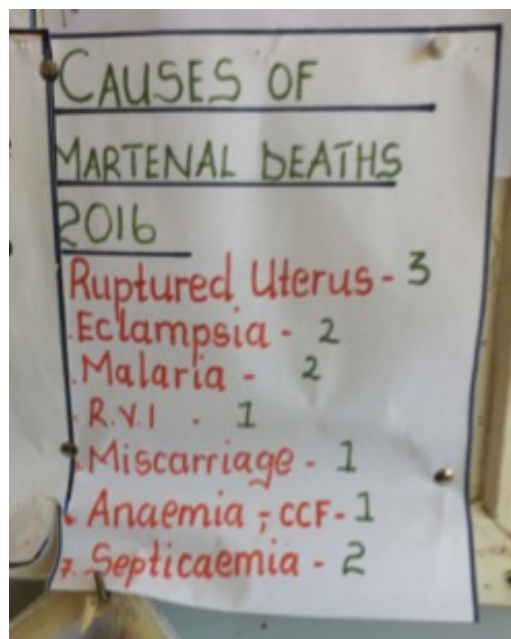
All of the facilities assessed in Zimbabwe had a process or formal system for reviewing maternal and perinatal deaths. The assessment revealed that staff used many data sources to compile case reports for mortality review meetings. Staff reported completing audit forms soon after the death in most facilities, but not all facilities reported having standard forms available. Some audit teams compiled information in blank workbooks, meaning that—at times—key details were not available or incorporated. Facilities that reviewed neonatal deaths separately from maternal deaths rarely incorporated maternal history into the neonatal death review process and varied in the degree of coordination between the obstetrics and paediatrics departments. In Manicaland Province, a pilot electronic data system allowed for quick review of combined maternal and neonatal data sources and calculation, visualisation, and analysis of mortality trend data.

Most of the district- and provincial-level stakeholders interviewed (82%) expressed concern about the quality of information received from facilities and more than half of the stakeholders (65%) reported that there was already local capacity for collecting and using MPDSR information. More than half of the stakeholders (nine) reported providing support to train facility staff in data collection and using data for quality improvement. District stakeholders reported some integration of surveillance information from the MPDSR process with the health management information system (HMIS) and civil registration and vital statistics (CRVS): 82% reported integration with HMIS and only 47% reported integration with CRVS.

Step 3: Complete and Assess Cause of Death and Avoidable Factors

The third step in the audit cycle, according to the national guidelines, is to complete and assess causes of deaths and avoidable factors. While death reviews should not be driven by a need to produce data, MPDSR committees or designated staff can tally quantitative analyses and outcomes, present findings at scheduled review meetings, and post publicly within the ward or unit (see Figure 6).

Figure 6: Picture from site visit showing causes of maternal deaths displayed on a wall chart. Not all facilities captured causes systematically, and some recorded causes of death that were not programmatically useful, such as fever and convulsions.



Sites and interviewed stakeholders at provincial, district, and facility levels varied widely in terms of analysis of data and presentation of trends. At the district and provincial levels, some stakeholders knew the numbers and trends at the facility level, but others appeared less aware of and/or interested in facility trends in their catchment areas. Ten facilities displayed or shared relevant data trends. Facilities reported using multiple systems to classify cause of death: five facilities used ICD-10 (the 10th revision of the International Classification of Diseases), eight reported other methods, and three reported using no system. Standard cause-of-death categories are available on national audit forms, yet the quality and accuracy of cause-of-death assignment for maternal and perinatal deaths varied widely on death certificates and audit reports. Where post-mortems were available, facilities completed them for maternal deaths only. No facility reported perinatal post-mortems or placental histology due to a lack of resources and family consent or interest. Avoidable factors were determined more systematically, with almost all facilities (13) classifying deaths as avoidable, possibly avoidable, or not avoidable, and/or assigning each death to a first, second, or third delay using the three delays model.¹⁶ The MPDSR process enables facility staff to better assess causes of death and avoidable factors, then use the data to identify gaps and recommendations.

It's helping [the MPDSR process]. One person wouldn't have noted these gaps alone. But together, we are improving the quality of services.

—Sister-in-charge, facility interview

Step 4: Make Recommendations and Take Action

One of the most challenging parts of the MPDSR process is formulating appropriate recommendations based on modifiable factors and then implementing them, but these steps are critical to successful implementation. At facility level, it may be more effective to focus first on recommendations that are within the control of health workers, such as detailed history taking and correct partograph use. Administrators and management may be able to act quickly and responsively on recommendations that fall within their purview, such as ambulance availability or lack of resuscitation equipment. Assuming successes emerge in subsequent mortality audit meetings, health workers can use those successes to advocate with management for further action.

[MPDSR is useful because] you will be able to identify problems and be able to address them.

—Sister-in-charge, facility interview

Many facilities (69%) in this assessment engaged at least somewhat in this important step of the audit cycle: issuing action plans with recommendations. However, recommendations ranged from very specific, time-bound, and feasible to broad and long-term (see Figure 7). Facilities were far more likely to complete actions that could be implemented locally (within the unit or department) and were assigned to a specific follow-up person and timeline. Fourteen facilities reported assigning individuals to follow up on specific recommendations. However, only six facilities reported an official documentation system for tracking the follow-up and only one had a formal process for follow-up apart from reviewing minutes at the next mortality audit meeting.

Multidisciplinary participation enables all stakeholders and health care providers to understand gaps and recommendations (see Figure 8). All facilities demonstrated evidence of multidisciplinary participation in the review meetings, with clinical staff from different units (obstetrics, paediatrics, unit in charge) as well as hospital administration, such as information officers, hospital and district management, and community liaisons. Maternal mortality audit meetings were interdisciplinary almost everywhere, but perinatal mortality audit meetings were less so.

Figure 7. At one site visit, the facility had a list of specific and actionable recommendations, but no timeline or person responsible assigned.

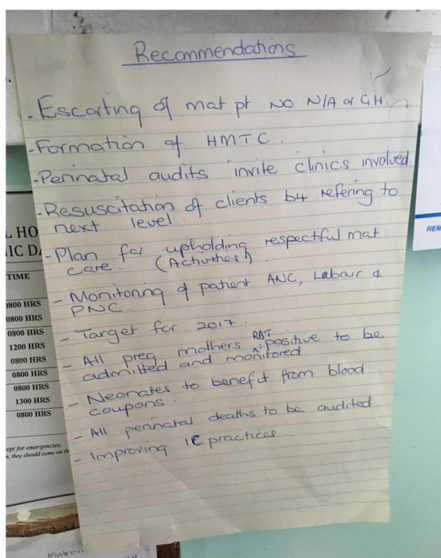
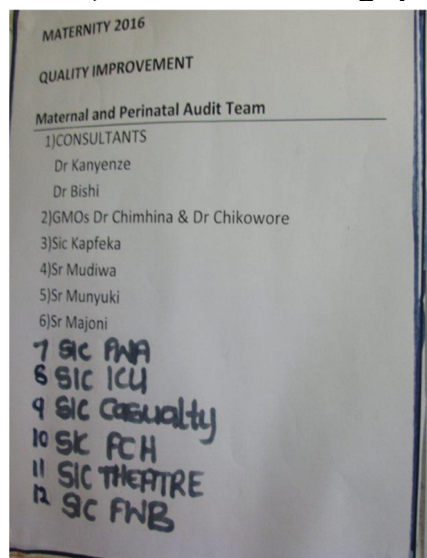


Figure 8. Maternal and perinatal audit team at one site visit reflects the interdisciplinary nature of mortality audit committees and meetings, with doctors, nurses, and sisters-in-charge participating.



Everyone attends our maternal and perinatal meetings, all the way to the driver. Because when we have a case to transfer, he knows why we need to move now.

—Sister-in-charge, facility interview

Staff protection, confidentiality, and disciplinary actions are also critical considerations when creating a culture of self-reflection and review as part of the context of a supportive and enabling environment. The assessment found that most facilities (62%) conducted MPDSR meetings in a no-blame environment; six facilities reported a connection to professional disciplinary action and the MPDSR system.

We make sure we don't say the names of those who attended the patient. No one says, "I am the one." Just "doctor" or "nurse."

—Sister-in-charge, facility interview

Step 5: Evaluate and Refine

The final step in the audit cycle involves looking back to evaluate what worked and what did not, and then refining and adapting the approach to move forward with an improved MPDSR process and a more conducive, enabling environment. It requires that steps 1 through 4 are complete, offering an opportunity for reflection after the death has occurred.

When it came to evaluating the process of mortality audits, facility-level respondents noted the importance of district and provincial review meetings to monitor whether recommendations outside the control at other system levels. There was no process for formally documenting and reporting success stories resulting from MPDSR processes, although such stories of change could motivate local facility staff and beyond. No facilities reported targets for reducing mortality or complications, that is, linking quality improvement and MPDSR activities to important health outcomes.

The assessment found a large number of gaps in follow-up of community maternal and perinatal deaths. Even with the majority of births taking place in facilities, deaths do occur at the community level, including for women who access care at some point during their pregnancy. Seven facilities demonstrated evidence of reporting findings and progress to community. No facilities reported links between facility MPDSR processes and district verbal autopsy processes.

Respondents at facilities provided multiple examples of how recommendations made during the mortality audit process resulted in a change; many related to the availability of blood and improved referral processes. For example, at one facility, now a midwife goes with the ambulance to collect patients at rural health facilities to manage the case sooner, resulting in improved outcomes in maternal and perinatal health.

Enablers and Barriers of MPDSR Implementation

Facilities reported a number of enabling factors for implementation of MPDSR, including support from provincial-level management to orient and provide tools, enable cross-learning from other districts, and ensure discussion at provincial meetings. More than half of the stakeholders interviewed (nine) reported providing support to train facility staff in data collection and quality improvement. Communication among health staff in facilities and among the hospital and surrounding clinics also supported implementation efforts. Another facilitator noted regularity of and familiarity with the process as an enabling factor.

Stakeholders and facility informants identified barriers to implementation of MPDSR, such as lack of follow-up on the recommendations, poor leadership, weak referral mechanisms, and lack of community engagement. Some of the most common barriers to ensuring follow-up and implementation of the death review recommendations included lack of essential commodities, qualified personnel, and resources/finances. Additional barriers included lack of notification forms and tools, health worker attitudes and fatigue, and general lack of funds due to dependence on donor-funded programmes. Health workers at facilities also noted the attitudes of service providers, overworked personnel, and too many responsibilities with limited resources as barriers.

MPDSR helps us not to repeat the same mistakes—we see what was lacking and want to improve quality of care.

—Facility interview

Discussion

The results of this assessment demonstrate a commitment among policy-makers and health workers to maternal and perinatal death audits, with all facilities demonstrating evidence of practice and the majority demonstrating institutionalised practice. There is no debate over whether MPDSR on its own is valued, but rather whether it results in improved practice and quality of care at facility and community levels.

The key informant interviews indicated a strong need for strengthening national- and provincial-level committees to champion and provide ongoing support to mortality audit processes. For facilities that are new to or struggling with MPDSR, having the provincial MPDSR committee officially inaugurate the process could give the local team a boost. Documenting and disseminating success stories arising from lessons learned through audit should be explored in the future as another motivational tool. Identifying sites with strong MPDSR meetings and conducting learning visits for senior health workers and/or policy-makers to observe audit meetings and best practices could also strengthen implementation.

Given that many but not all facilities had copies of the national guidelines, an important action will be disseminating these guidelines, especially the data collection forms, with training for at least one individual per facility. Facility respondents had many ideas about what they would like to see on forms and what pieces of information were not as useful. Involving facility-level committees in the national processes to review the tools and develop the trainings will ensure that the data collected are relevant to both the end users and higher-level decision-makers.

The MOHCC encourages facilities to use standardised national audit forms (those from the national guidelines) for documenting and completing death audits, including identification of follow-up actions. Forms would standardise some of the terminology and data items completed. Additional advocacy and training on the value of each data element of information collected might be helpful. If a specific use for certain data cannot be identified, then the data should not be collected. Having a clear understanding of how to use information may motivate health care providers to more accurately collect and review data. Further training on cause-of-death classification is required, with better alignment and differentiation (as appropriate) of death certificates and mortality audit forms. Correct classification is needed to inform the response. While some smaller facilities were able to review each death, most selected a sample of cases for review. It is important to select audited deaths according to defined criteria to yield maximum learning and opportunity to improve maternal and perinatal services based on the leading causes of maternal and perinatal mortality and morbidity. Stakeholders should consider conducting a more in-depth assessment to determine whether the samples selected contain learning points and are not randomly chosen.

The lack of resources to support MPDSR processes and pervasive health system weaknesses can be demotivating for staff who see the same recommendations coming up repeatedly with no action taken and/or sustained. Facility MPDSR committees may benefit from additional counselling and supervision on how to identify actions within their sphere of control, such as completing partograph, ensuring availability of commodities, and timely response to emergencies. Eventually, more complex issues can be implemented and prioritised for higher-level change.

The interdisciplinary nature of audit meetings for maternal mortality demonstrates wider buy-in and ownership in the process, but expanding audit meetings is also important to ensure the participation of obstetricians, midwives, nurses, and especially paediatricians when there is also a perinatal death. Another important point is to ensure that the review of neonatal deaths involves obstetrics and paediatrics staff in larger hospitals. Many facilities also brought up the need for modest funding to enable transport and thus involve peripheral clinics and village health workers in audit processes.

While overall, there was little fear or blame associated with death review meetings reported in the 16 facilities assessed, staff participating in the audit process did not have guaranteed protection against professional disciplinary or legal actions. Adopting a mortality audit meeting code of conduct that clearly differentiates

between mortality audit and professional disciplinary or legal processes can help give staff greater confidence to share openly with less fear of punishment or blame. Such a code of conduct could be shared as a poster or handout.

Availability of a formalised system with financial and human resources in place for documenting and reviewing community deaths will fulfil the mandate of the national guidelines and capture every maternal and perinatal death. To fully operationalise MPDSR processes as designed and laid out in the national MPDSR guidelines, facilities and district managers need stronger links to communities and village health workers as well as resources for conducting verbal autopsy interviews around the sensitive topics of maternal and infant death.

While facilities demonstrated commitment to the MPDSR process, simply holding meetings and discussing deaths does not necessarily enable change or improve quality of care. Leadership and supervision within a supportive environment are essential to ensuring the completion of the audit cycle. Further exploration of how to strengthen the response component of MPDSR at all levels would improve support for implementation.

Alignment with Global MPDSR Guidance

While gaps remain, particularly around capturing community-level information and consolidating and disseminating data, recommendations, and actions at the national level, the level of institutionalised practice of MPDSR across facilities signifies Zimbabwe's commitment to ending preventable maternal and perinatal deaths, even given limited resources. The national guidelines align with global recommendations, though there is scope for further dissemination and training on these national guidelines and global best practices. There was some variation in implementation status among facilities and knowledge among key informants. The interest and engagement at the district level are encouraging, and replication at the provincial and national level would feed support to health facilities and strengthen community linkages.

Limitations of Assessment

This study aimed to provide information on what was happening with mortality audits on the day of the visit at each facility. There are no claims with regard to the generalisability of the findings, especially because MCSP visited a small subsample of facilities. MCSP solicited information from national-, provincial-, district-, and facility-level stakeholders to inform the process of conducting mortality audits at the hospital, but the interviews focused mainly on the process of conducting mortality audits at the hospital level. While questions on community activities were also asked, no observations were made at community level and no community stakeholders were interviewed.

Most of the information was self-reported by the informants interviewed at each health facility, which depended on who was available the day of the site visit. Some of the views expressed may not reflect those of other health care staff, particularly more junior staff who may feel that they receive more blame or scrutiny during mortality audit meetings.

Conclusion

This assessment found high political will and capacity to collect data and use MPDSR to implement change and track progress among stakeholders and facility staff. Since all facilities demonstrated some evidence of practising maternal and perinatal death audits, and, in most cases, institutionalising practice, there seems to be a system in place to strengthen the quality of practice. While some facilities appeared to be collecting data because it is mandated, others had clear champions. All facilities require support to communicate success stories while ensuring a no-blame environment and to access change agents at other levels to address larger, systemic concerns. Far too many mothers and babies continue to die in Zimbabwe because the right care was not available in the right place and at the right time. Learning from these cases through systematic implementation of MPDSR linked to broader quality improvement efforts can help end preventable maternal and perinatal deaths in Zimbabwe.

Recommendations

National and Provincial Levels

- Strengthen national- and provincial-level committees.
- Share copies of national guidelines, especially forms, with training for at least one individual per facility and ensure soft copies are available for additional printing.
- For sites that are new to or struggling with MPDSR, inaugurate committees in health facilities and provide training and mentorship from provincial level.
- Engage professional associations and other partners to provide information about MPDSR at meetings and trainings.
- Document and circulate success stories about change, potentially through learning visits.
- Involve facility-level committees in data improvement, review, and use of forms.
- Formalise system for capturing and reviewing community deaths.

Facility Level

- Use standardised forms for documenting cases under review, including identifying action points.
- Adopt a meeting code of conduct, either in poster or in handout format, to ensure that staff know there will be no blame or punishment.
- Ensure review of neonatal deaths is interdisciplinary in larger facilities.
- Institute a system of follow-up for recommendations apart from monthly meetings (list each recommendation with completion status).
- Include and support the participation of referring primary care clinics/rural health centres in mortality audit meetings.
- Support community engagement by involving health centre committees, village health workers, and community leaders in verbal autopsies.

References

1. UNICEF. State of the World's Children 2016. New York: UNICEF, 2016.
2. Blencowe H, Cousens S, Jassir FB, et al. National, regional, and worldwide estimates of stillbirth rates in 2015, with trends from 2000: a systematic analysis. *The Lancet Global health* 2016; **4**(2): e98-e108.
3. Alkema L, Chou D, Hogan D, et al. Global, regional, and national levels and trends in maternal mortality between 1990 and 2015, with scenario-based projections to 2030: a systematic analysis by the UN Maternal Mortality Estimation Inter-Agency Group. *Lancet* 2016; **387**(10017): 462-74.
4. MOHCW [Zimbabwe]. Guidelines for Maternal and Perinatal Death Audits in Zimbabwe. Harare: Reproductive Health Unit, Ministry of Health and Child Welfare, 2013.
5. Who. Beyond the numbers: Reviewing maternal deaths and complications to make pregnancy safer. Geneva: WHO; 2004.
6. Economic and Social Council. Commission on the Status of Women: Report on the fifty-sixth session (E/2012/27). In: Council EaS, editor. New York, NY: United Nations; 2012.
7. WHO. Make every baby count: audit and review of stillbirths and neonatal deaths. Geneva: World Health Organization, 2016.
8. UNICEF, WHO. Every Newborn: An action plan to end preventable deaths. Geneva: World Health Organization, 2014.
9. WHO. Strategies toward ending preventable maternal mortality (EPMM). Geneva: World Health Organization, 2015.
10. Kerber KJ, Mathai M, Lewis G, et al. Counting every stillbirth and neonatal death through mortality audit to improve quality of care for every pregnant woman and her baby. *BMC Pregnancy Childbirth* 2015; **15** Suppl 2: S9.
11. MDSR Action Network 2017. <http://mdsr-action.net/> (accessed 5 September 2017).
12. Zimbabwe Ministry of Health and Child Welfare [ZMOHCW]. National Child Survival Strategy for Zimbabwe 2010-2015. Harare, Zimbabwe: The Ministry of Health and Child Welfare, Zimbabwe, 2010.
13. Ministry of Health and Child Welfare. Zimbabwe Maternal and Perinatal Mortality Study 2007. Harare: Ministry of Health and Child Welfare, 2009.
14. Bergh AM, Kerber K, Abwao S, et al. Implementing facility-based kangaroo mother care services: lessons from a multi-country study in Africa. *BMC Health Serv Res* 2014; **14**: 293.
15. Bergh AM, Arsalo I, Malan AF, Patrick M, Pattinson RC, Phillips N. Measuring implementation progress in kangaroo mother care. *Acta Paediatr* 2005; **94**(8): 1102-8.
16. Thaddeus S, Maine D. Too far to walk: maternal mortality in context. *Social Science and Medicine* 1994; **38** (8): 1091-110.

Appendix A: Key Informant Questionnaires

Name of progress monitor / assessor: _____

Date: _____

Observations and Questions to Ask Health Worker Informants

Health Care Facility

Province: _____

District: _____

Name of facility: _____

Level of facility (hospital / health centre): _____

Is there a MDSR coordinator or stakeholder at the facility?

☐

Yes

☐

No

☐

Unsure

Job title: _____ *(write none if there is no MDSR)*

Is there a PDSR coordinator or stakeholder at the facility?

☐

Yes

☐

No

☐

Same as MDSR coordinator

☐

Unsure

Job title: _____ *(write none if there is no PDSR)*

Does the coordinator(s) have other responsibilities (e.g. information officer, QI focal point, etc.):

Does the facility have a process or formal system for reviewing maternal deaths, stillbirths, and/or neonatal deaths?

Maternal deaths:

☐

Yes

☐

No

☐

Unsure

Perinatal deaths:

☐

Yes

☐

No

☐

Unsure

Stillbirths:

☐

Yes

☐

No

☐

Unsure

Neonatal death:

☐

Yes

☐

No

☐

Unsure

Comments:

Near-misses?

☐

Yes

☐

No

☐

Unsure

Comments:

Does the facility have a review committee for MPDSR?

☐

Yes

☐

No

☐

Unsure

If yes, please describe (e.g., maternal, perinatal, both, separate, etc.):

If no, who is responsible for reviewing maternal and perinatal deaths?

History of MPDSR Implementation

When was MDSR started at the facility?

When was PDSR started at the facility?

We would like to know more about the process that was followed. Where did the decision to undertake M/PDSR (MPMAs) originate? (e.g. district, facility, or national level)

Was there a specific occasion or meeting where the decision to implement MPDSR (MPMA) was taken?

☒ Yes ☐ No ☐ Unsure

If yes, approximate date: _____

Was there an implementation or action plan established?

☒ Yes ☐ No ☐ Unsure

Are there written minutes or documentation of the decision?

☒ Yes ☐ No ☐ Unsure

(If Yes, ask if it would be possible to see a copy. Ensure that all personally identifiable information is removed or obscured.)

Documentation seen

☒ Yes ☐ No

Document received / photographed

☒ Yes ☐ No

Respondent's recall of the history of implementation (data collector's opinion):

☒ Good recall ☐ Some recall ☐ No recall

If M/PDSR is not implemented yet: has a formal decision for M/PDSR implementation been made yet?

☒ Yes ☐ No ☐ Unsure

If yes, describe:

MPDSR/ MPMA Role-Players

Has anyone in facility or district leadership signed a commitment or undertaken an agreement that s/he would ensure that MPDSR / MPMA is implemented in the facility?

☐ Yes ☐ No ☐ Unsure If yes, specify title: _____

What kind of support did you get from the following people? *(specify type of support e.g. financial, moral, in-kind, or write none, or not applicable if the post does not exist at the facility or district)*

District medical officer / _____
CEO/superintendent/ clinical director: _____
District information officer (or equivalent): _____

Health services administrator: _____

Matron / nursing service manager: _____

Sister in charge (neonatal unit or maternity): _____

Obstetrics (specialist/GMO): _____

Paediatrics (specialist/GMO): _____

Facility information officer: _____

Quality assurance officer: _____

Community liaison/public relations officer: _____

Other, specify: _____

Do you have educational activities in your facility to introduce MPDSR/MPMA to staff members?

☐ Yes ☐ No ☐ Unsure

If yes, describe:

Are activities internal or led by district or national?

Are activities held onsite or offsite?

Approximately how many staff members are currently involved in MPDSR?

Managers (e.g. facility administrators) _____

Clinicians (doctors or medical officers) _____

Nurses/midwives _____

Other (specify) _____

Have you received support (financial or in-kind) from the hospital or district budget to establish MPDSR?

☐ Yes ☐ No ☐ Unsure

If yes, describe: _____

MPDSR Practice

Are there any *written* policies, guidelines or protocols regarding the practice of MPDSR/ MPMA?

☐ Yes ☐ No ☐ Unsure

If yes, describe: _____

(Note whether the document is specific to the facility, district or national level. Obtain a copy or take a photo if possible)

MPDSR/ MPMA Cycle: Identifying Deaths

How are deaths identified? *(Let the respondent answer first, then probe for different areas of facility, especially for maternal deaths, as these are more likely to occur in different areas of the facility.)*

- ☐ ANC register
- ☐ Ambulatory emergency care area
- ☐ General adult inpatient ward
- ☐ Paediatric ward
- ☐ LCH register
- ☐ Labour and delivery register
- ☐ Outpatient department register
- ☐ Postnatal register
- ☐ Neonatal register
- ☐ Other, specify: _____

Are maternal deaths that occur in the community documented at this facility?

☐ Yes ☐ No ☐ Unsure

If yes, what is the process for learning about and documenting these?

Is the process the same for perinatal deaths that occur at the community? ☐ Yes ☐ No ☐ Unsure

If 'No' describe the process for perinatal deaths:

MPDSR/ MPMA Cycle: Collecting Information

How is information about maternal and/or perinatal deaths collected and summarized for MPDSR?

Ask to see a copy of the forms used. (obtain a copy or request to take a photograph, specifically capturing the sections where cause of death, modifiable factors, and solutions are recorded)

What documents are used to compile cases for mortality audit meetings?

- ☐ Patient charts / case notes
- ☐ Registers
- ☐ None
- ☐ Maternal death notification form
- ☐ Perinatal death notification form
- ☐ Post-mortem report
- ☐ Other, specify:

In your opinion, do the medical records and registers capture the necessary information for assessment of cause of death and contributing factors for maternal and perinatal deaths?

Is your facility involved in any efforts to improve the organization of medical records and registers (e.g. standardization of records with minimum essential data points)? (if 'Yes', describe)

Is there a system used to classify cause of death on the mortality audit forms?

- ☐ ICD-10
- ☐ Modified ICD-10
- ☐ None
- ☐ Other, specify:

Is there a system used to classify avoidable factors or sub-standard care?

- ☐ 3 delays
- ☐ Root cause analysis
- ☐ Patient–Provider–Administrator
- ☐ None
- ☐ Other, specify:

Are there any statistics related to MPDSR/ MPMA displayed somewhere (e.g. on a wall)?

- ☒ Yes
- ☐ No
- ☐ Unsure

If yes, describe what indicators are included (*and take a picture if possible*):

Are there official channels through which MPDSR findings are reported to different levels of management on a regular basis?

- ☒ Yes
- ☐ No
- ☐ Unsure

If yes, where are the findings sent?

(Obtain a copy or request to take a photograph of the reporting template from the health facility to other levels within the system.)

MPDSR/ MPMA Cycle: ANALYSING Data and Presenting Results

How frequently do mortality audit meetings take place?

- ☒ Who (positions/job titles) are invited to attend?
 - ☐ District medical officer
 - ☐ CEO/superintendent/ Clinical director
 - ☐ District information officer (or equivalent)
 - ☐ Health services administrator
 - ☐ Matron/nursing service manager
 - ☐ Sister-in-charge, neonatal unit
 - ☐ Sister-in-charge, maternal unit
 - ☐ Obstetrics (specialist/GMO)
 - ☐ Paediatrics (specialist/GMO)
 - ☐ Facility information officer
 - ☐ Quality assurance officer
 - ☐ Community liaison/public relations officer
 - ☐ Other,
specify_____

Is attendance mandatory? ☒ Yes ☐ No ☐ Unsure

What is the title of the most senior staff member or administrator normally present?

What is the title of the staff or administrator who runs the meetings?

What is presented at the meetings (describe what happens at the meetings)?

Is every maternal death reviewed or is a sample of deaths selected for discussion? Yes No

Is every perinatal death reviewed or is a sample of deaths selected for discussion? Yes No

If a sample of deaths is selected, what criteria are used to decide which deaths get reviewed?

What trend data or statistics are routinely presented, if any?

Are meeting minutes taken? ☒ Yes ☐ No ☐ Unsure

(If yes, obtain a copy or request to take a photograph of recent meeting minutes. Ensure that all personally identifiable information is removed or obscured.)

MPDSR/ MPMA Cylce: Recommending Solutions

How are solutions identified? Is the data on cause of death and modifiable factors used to support these?

How does the mortality review team identify and prioritize recommendations?

Is an action plan developed as part of the review process?

☒ Yes ☐ No ☐ Unsure

If yes, describe what the action plan entails:

MPDSR/ MPMA Cycle: Implementing Changes

Does the mortality review process ever result in a change to the cause of death as compared to the cause of death recorded in the facility records (e.g., vital statistics report, maternity register, maternity monthly report, etc.)?

☒ Yes ☐ No ☐ Unsure

If yes, how is this reconciled?

Are individuals assigned to follow up on specific recommendations?

☒ Yes ☐ No ☐ Unsure

If yes, how is this assigned?

What is the process for reporting back to the review team on the status of recommendations?

Is there a written documentation system for tracking the follow-up on specific recommendations?

☒ Yes ☐ No ☐ Unsure

(If yes, obtain a copy or request to take a photograph.)

In your opinion, what are some barriers to ensuring recommendations are implemented following mortality review (e.g., completing the “Response” portion of MPDSR)?

- ☐ Inadequate MOH leadership/support
- ☐ Inadequate facility leadership/support
- ☐ Inadequate district leadership/support
- ☐ Lack of communication across levels
- ☐ Inadequate referral system
- ☐ Lack of essential commodities
- ☐ Lack of qualified personnel
- ☐ Lack of resources/finances
- ☐ Lack of community engagement
- ☐ Harmful local practices
- ☐ Other (describe)

Do you regularly link MPDSR to any other quality improvement activities in your facility? (if yes, describe.)

Are there success stories that have come out of the MPDSR/MPMA process?

- ☐ Yes ☐ No ☐ Unsure

If yes, are the success stories documented and communicated?

- ☐ Yes ☐ No ☐ Unsure

If yes, how:

Are the recommendations from facility-based death reviews fed back to the community in any way?

Avoiding Blame and Ensuring Confidentiality

How is staff protection ensured during the mortality review process?

Are the names of individual staff members included in audit reports?

☐ Yes ☐ No ☐ Unsure

If yes, please describe:

Is there any connection to professional disciplinary action and the MPDSR system?

☐ Yes ☐ No ☐ Unsure

If yes, please describe:

Do you see any risks associated with the MPDSR / MPMA process?

☐ Yes ☐ No ☐ Unsure

If yes, please describe:

Case Study Questions

What do you think is working well in your facility regarding MPDSR?

What were the factors that facilitated implementation of MPDSR in your facility?

What are / were some of the barriers / obstacles to the implementation of MPDSR?

What changes would improve the MPDSR/MPMA process in your facility?

Can you tell us about a time where the recommendations made during the mortality audit process resulted in a change in how care was provided?

Approximately how much time (hours) does the MPDSR committee/team spend per month on all activities related to MPDSR in your facility?

Sometimes mortality audit can be a demoralising activity for staff. How is morale maintained in meetings?

In your view, how useful is MPDSR for improving the quality of care and health outcomes for women and newborns in your facility?

Assessor's General Observations and Impressions

Impressions regarding the intensity of involvement of facility senior management in conducting MPDSR/MPMA

- ☒ A lot of involvement and/or support (moral, material, etc.)
- ☐ Some involvement and/or support (moral, material, etc.)
- ☐ Neutrality / little support
- ☐ Resistance

Comments:

Impressions of the quality of data captured in MPDSR/ MPMA summary forms:

- ☒ Excellent
- ☐ Average
- ☐ Poor

Comments:

Impressions of the quality of recommendations contained in the review meeting notes:

☐ Excellent

☐ Average

☐ Poor

Comments:

Impressions of the quality of follow-up actions:

☐ Excellent

☐ Average

☐ Poor

☐ Not applicable

Comments:

Recommendations for Local Consideration

Ideas for Policymakers and Other Levels of Management

Maternal & Perinatal Death Surveillance Review (MPDSR) Assessment

Key Informant Interview Questionnaire

Name of progress monitor / assessor: _____ Date: _____

Observations and Questions to Ask District, Provincial and National Level Stakeholders

1. Is there a district/provincial/national MDSR coordinator? (responsible for maternal death audits)
☐ Yes ☐ No ☐ Unsure

2. Is there a district/provincial/national PDSR coordinator? (responsible for perinatal death audits)
☐ Yes ☐ No ☐ Same cadre as MDSR coordinator ☐ Unsure

3. What is the role of the coordinator(s) related to M/PDSR?

4. What are some of the non-M/PDSR responsibilities of the coordinator(s)?

5. Are there guidelines in place for review of maternal deaths?
☐ Yes ☐ No ☐ Unsure

If yes, at what level are these guidelines (e.g. national, provincial, district):

6. Are there guidelines for review of perinatal deaths?
☐ Yes ☐ No ☐ Unsure

If yes, at what level are these guidelines (e.g. national, provincial, district):

Ask to obtain a copy of the guidelines and check if the guidelines include the following:

- ☐ Standardized maternal death review form
- ☐ Standardized perinatal death review form
- ☐ Training materials and activities
- ☐ Supervision activities
- ☐ Reporting requirements (timing, information flow, standard indicators to report on)
- ☐ Process for notification of every maternal death
- ☐ Process for selecting deaths for audit
- ☐ Stratification of guidelines by facility level
- ☐ Integration with quality improvement approaches

7. Are M/PDSR systems integrated with the following structures:

HMIS ☐ Yes ☐ No ☐ Unsure

CRVS ☐ Yes ☐ No ☐ Unsure

IDSR ☐ Yes ☐ No ☐ Unsure

Other (describe):

8. Is a central M/PDSR report compiled?

☐ Yes ☐ No ☐ Unsure

If yes:

When was the most recent report compiled?

At what level (e.g. district, provincial, national, etc)?

Who (position title) is responsible for compiling the report?

What is done with the recommendations contained in the report?

Community links

9. Are you aware of efforts at the community level to feedback recommendations from facility-based death reviews?

- a. Are there ways to target community-level factors associated with deaths (e.g. social determinants of health, local behaviours and practices) that arise out of death reviews?

10. What current mechanisms exist to identify deaths in the community and make sure they get reported?

- a. Referring to question 10, do the same processes exist for maternal deaths and perinatal deaths?

Technical: ability to monitor implementation of recommendations

11. Can you tell us about a policy or program related decision, or change in service delivery that has been based upon MPDSR findings?

12. In your opinion, do the registers and recording forms currently used in health facilities capture necessary data for assessment of cause of death and avoidable factors for maternal and perinatal death audits?

13. Do you have any concerns about the quality of information around maternal deaths, stillbirths, and/or neonatal deaths?

If yes, how could this area of concern be improved?

14. Is your team involved in any efforts to improve medical records and registers (e.g. standardization of records with minimum essential indicators)?

15. Is the local capacity adequate to interpret maternal and perinatal death review decisions?

☐ Yes ☐ No ☐ Unsure

If no, what technical assistance has been required?

16. In your opinion, what are some barriers to ensuring actions take place following mortality review ?

☐

MOH leadership/support

☐

Inter-departmental leadership/support

☐

Disconnect between national and/or district and facilities

☐

Inadequate referral system

☐

Lack of essential commodities

☐

Lack of qualified personnel

☐

Lack of resources/finances

☐

Other (describe)

District manager level only

17. Office of respondent: ☐ DMO ☐ DNO ☐ Other (specify):

18. Where did the decision to undertake MPDSR/MPMA originate? (e.g. facility, district, provincial or national level)

19. How does your district support health facilities to gather and analyse the necessary MPDSR/MPMA data to make decisions?

20. Does your district provide any support training for facility staff in MPDSR/MPMA data collection? (If 'Yes' describe)

21. Does your district provide any support training for facility staff in using MPDSR/MPMA data for quality improvement? (If 'Yes' describe)

22. Can you describe any processes you use to assess the quality and accuracy of birth and death data?

23. Do you see any risks associated with the MPDSR/MPMA process? (If 'Yes' describe)
(e.g. staff time)

Appendix B: MCSP MPDSR Implementation Scoring Scheme for Facilities

Implementation construct	Progress marker	Instrument items
Creating awareness (2 points maximum)	Number and type of (senior) managers involved in implementation process (in relation to size of facility)	Special persons who take specific effort in promoting MPDSR including management, professionals, driving forces (contact person, meeting coordinator, other champion) <i>1 point</i>
		Clear leader(s) involved in establishing and championing MPDSR (past or future) <i>1 point</i>
Adopting the concept (2 points maximum)	Decision to implement MPDSR	Knowledge of the original decision to implement MPDSR. If MPDSR not yet implemented: has a formal decision been taken? <i>1 point</i>
	Steering committee	MPDSR leadership team or steering committee established <i>1 point</i>
Taking ownership (6 points maximum)	Tools available	MPDSR data collection form available. <i>1 point</i>
		Tools include cause of death <i>1 point</i>
		Tools include modifiable factors <i>1 point</i>
		Tools include place to follow up on actions taken <i>1 point</i>
	Meeting process established	Ability to describe or show documentation of meeting process <i>0.5 points</i>
		Staff meeting conduct agreement available <i>0.5 points</i>
	Resources allocated	Allocations from the hospital budget to establish MPDSR <i>0.5 points</i>
		Allocations from other partners to establish MPDSR <i>0.5 points</i>

Implementation construct	Progress marker	Instrument items
Evidence of practice (7 points maximum)	Evidence of MPDSR meetings	Meeting minutes available <i>1 point</i>
		Meeting minutes include action items <i>1 point</i>
		Meeting minutes include follow up from previous meetings <i>1 point</i>
		Meeting notes respect confidentiality of staff and patients <i>1 point</i>
	Orientation for new staff	Face-to-face or written orientation to MPDSR <i>1 point</i>
	MPDSR data use	Data trends displayed or shared <i>2 points</i>
Evidence of routine integration (7 points maximum)	Further evidence of practice	Evidence of change based on recommendation arising from MPDSR findings <i>3 points</i>
	Evidence of MPDSR policy	MPDSR appears in facility statements and policies. <i>1 point</i>
	Multi-disciplinary meetings	MPDSR meetings include staff from different disciplines, management <i>2 points</i>
	Community linkages	Evidence of reporting findings and progress to community <i>1 point</i>
Evidence of sustainable practice (6 points maximum)	Documented results	Facility records show ongoing MPDSR review meetings for at least 1 year <i>2 points</i>
	Evidence of staff development	Plan in place to ensure all staff receive MPDSR training. <i>1 point</i>
		Evidence that staff have received MPDSR training in the past year. <i>1 point</i>
	Score on the first 5 constructs (divided by 12)	Score on the first 5 constructs will influence sustainability <i>2 points</i>
MAXIMUM TOTAL SCORE		<i>30 points</i>

Appendix C: Medical Research Council of Zimbabwe Ethical Approval Letter

Telephone: 791792/791193
Telefax: (263) - 4 - 790715
E-mail: mrcz@mrcz.org.zw
Website: <http://www.mrcz.org.zw>



Medical Research Council of Zimbabwe
Josiah Tongogara / Mazoe Street
P. O. Box CY 573
Causeway
Harare

REF: MRCZ/E/156

21 November 2016

Dr. B. Madzima
Ministry of Health and Child Care
P.O. Box CY 1122
Causeway
Harare

RE: - Regional review of facility level maternal and perinatal death surveillance and response (MPDSR) systems in four sub-Saharan African countries

Thank you for the application for review of Research Activity that you submitted to the Medical Research Council of Zimbabwe (MRCZ). Please be advised that the Medical Research Council of Zimbabwe has reviewed and approved your application to conduct the above titled study.

This approval is based on the review and approval of the following documents that were submitted to MRCZ for review:-

- a) Study proposal

- **APPROVAL NUMBER** : MRCZ/E/156
This number should be used on all correspondence, consent forms and documents as appropriate.
 - **TYPE OF MEETING** : EXEMPT
 - **EFFECTIVE APPROVAL DATE** : 21 November 2016
 - **EXPIRATION DATE** : 20 November 2017

After this date, this project may only continue upon renewal. For purposes of renewal, a progress report on a standard form obtainable from the MRCZ Offices should be submitted three months before the expiration date for continuing review.

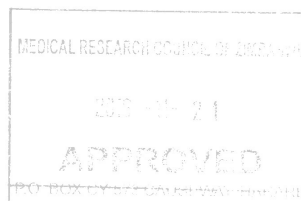
- **SERIOUS ADVERSE EVENT REPORTING:** All serious problems having to do with subject safety must be reported to the Institutional Ethical Review Committee (IERC) as well as the MRCZ within 3 working days using standard forms obtainable from the MRCZ Offices or website.
- **MODIFICATIONS:** Prior MRCZ and IERC approval using standard forms obtainable from the MRCZ Offices is required before implementing any changes in the Protocol (including changes in the consent documents).
- **TERMINATION OF STUDY:** On termination of a study, a report has to be submitted to the MRCZ using standard forms obtainable from the MRCZ Offices or website.
- **QUESTIONS:** Please contact the MRCZ on Telephone No. (04) 791792, 791193 or by e-mail on mrcz@mrcz.org.zw

Other

- Please be reminded to send in copies of your research results for our records as well as for Health Research Database.
- You're also encouraged to submit electronic copies of your publications in peer-reviewed journals that may emanate from this study.
- The study can be conducted with verbal consent.

Yours Faithfully


MRCZ SECRETARIAT
FOR CHAIRPERSON
MEDICAL RESEARCH COUNCIL OF ZIMBABWE



PROMOTING THE ETHICAL CONDUCT OF HEALTH RESEARCH

Appendix D: Oral Consent Form

Page 1 of 3



CONSENT FORM

Review of facility-level Maternal and Perinatal Death Surveillance & Response (MPDSR) in Zimbabwe

Principal Investigators

Bernard Madzima [*Dr*] Phone numbers: 0772 481478

Rose Kambarami [*Prof*] Phone number: (04) 332 982

What the interviewee should know about this research study

- The main goal of research studies is to gain knowledge that may help the health delivery system.
- You have the right to refuse to take part, or agree to take part now and change your mind later.
- Whatever you decide, it will not affect future interactions.
- Ask any questions before you make a decision.
- Your participation is voluntary.

PURPOSE

My name is [name]. We are currently carrying out a review of the Maternal & Perinatal Death Surveillance & Response (MPDSR) system in selected health facilities and administrative offices in selected provinces in Zimbabwe. Zimbabwe is one of four countries in the region that is participating in this survey and MoHCC is working with partner support to conduct the survey. There is global consensus that accurate information about causes of death is needed to help inform efforts to end preventable maternal and newborn deaths. This regional review will help clarify performance drivers, common challenges and best practices in implementing, sustaining and scaling MPDSR and PDSR systems including factors promoting integrated national and sub-national level systems in countries of focus. Your input in this subject will be very important as it will inform the way forward in this program.

PROCEDURES AND DURATION

The interview session should last for up to one hour. With your permission, my colleague (name) and I will be writing down your responses as I ask the questions. If you feel uncomfortable at any time during the interview and decide to end the interview, you can do so. I expect to conduct only one interview; however, follow-ups may be needed for added clarification. If so, I will contact you by email/phone to request this.

RISKS AND DISCOMFORTS

This study involves only asking questions and reviewing documents therefore it poses no more than minimal risk of harm to respondents.

BENEFITS AND/OR COMPENSATION

There is no monetary benefit for taking part in this study as this is in line with routine care. It is hoped that the research will benefit the community at large as findings from the research will be used to improve the implementation of MPDSR in Zimbabwe.

CONFIDENTIALITY

Any information that is obtained in connection with this study that can be identified with you will remain confidential and will be disclosed only with your permission. Some data from this study may be shared with other researchers to look at or it will be put into a publicly-accessible database for research data. To protect your privacy, your name and other personal information about you will not be shared.

VOLUNTARY PARTICIPATION

Participation in this study is voluntary. If you decide not to participate in this study, your decision will not affect your future relations with the Ministry of Health and Child Care, its personnel, associated hospitals and the Maternal and Child Health Integrated Program (MCHIP). If you decide to participate, you are free to withdraw your consent and to discontinue participation at any time without penalty.

OFFER TO ANSWER QUESTIONS

Please ask any questions on any aspect of this study that is unclear to you. You may take as much time as necessary to think it over.

If you have any questions concerning this study or consent form beyond those answered by the investigator, including questions about the research; or if you feel that you have been treated unfairly and would like to talk to someone other than a member of the research team, please feel free to contact the Medical Research Council of Zimbabwe on telephone (04)-791792/ (04)-791193/ 0784956128. Alternatively you can visit them at Cnr Josiah Tongogara and Mazowe Street in Harare, Zimbabwe.