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Assessment of Maternal and Perinatal Death Surveillance and Response Implementation in Ebonyi and Kogi States, Nigeria

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The Maternal and Child Survival Program (MCSP) is a global, United States Agency for International Development (USAID) Cooperative Agreement to introduce and support high-impact health interventions with a focus on 24 high-priority countries with the ultimate goal of ending preventable child and maternal deaths within a generation. The Program is focused on ensuring that all women, newborns and children most in need have equitable access to quality health care services to save lives. 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. Visit www.mcsprogram.org to learn more.

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Acronyms

CRVS	Civil registration and vital statistics
FMOH	Federal Ministry of Health
HMIS	Health management information system
ICD	International Classification of Diseases
IMNCH	Integrated maternal, newborn, and child health
LGA	Local Government Authority
MCSP	Maternal and Child Survival Program
MDR	Maternal death review
MDSR	Maternal death surveillance and response
MNH	Maternal and newborn health
MMR	Maternal Mortality Ratio
MPDR	Maternal and perinatal death review
MPDSR	Maternal and perinatal death surveillance and response
NANNM	National Association of Nigeria Nurses and Midwives
NISONM	Nigerian Society of Neonatal Medicine
NPHCDA	National Primary Health Care Development Agency
PAN	Paedatric Association of Nigeria
PDR	Perinatal death review
PMR	Perinatal mortality rate
PHC	Primary health centre
QoC	Quality of care
SOGON	Society of Gynaecology and Obstetrics of Nigeria
USAID	United States Agency for International Development
WHO	World Health Organization

Executive Summary

Background

With all eyes focused on achieving the Sustainable Development Goals, Nigeria is looking to accelerate efforts to improve outcomes for women and babies. There is global consensus that accurate information about causes of death through mortality audits is needed to help inform efforts to end preventable maternal and perinatal deaths. USAID's Maternal and Child Survival Program (MCSP) and Save the Children, together with several Nigerian professional associations, set out to document experiences to date in implementing maternal death review, perinatal death review, and/or integrated maternal and perinatal death surveillance and response (MPDSR) processes in Nigeria. The study sought to identify factors that have facilitated or inhibited the uptake and sustainability of implementing MPDSR systems in order to improve the quality of care and to prevent future deaths.

Nigeria was one of four countries selected by MCSP as part of a multi-country assessment of MPDSR processes at sub-national level. This report presents the results specifically from two states: Ebonyi and Kogi. Alongside this in-depth assessment, a broader landscape and in-depth analysis on MPDSR efforts across the six geopolitical zones in Nigeria has been conducted and published elsewhere.

Methodology

The assessment gathered data through key informant interviews with representatives at state, Local Government Authority (LGA) and facility levels involved with MPDSR implementation and through facility visits in a sample of sites to capture the current implementation status of mortality audit in a sample of sites. Data collection took place in September and October 2016. Ten facilities were purposefully selected across Kogi and Ebonyi States, including six hospitals and four health centres. Trained data collectors conducted semi-structured, in-person interviews with MPDSR focal persons and other key informants, as well as using a standard observation checklist to assess MPDSR-related documents. A score of 0–30 was assigned for each facility surveyed, using an adapted tool, to determine the stage of MPDSR implementation.

Findings

The results of the in-depth assessment of 10 facilities and seven stakeholder interviews in Kogi and Ebonyi States shows a range of awareness and implementation of the national MPDSR guidelines and for any level of audit of maternal and perinatal deaths in general. All of the facilities were aware of the importance of collecting mortality data and notifying authorities regarding maternal deaths. However, the practice of reviewing the causes and avoidable factors related to maternal deaths and of recommending and following through on changes was not widespread. Overall, there was very little integration of stillbirths and neonatal deaths into mortality data collection and notification processes, and almost no review of the care received prior to these deaths. Many of the respondents at the facility and LGA levels were either not aware of or were not actively using the new national MPDSR guidelines. Both states lacked community linkages, with no mechanism to communicate findings from facility reviews to the community and no mechanism to collect and report data from communities.

The facilities visited scored between 1.08 and 20.29 out of the possible 30 points of the MPDSR implementation scoring system that was applied. Higher volume referral facilities scored higher because of the longstanding academic practice of mortality audit, but none were following the national guidelines with respect to information flow between levels, community follow-up, and an integrated maternal and perinatal mortality audit and review process.

Discussion and Recommendations

Despite limited awareness of the national MPDSR guidelines and tools, and limited implementation of MPDSR processes overall, some committed stakeholders are poised to move the implementation of MPDSR forward. Professional associations need to increase awareness amongst their membership around the importance of assessing the care provided to babies that die as stillbirths and neonatal deaths, in addition to maternal deaths and near-misses.

There was little debate about the value of systematically counting, notifying, and defining causes of death. The main question emerging is how to ensure that data become an instrument to support changes in practice and decrease morbidity/mortality from preventable causes. Adhering to the national guidelines around blame prevention would help to alleviate the pressure reported by some of the junior staff. There is also a need to ensure that audit forms for maternal and perinatal deaths are available on-site with training on their use of the MPDSR tools. With few facilities identifying and addressing avoidable factors through MPDSR, there is a need for better documentation of actions taken to address these factors and their effects.

Assessment sites demonstrated that only facility-based reviews were being conducted at the time of the assessment without additional review at state and national levels. If the national MPDSR guidelines are to be implemented at the community level, there will need to be much greater investments at the community level.

Conclusion

Though inputs and systematic processes are needed at every level of the health system to fully operationalize MPDSR in the surveyed sites, stakeholders and health workers interviewed in Ebonyi and Kogi States are keen to change what is in front of them. The system requires leaders to champion the process, especially to ensure a no-blame environment, and to access change agents at other levels to address larger, systemic concerns. The groundwork is laid; it is now time to put MPDSR in action to end preventable maternal and perinatal deaths in Nigeria.

Introduction

Background to this Assessment

Nigeria is Africa's most populous country with an estimated population of 187 million in 2016, and a total fertility rate of 5.6.[1]The country operates a federal structure of governance with 36 states and a Federal Capital Territory. Health care provision in Nigeria is a concurrent responsibility of the three tiers of governance, namely federal, states, and the Local Government Areas (LGAs). The federal government is generally responsible for tertiary health care (teaching hospitals and federal medical centres) and policy formulation in the country, while the state governments are responsible for secondary-level health care in general hospitals. Though primary health care is formally the responsibility of LGAs in the country, the federal government coordinates this through the National Primary Health Care Development Agency (NPHCDA).[2]

In 2015 in Nigeria, over seven million babies were born; 240,000 of these babies died in their first month of life, an additional 314,000 were stillborn, and 58,000 women died of pregnancy-and childbirth-related complictions.[1,3] As the world transitions to achieving the Sustainable Development Goals, it is clear that Nigeria must accelerate efforts to improve outcomes for its women and babies.

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 titled Beyond the Numbers,[4] 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. In 2016, the WHO also released guidance on conducting mortality audits for stillbirths and neonatal deaths alongside tools for adaptation at national, sub-national, or facility level.[5]

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 and underlying contributing factors and actions to address contributing factors to prevent future preventable deaths. One of the key actions recommended in the 2014 Every Newborn Action Plan and the 2015 Strategies for Ending Preventable Maternal Mortality is the institutionalization of maternal and perinatal death surveillance and response (MPDSR) systems to enable a country's use of audit data to track and prevent maternal and early newborn deaths as well as stillbirths.

Despite global recommendations, few countries have robust operational MPDSR systems, even with the presence of favorable policies in many countries, particularly for maternal death notification.[6] In some settings, country systems have been designed and/or are being implemented as stand-alone activities rather than as one amongst many important 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 movement behind MPDSR strategies. WHO is tracking maternal death surveillance and response (MDSR) status through the MDSR Working Group, and has recently completed a global survey of national level MDSR policy and high-level implementation status. Additionally, the MDSR Action Network supports knowledge sharing and understanding of MDSR. The Maternal and Child Survival Program (MCSP) is working with global, regional, and country partners to: 1) understand experiences to date in implementing maternal death review (MDR), perinatal death review (PDR), and/or integrated MPDSR systems in selected countries in the Africa region, including Nigeria; and 2) identify some of the factors that have facilitated or inhibited the uptake and sustainability of the audit system.

Maternal and perinatal death surveillance and response terminology

Mortality audit is the process of capturing information on the number and causes of deaths for maternal deaths, stillbirths, and neonatal deaths—and then identifying specific cases for systematic, critical analysis of underlying demand- and supply-side contributors (including the quality of care received), in a no-blame, interdisciplinary setting, with a view to improving the care provided to all mothers and babies. It is an established mechanism to 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 definition and classification of maternal deaths, stillbirths, and neonatal deaths is the starting point for any MPDSR system (Table 1).

Table 1: Terminology related to maternal and perinatal death

Indicator	Numerator	Denominator
Maternal mortality ratio (expressed as maternal deaths per 100,000 live births)	• Number of maternal deaths occurring in a defined period of time (usually one year) • A maternal death is the death of a woman while pregnant or within 42 days of the termination of pregnancy irrespective of 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 one year)
Stillbirth rate (expressed as stillbirths per 1,000 total births)	Number of babies born per year with no signs of life weighing ≥ 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 in foetuses born weighing ≥ 1000 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)

* Perinatal death in Nigeria includes neonatal death through the first 7 completed days.

Aim and objectives

The aim of the in-depth assessment was to measure and document the status of MPDSR implementation in selected sites in Ebonyi and Kogi States, Nigeria, as part of a larger national assessment with similar aims supported by Save the Children's Saving Newborn Lives project and a broader Africa regional assessment supported by MCSP.

The specific objectives of this assessment are to:

1. Systematically measure the scope and institutionalization of MPDSR implementation in selected sites in Kogi and Ebonyi States, and describe barriers and facilitators to sustainable practice;
2. Identify outstanding implementation research questions and gaps within and across countries; and
3. Compile and review MPDSR materials.

Maternal and Perinatal Death Surveillance and Response in Nigeria

At the clinical level, mortality audit is a common practice, especially in tertiary and teaching facilities. Some states have piloted specific approaches on a larger scale, but for many years in Nigeria, there was no harmonized or standard process for reviewing maternal and perinatal deaths, and implementation was dependent upon interested individuals conducting clinical audits, mainly pertaining to maternal deaths.

With the release of WHO guidelines for maternal and perinatal death review (MPDR) in 2013[7] and growing national interest, the Federal Ministry of Health (FMOH) sought to operationalize a mortality audit system for the reduction of maternal and perinatal deaths. Starting with MDR, MDSR was adopted by the FMOH with the support of Society of Gynaecology and Obstetrics of Nigeria (SOGON) and the International Federation of Gynaecology and Obstetrics in 2013.

In 2014, the Saving Newborn Lives project of Save the Children, in collaboration with the Nigerian Society of Neonatal Medicine (NISONM), advocated for the integration of stillbirths and neonatal deaths into the MDSR system, and supported the development of an integrated MPDSR guideline and tools with the FMOH in 2015. The National Council on Health approved the MPDSR guideline and tools in 2016.

The national guidelines, data collection registers, and other tools aim to achieve routine tracking and review of all maternal and perinatal deaths in Nigeria.[8] The schematic in Figure 1 demonstrates the integrated relationship between the MPDSR and the MPDR Cycle of Activities intended in the new harmonized guidelines. The government has since disseminated this policy and directed state governments throughout the country to implement. Currently, there is no routine tracking system for the rollout of MPDSR and no way to monitor those LGAs and facilities that have begun, ceased, or continue to implement any form of death review. USAID's MCSP partnered with the government and started rollout of MPDSR in the Kogi and Ebonyi States in 2016.

Figure 1. National MPDSR guideline and data collection tools

Alongside this in-depth assessment in Kogi and Ebonyi, the Saving Newborn Lives project, in collaboration with MCSP, NISONM, and the Paediatric Association of Nigeria (PAN), conducted a broader landscape and in-depth analysis on MPDSR efforts across the six geopolitical zones in Nigeria. The landscape analysis was conducted through telephone interviews and email follow-up of key informants at state level in all states and the FCT to determine the current status and scope of MPDSR implementation activities. Results from the landscape assessment were used to identify states from the remaining four geopolitical zones for inclusion in the in-depth assessment. A comprehensive national report for the in-depth assessment, including the findings from these two states, is available separately.[9]

Results of the landscape analysis for Kogi and Ebonyi are presented in Table 2. In Kogi, the NPHCDA introduced facility MDR to the Midwifery Service Scheme Primary Health Centres, and introduced verbal autopsy to its communities from 2011 to 2013. The landscape analysis in 2016 found that only clinical audit processes were in use in some of the hospitals, and mainly for maternal deaths. The State MPDSR Committee has constituted a costed action plan developed for implementing the program in Kogi, and awaits funding and support. In Ebonyi, the landscape assessment observed that clinical audit was the process used in the tertiary health facilities and secondary health centres for maternal and perinatal death reviews. Ebonyi State participated in the FMOH MPDSR guidelines dissemination and inaugurated a State MPDSR Committee, which is yet to commence work as it awaits funding and support.

Table 2. Overview of MPDSR implementation activities across Kogi and Ebonyi States

Indicator	Kogi State	Ebonyi State
Number of primary health centres	868	516
Number of secondary heath centres	208	48
Number of tertiary health facilities	1	3
Total health facilities	1077	567
Facilities per 10,000 population	3.2	2.6
Current MDR method	Clinical audit	Clinical audit
Current PDR method	Clinical audit	Clinical audit
State MPDSR Committee formed	Yes	Yes
State MPDSR action plan developed	Yes	No
State MPDSR action plan costed	Yes	No
MPDSR Facility Committees formed	No	No
MPDSR Community Committees formed	No	No
MPDSR data collection system exists	No	No
MPDSR reports exist	No	No

Source: Shittu et al, 2017. Full report on the assessment of Nigeria's MPDSR efforts is forthcoming.

Methodology

The in-depth assessment of current MPDSR implementation status used interviews with key stakeholders at state, LGA, and facility levels involved with MPDSR implementation. Standardized questionnaires for health facility staff and other stakeholders, a systematic score based on the observations, and records review provide a comparable metric on MPDSR implementation scoring status across facilities, with feedback on the operation of the system as a whole.

Country and State Selection

Nigeria was selected as one of four countries to undertake a multi-country assessment of MPDSR processes. The country selection process was based on the following criteria:

- An 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 MDR and/or PDR in the current MCSP country work plan
- A planned health facility assessment
- Other in-country partners working on MDR and/or PDR

The states of Kogi and Ebonyi were purposefully selected since they are included in the two zones where MCSP is working. This selection was made as part of the broader process of selecting one state per the six geographical zones within the larger national landscape analysis. Ebonyi and Kogi were purposefully selected within their respective zones.

Site Selection and Data Sources

Within the states, criteria for facility selection included those that currently or previously had experience conducting MDRs and/or PDRs, and/or implementing formal MPDSR processes. The aim was to identify different facility levels, including tertiary or teaching, general, and primary. The distance between facilities and availability of stakeholders did play a role in the final selection of institutions and the sample of facilities is purposive rather than randomly selected. Table 3 shows the types of facilities and stakeholders included in the assessment removing any identifiers as per the protocol. Kogi and Ebonyi both included five facilities each: three hospitals and two health centres. Stakeholders included State Health Coordinators, Health Department Heads, and Primary Health Care Directors at the primary level and a Medical Director at a secondary facility. No stakeholders were interviewed from tertiary level facilities or from ocmmunities.

Table 3: Types of facilities and stakeholders included in the assessment

Types of facilities visited	Number
Hospitals	6
Health centres	4
Types of stakeholders interviewed	**Number**
State Health Coordinators	2
Health Department Heads and Primary Health Care Directors (LGA)	4
Medical Director (Secondary hospital)	1

Data Collection and Tools

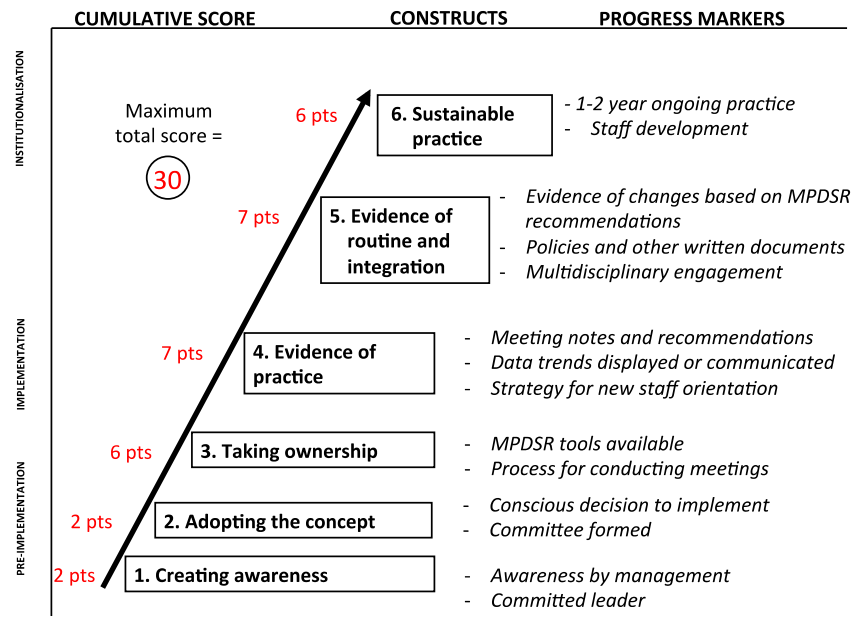
Data collection took place in September and October 2016. At the state level, a team drawn from MCSP and Save the Children staff as well as local health officials, State MPDSR Committee members, and professional associations (SOGON, PAN, NISONM, and the National Association of Nigeria Nurses and Midwives [NANNM]) served as data collectors, who underwent a one-day training on the assessment methodology and use of the monitoring tools. Relevant health authorities and facilities were contacted about the date of the visit in advance and provided with information about the evaluation. Evaluation visits began with an introduction and a presentation of existing MPDSR processes by facility representatives. The assessment team conducted a structured in-person interview with MPDSR focal persons and other key informants using a standard observation checklist to assess the related documents (Appendix 4).

At the national level, the co-investigator team convened a wide group of stakeholders including the FMOH, United Nations agencies, professional associations, and other partners to review the interview questionnaires and methodology. Stakeholders at the state and LGA levels were administered a structured, in-person interview with 34 questions that gathered information on the stakeholder's specific role in MPDSR implementation, current MPDSR practices, community linkages, and experiences of changes in care resulting from MPDSR. Stakeholders at the LGA level were asked 12 additional, more detailed questions about local experiences of MPDSR, and some of the risks and benefits associated with the MPDSR process.

Scoring and Analysis

Facilities received a score from zero to 30 based on the key informant interviews and facility observations. The scoring scale represents three phases: pre-implementation, implementation, and institutionalization (Figure 2). Results were interpreted by means of a model with six stages of change and facilities received a score out of 30 (Table 4). A facility score of up to 10 indicated that a facility was in a pre-implementation phase; a score between 11 and 17 demonstrated some level of implementation of MPDSR or evidence of MPDSR practice; a score between 18 and 24 demonstrated institutionalization of MPDSR through evidence of *routine* practice and integration; and those with more than 24 showed sustainable MPDSR practice. These tools and scoring methodology were adapted from Kangaroo Mother Care implementation progress developed and tested by the South African Medical Research Council's Unit for Maternal and Infant Health Care Strategies, and implemented previously in northern Nigeria.[10,11] This scoring method provides a systematic "snapshot" of the implementation status or stage of implementation of MPDSR at the facility. This progress-monitoring model allows for the quantification of progress that leads to a cumulative implementation progress score for a health facility. However, the model works under the notion that progress is not merely linear, but also allows for moving forwards and backwards; in other words, one step does not need to be fully completed before continuing with the next step, and hospitals can also regress in their implementation practices (additional details in Appendix 3). Scoring does not assess the quality of MPDSR on its own but rather is a tool to complement the qualitative assessment analysis in relation to the stage of implementation progress and practice.

Figure 2. Implementation progress scoring schematic



Source: *Adapted with permission.*[10, 12]

Table 4. MPDSR implementation progress scoring for facilities

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	Towards sustainable practice

Source: *Adapted with permission.*[10, 12]

Ethical Considerations

The study protocol and tools were submitted to the National Health Research Ethics Committee, Nigeria and received a non-human subjects research exemption. The study also received a "Non-Human Subjects Research Determination" by the Johns Hopkins School of Public Health Institutional Review Board, and the Save the Children Ethical Review Committee.

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 we 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.

Prior to key informant interviews, participants were asked to give their voluntary oral consent to participate, given that the research presents no more than minimal risk of harm to respondents. The interviewers obtained oral consent before the start of the interview by reading an oral consent script and asking the participant for a response.

Findings

Stage of MPDSR Implementation

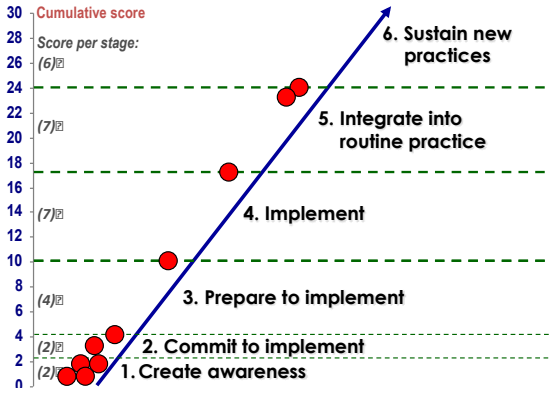
The results from the 10 facilities visited and seven stakeholder interviews conducted during the in-depth assessment shows a range of awareness and implementation of the national MPDSR guidelines, and mortality audit for maternal and perinatal deaths in general. Further details discussed in next section of the report. The facilities visited scored between 1.08 and 20.29 out of the possible 30 points of the scoring system that was applied (Table 5). Higher volume referral facilities scored higher than Primary Health Centre facilities in general because of the academic practice of mortality audit, but none were following the national guidelines which included information flow to other levels, community follow-up, and an integrated maternal and perinatal process.

Table 5. Facility score and stage of implementation

Facility	Level	Score/30	Stage of implmentation
Facility A	Hospital	20.29	Evidence of routine integration
Facility B	Hospital	19.29	Evidence of routine integration
Facility C	Hospital	14.33	Evidence of practice
Facility D	Hospital	9.67	Evidence of practice
Facility E	Health centre	3.79	Adopting the concept
Facility F	Health centre	2.71	Adopting the concept
Facility G	Hospital	2.17	Creating awareness
Facility H	Hospital	1.63	Creating awareness
Facility I	Health centre	1.63	Creating awareness
Facility J	Health centre	1.08	Creating awareness

Figure 3 provides a graphic depiction of the position of each health facility on the progress-monitoring scale. The mean score of the total of facilities was 7.66. If the interpretation of Figure 3 is applied to the facility scores, four facilities were at the "creating awareness" stage of any form of maternal and/or perinatal mortality audit (not specifically MPDSR), two facilities were "adopting the concept," two facilities showed "evidence of practice," and two facilities showed "evidence of routine integration."

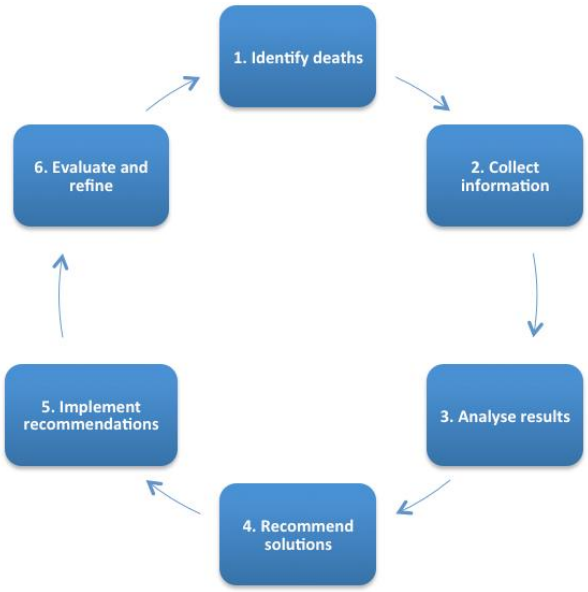
Figure 3. Health facilities plotted by score



MPDSR Practice

This section provides a summary of the results from both the facility questionnaires and the stakeholder interviews, including information on the history of implementation, resources provided for implementation, frequency of meetings, information flow, community involvement, staff involved, the response to recommendations, and some of the benefits and challenges of conducting death reviews. These findings are structured according to the audit cycle (Figure 4). Three of the seven stakeholders interviewed at subnational level were unfamiliar with or unaware of MPDSR activities taking place in their State or LGA.

Figure 4. Six-step audit cycle for MPDSR



Source: World Health Organization[5]

Step 1: Identify deaths

The minimum aim of the MPDSR system is to identify all births, maternal deaths, stillbirths, and neonatal deaths that occur, whether in the labour ward, in other departments within a health facility, or in the community. The interviews conducted at the health facilities provided information on the different processes used for identifying maternal deaths, stillbirths, and neonatal deaths in the health facilities. When asked if the facilities had a formal system in place for capturing deaths, half of the facilities indicated formals systems in place for maternal and perinatal deaths. Only the tertiary centres reported the need to actively search for cases in other departments, probably owing to the smaller physical size and caseload at the peripheral facilities. The unavailability of forms was the primary reason for not completing case files for maternal and perinatal deaths. Also, it was not evident that all stillbirths and neonatal deaths were being issued death certificates. Three stakeholders noted linkages between mortality audit meeting data and the health management information system (HMIS) but no one reported linkages with civil registration and vital statistics (CRVS) data. There were no formal connections or reporting of maternal or perinatal deaths that take place in the community for any of the facilities assessed.

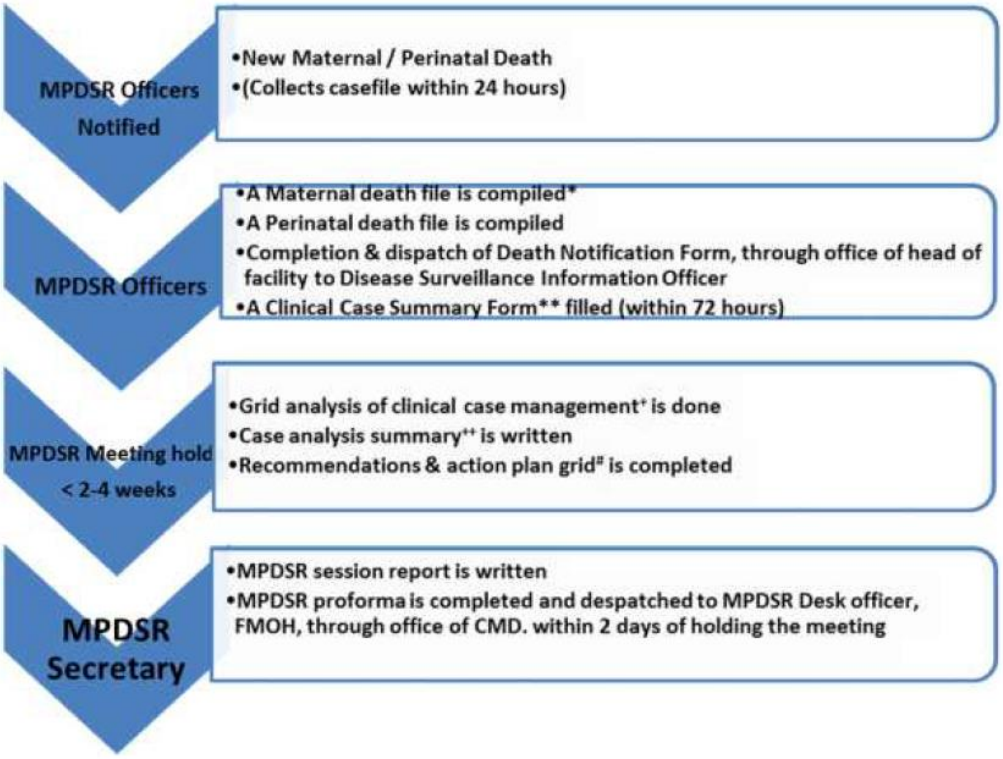
On perinatal deaths

"You don't regularly hear about stillbirths. They are considered not as grievous."

The national guidelines clearly stipulate that all maternal and perinatal deaths should have a case file collected by an MPDSR officer, including a death notification form, within 24 hours. Figure 5, extracted from the guideline, shows the steps for operating MPDSR at the facility level. The individual responsible for this task may vary and have other roles, but there should be at least one person designated to oversee this process at the facility level. Facilities report to the State Ministries of Health and MPDSR Officer (though this is not clear in this figure), who report to the FMOH and also produce an annual report for the national MPDSR

committee. Although tertiary facilities report directly to the federal level, all facilities, regardless of level, should send an MPDSR report to the state level for inclusion in their comprehensive reporting to the national steering committee. Yet not one stakeholder reported that a central M/PDSR report is regurlarly compiled and then submitted to the state or national steering committee. The guideline does not mention aligning MPDSR with the quality improvement committees, which is a gap.

Figure 5. Steps for operating MPDSR at facility level from the national guidelines



Source: Nigeria Federal Ministry of Health[8]

Step 2: Collect information

While LGA and state-level stakeholders reported familiarity with the national data collection forms, none of the facilities had copies on hand and they were not using these tools for the death review processes. No facilities had standard forms that they used, and rather just compiled relevant case information in notebooks. Birth and death data were recorded in standard registers, and in the tertiary centres and one general hospital, the presenter summarised cases for presentation at review meetings. In the larger facilities, there were rotating staff responsible for compiling information on specific cases for the mortality audit meeting. In smaller facilities, the Medical Director usually led this. Five stakeholders reported concerns about the quality of information collected around maternal deaths, stillbirths, and/or neonatal deaths.

On data collection

"One cannot vouch for the accuracy of data being collected because staff are not motivated. They do not know what it will be used for."

Step 3: Analyse results

As per the guideline, facilities are required to send aggregated monthly and/or quarterly statistics to the LGA and state levels. The assessment found that this process was done by data clerks and not linked to the death review process in any facility. No facility respondent reported the use of a consistent classification system for cause of death that was linked to death certificates. Even though doctors complete death certificates for maternal deaths, there was limited use of ICD-10 and document review indicated that no standard system was being used consistently, including ICD-10. Only one facility displayed monthly trends on a wall poster, but none were tracking changes in causes of death or avoidable factors. Many respondents expressed the need to have data presented like this, but noted that staff capacity and lack of statistical skills were barriers to analysis.

While the tertiary facilities had standing meetings where they would review every maternal death and a sample of intrapartum stillbirths, the one general hospital conducting death review meetings would only meet when a death or near-miss occurred, particularly relating to a maternal case. Attendance at the meetings was reported to be expected or mandatory for all maternity staff, but only as needed from other departments. According to the national MPDSR guideline, the primary health centre PHC facility MPDSR committees should comprise all relevant staff appointed by the Director of PHC. However, none of the PHC facilities assessed could identify a clear coordinator for MPDSR.

On the review meetings

"We have difficulty finding an opportunity to gather everyone due to busy schedules."

"Attendance is mandatory."

Step 4: Recommend solutions

One of the most challenging parts of the review process is the formulation of appropriate recommendations, but this step is critical to successful MPDSR. As data and trends are examined, patterns of problems will become evident. The type of solutions identified will depend on the individuals responsible for the investigation, the breadth of stakeholder involvement, and the level of development and local resources. The solutions should be directly linked to the cause of death and avoidable factors identified in each case. They may relate to a one-off action or an ongoing activity, and they may need to balance priorities based on the burden of various causes of mortality and the feasibility of implementing the various solutions. Review committees will be able to determine from the results of their own analyses which mixture of strategies will be best suited to their circumstances, including their access to resources. However, solutions should always be SMART: specific, measurable, appropriate, relevant, and time-bound. The responsibility for tracking the progress of each solution should also be assigned to specific individuals. Even if the designated person is not solely responsible for making the change, assigning implementation and monitoring tasks to individuals reduces the likelihood of failure to follow through with action.

Neither of the facilities reporting routine death review practice had a systematic process for establishing and following up on recommendations. The recommendations were linked to avoidable factors, but only one facility reported documenting the recommendations in the meeting minutes. Meeting minutes were not available for observation, but the description provided was that the meeting minutes include review of the previous meeting's action points, a short-form summary of the case, and recommendations. There was no standard form or format apart from this, and the recommendations were not always associated with an individual or a time period for completion.

Step 5: Implement recommendations

Ensuring action on each recommendation arising from the death review process is the critical step in this cycle. While recommendations based on modifiable factors that fall under the purview of administration may be acted on quickly within a responsive management structure (e.g., ambulance availability or lack of resuscitation equipment), it may be more effective to first focus on the modifiable causes that are within the control of health workers (e.g., detailed history taking and correct partograph use) and then use successes

emerging from subsequent mortality audit meetings as an advocacy tool to prompt management to further action. In addition to following up on items that have not been completed, it is important to celebrate progress and identify successful changes when they occur.

Two of the four facilities routinely conducting reviews could point to specific examples of when a recommendation had arisen from a review of a death or near-miss. A number of stakeholders also recounted changes at the LGA or state level based on death review findings. None of these instances were formally documented as success stories, and there is no longstanding review of recommendations made and actions completed. There was no documentation of follow-up on the recommendation, or information on what is done.

On improving services
"At review meetings people criticize your management, but that's where people learn."
"Reviews are meant to bring things to the forefront. It's about accountability, checks and balances."

Step 6: 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 in order to move forward with an improved process and a more conducive enabling environment. It requires the completion of Steps 1 through 5, with opportunity for reflection after the fact. Simply holding meetings and discussing deaths does not necessarily enable change or improve the quality of care. Leadership and supervision within a supportive environment are essential to ensure the completion of the audit cycle. In addition, documenting changes over time, through an annual review meeting or report as described above, helps to identify successful components and those still needing work.

Stakeholders and facility respondents from Kogi and Ebonyi frequently noted the need for more awareness and information about the MPDSR process, and the importance of maternal and perinatal deaths in general. While maternal deaths received more attention, it was thought that more could be done. For perinatal deaths, these were perceived as less important to policymakers, and even health professionals and community members.

On advocacy
"Advocacy is required. If His Excellency can announce that maternal and perinatal deaths are reportable, in front of the chiefs, this would make such a difference."

Only one facility was attempting to conduct reviews in a non-punitive, no-blame environment, largely due to the efforts of one champion who was a senior staff member at the facility and carried a lot of authority. One respondent at a different facility reported that this process was to show junior staff how to "learn from their mistakes" rather than taking a team approach to problem-solving. Blame was also reported to be more severe when staff from multiple disciplines took part.

On blame and punishment
"Cause of death is cause of heated debate especially when the meetings are interdisciplinary."
"Staff 'sit up' because of the reviews. Even though they know they won't be punished, they do not want to have deaths come up."
"Review meetings are where people learn to 'stick to the rules'…Some staff are reprimanded verbally and [receive] other punishments."
"The review process should not be punitive. In the new system all deaths are reportable but it does not come with consequences."

Community linkages were lacking in both states. This gap was evident in two ways. First, there was no mechanism to communicate findings from facility reviews to the community (e.g., how to reduce delays or on the most important danger signs). Some facility respondents and stakeholders noted that this could be done through the Ward Committee or local chiefs but no formal system existed. They noted that the involvement of the community and Ward Committee is essential in making sure behaviour change happens. The second

gap was in collecting and reporting information about deaths that occur outside facilities. There was no formal process to identify these deaths, assign a cause of death, or review potential avoidable factors. While some stakeholders noted that this was within the mandate of the LGA, no actions appeared to be ongoing.

On sharing information with the community
"The Ward Committee will come hear what messages need to get out to the community to prevent delays."

Enablers and Barriers of MPDSR Implementation

Of the four facilities practicing MPDSR, the culture around self-reflection and review was also a key discussion point in the context of a supportive and enabling environment. Otherwise, there were no common enablers identified. Among these facilities, the most common barriers of implementation recommendations following mortality review include: inadequate facility leadership/support, lack of communication across levels, inadequate referral system, and harmful local practices, as well as unavailability of essential commodities, qualified personnel and resources/finances. The most common barriers of implementation reported by stakeholders included inadequate MOH leadership/support, inadequate referral system, and unavailability of qualified personnel. They also described other barriers such difficulties with transport, lack of supplies, and dependence on nongovernmental organizations and projects.

Discussion

As Nigeria prioritizes and standardizes the process for MPDSR, implementation may increasingly be viewed as a sustainable and ongoing process with great potential to build off the existing systems in place for audit and quality improvement. The MPDSR national guidance is new, only formally launched in November 2016, though a draft was used in these two states from 2015 through the support of MCSP. The limited time for dissemination and training on the new tools may have resulted in limited awareness of the national guideline and tools at the facility level as well as limited implementation overall. Since the assessment was conducted in late 2016, forms have now been disseminated to all facilities in Kogi and Ebonyi through SOGON. Nonetheless, six of the 10 facilities scored at a pre-implementation stage despite these states having used other audit processes in the past. This finding indicates weakness in the practice of the previous mortality audit system.

There is little debate over whether the task of systematically counting and accounting for deaths is important; the question is how to ensure that data become an instrument to support changes in practice. Audit on its own will not save lives, but as part of a package, it is a tool for improving quality of care in health facilities and at the policy level. There is a need to ensure that audit forms for maternal and perinatal deaths are available on-site. Training on the use of the MPDSR tools, and in particular on the assignment of cause of death and classification system, should be rolled out at the facility level alongside dissemination of the forms and guidelines. With few facilities in Kogi and Ebonyi identifying and addressing avoidable factors through formal audit processes, there is need for better documentation of actions taken to address these factors and their effects at these facilities. Also facilities should consider how to use their data for decision-making, particularly for quality improvement purposes, rather than punitive measures.

The stakeholder interviews indicate that local champions and decision-makers have worked together to build momentum for this system. The role of the professional associations working together to advocate for and develop integrated guidelines for maternal and perinatal deaths should be highlighted. This partnership between obstetrics and paediatrics—with midwives often bridging the gap—merits additional investigation to identify practical lesson to apply at the state level, as well as to consider for other contexts and countries. It will be critical for these groups to grow awareness amongst their membership around the importance of assessing the care provided to babies that die as stillbirths and neonatal deaths, in addition to maternal deaths and near-misses.

A pervasive culture of blame was prevalent within facilities conducting reviews and cited as one of the risks of audit in those facilities that were not conducting reviews. The national guidelines stipulate that the mortality audit process should be "not punitive; and no blame is apportioned to anyone thereof."[8]
A participant code of conduct would be useful in ensuring this ethos is maintained. The national guidelines already provide some of the crucial tenets that could be included in such a code of conduct, including that: 1) the MPDR process must engender confidentiality and impartiality all the time; 2) no information on the platform must be disclosed outside the team; 3) all participating staff must know that the process does not involve apportioning blame on anybody; and 4) all participants must have advance knowledge of the anonymous conduct of the entire process. Adhering to the national guidelines in this regard would alleviate the pressure reported by some of the junior staff, particularly in the more academic facilities. There are champions who are already using audit as a learning opportunity rather than a disciplinary process, and these methods should be documented and shared. A study in the vein of positive deviance looking at those facilities where this is working well could help combat the blame issue by identifying what makes these individuals more successful and determine what can be replicated in other facilities and contexts.

Once the tools are available and being used, there are many opportunities to link the data to routine systems, including HMIS. The national guidelines request that "data generated from the MPDSR processes be directly linked, at all levels, to the existing HMIS," and, "the ultimate means to capture information on all deaths, including maternal and perinatal deaths, is the CRVS…This MPDSR process can contribute to a resurgent CRVS system in the country."[8] In order for this information to be useful, training on the MPDSR tools, in

particular the cause of death classification system, should be rolled out at the facility level alongside dissemination of the forms and guidelines.

The limited use of reporting with a consistent classification system for cause of death linked to death certificates and the poor use of ICD-10, calls for greater understanding of works and doesn't work on cause of death classification. MCSP is currently undertaking a mapping of training materials used in Nigeria to better support standardized reporting and understanding between indirect and direct causes of death. Once the mapping is complete, there will be a better understanding of what will be needed to improve reporting.

MPDSR is part of quality improvement practice; yet none of the facilities reported having functioning quality improvement committees. MCSP is now making an effort to integrate MPDSR and quality improvement committees. For quality improvement, there is also a need to institute a feedback process to link the referral facilities to the lower level facilities on cases where mortalities and near-misses were initially managed in order to improve quality of care at the lower level facilities. There was some indication that feedback to lower level facilities was happening at some facilities but not as routine practice.

Importantly, the national guidelines describe MPDSR as comprising both facility-based reviews and verbal autopsies at the community level on every maternal and perinatal death, with analysis of the deaths done at facility, state, and national levels. At this point, of this three-prong process, only facility-based reviews are taking place. Much stronger links are needed with communities, coupled with resources for conducting verbal autopsy interviews around the sensitive topic of maternal or infant loss, in order to fully operationalize the MPDSR schematic as designed.

Alignment with Global MPDSR Guidance

There were not enough facilities with evidence of MPDSR practice to determine an overall alignment with the global MPDSR guidance. There was substantial variation in implementation status between facilities, and at the various stakeholder levels. The emergence of strong state-level MPDSR committees with the backing of state leadership is a good sign that the process is underway, but this needs to be followed up with support to health facilities, and for community linkages.

Limitations of this Assessment

This study aimed to provide some information on what was happening in terms of mortality audit at the facilities visited, on the day of the visit. No claims are therefore made with regard to the generalizability of the findings, especially because a small sub-sample of facilities was visited. While information on LGA-level and community activities were solicited, the interviews focused mainly on the process of conducting of mortality audit at the facility level.

The informants interviewed at each health facility based most of the information collected on the self-report, and the feedback they provided could have to some extent depended on who was available to interview at the particular day of the visit. Some of the views expressed may not necessarily reflect those of other health care staff, particularly more junior staff who may be subject to more blame or scrutiny during mortality audit meetings. Additional data quality challenges included many unanswered questions perhaps due to the unwillingness of interviewees to be open with known members of professional associations and other stakeholders who were used as interviewers.

Given that MPDSR implementation is at a very early stage in these two states, it would be beneficial to revisit the facilities and track the process after a period of concentrated rollout of the national tools and training.

Conclusion

Each death that is carefully documented and reviewed has the potential to tell a story about what could have been done differently to improve the care available for each woman and baby. Though inputs are needed at every level of the health system and beyond, health workers in these states are keen to change what is in front of them. The system requires leaders to champion the process, especially to ensure a no-blame environment, and to access change agents at other levels to address larger, systemic concerns. The groundwork is laid; it is now time to use MPDSR to end preventable deaths in Nigeria.

Recommendations

National level

- Ensure MPDSR reporting process between facility, state, and federal levels are clearly understood by all stakeholders and rectified in the national MPDSR guideline.
- Ensure all levels of the system use a standardized classification system for cause of death and consider incorporating the modified ICD MM and ICD PM codes and simplifying for use at facility level.

State level

- State MPDSR committees should seek guidance from the national level on reporting requirements.
- State MPDSR committees should establish a system for tracking implementation, including listing of facilities and their status of MPDSR implementation.
- States should provide the resources needed to better document the process, including action taken and effect on quality of care.
- States should integrate the new quality improvement initiative into the MPDSR process and vice versa given that the same staff might be on both committees.
- Strengthen state-level MPDSR committees and make sure these are highly visible as advocates and supporters of best practices for maternal and newborn care.
- Disseminate copies of national MPDSR forms and guidelines, along with training for at least one individual per facility.
- Ensure facilities have means for conducting MPDSR including forms and stationary.
- Ensure MPDSR focal person identified for each facility and facility leadership has established MPDSR committees at health facilities.
- Explore combining quality improvement and MPDSR training and actual functionality of these committees.
- Mentor leaders and raise up MPDSR champions who commit to a no-blame approach to death review.
- Use the next review opportunity to simplify the national MPDSR forms with alignment to globally recommended cause of death categories, particularly for neonatal deaths.
- Pilot an electronic version of the forms for facilities with computer and network access.

Facility level

- Use standardized forms (preferably the national MPDSR forms) for documenting cases under review, including identifying action points.
- Adopt a meeting code of conduct—either in poster or handout format—to ensure that staff know they will not be punished or blamed.
- Ensure review of stillbirths and neonatal deaths is interdisciplinary in larger facilities.
- Document meeting minutes, noting specific timeline and persons responsible for actions will facilitate follow-up and review of the action points at the subsequent meeting.
- Build capacity and confidence and providers to correctly assign cause of death using standardized classification aligned with national recommendations; identify key underlying contributors to death; and define and follow-up on actionable recommendations linking MPDSR to quality improvement activities.

Community level

- Formalize the Ward Committee's role in communicating results from facility-based death reviews.
- Advocate for a community representative or liaison to sit on the facility review committee, or at least receive minutes of meetings.
- Explore the feasibility of community death notification, and where possible, verbal and social autopsy for community maternal and perinatal deaths.

Capacity building

- Provide sensitization on the fact that maternal and perinatal deaths are now reportable events at all levels.
- Engage State Primary Health Care Development Agencies, professional associations, nongovernmental organizations, and other partners to provide information about MPDSR at meetings, trainings, and other related events.

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Appendix 1: Ethical Approval Letter

National Health Research Ethics Committee of Nigeria (NHREC)

Promoting Highest Ethical and Scientific Standards for Health Research in Nigeria

Federal Ministry of Health

NHREC Protocol Number: NHREC/01/01/2007-19/07/2016
NHREC Approval Number: NHREC/01/01/2007-16/08/2016
Date: 17th August, 2016

RE: ASSESSMENT OF MATERNAL AND PERINATAL DEATH AUDIT SYSTEMS IN HEALTH FACILITIES IN NIGERIA

Health Research Committee assigned number: NHREC/01/01/2007

Name of Principal Investigator: Prof. Oladapo Shittu
Address of Principal Investigator: Department of Obstetrics and Gyneacology
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Oladapo.shitu@gmail.com

Date of receipt of valid application: 19/07/2016
Date when final determination of research was made: 16/08/2016

Notice of Research Exemption

This is to inform you that the activity described in the submitted protocol/documents have been reviewed and the Health Research Ethics Committee has determined that according to the National Code for Health Research Ethics, the activity described there-in meets the criteria for exemption and is therefore approved as exempt from NHREC oversight.

The National Code for Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations and with the tenets of the Code. The HREC reserves the right to conduct compliance visit your research site without previous notification.
Signed

Clement Adebamowo BMChB Hons (Jos), FWACS, FACS, DSc (Harvard)
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Appendix 2: Consent Form

Oral Consent for Key Informant

Assessment of Maternal and Perinatal Death Review Activities

Date: _____ 2016

Good day. My name is _____. I am representing the Save-the-Children supported Federal Ministry of Health nation-wide assessment of all maternal and perinatal death review processes. We are conducting a study of health facilities which are or previously have implemented maternal and perinatal death reviews with the goal of finding ways to improve services. This facility was selected to participate in this study in consultation with the Ministry of Health.

We are conducting interviews with health facility staff and observing the documentation used for maternal and perinatal death review to learn more about how reviews are done at this facility. We would like to ask you to participate in an interview since you participate in these reviews. During the interview, we intend to ask your questions that will enable us to complete our questionnaire. Whilst this is going on we intend to record our voices on tape, to enable us cross-check the accuracy of our direct completion of the form during the interview. Your decision to participate is completely voluntary, and even if you agree to participate, you may withdraw at any time. There will not be any penalty if you decide not to participate or withdraw from this interview.

Information from this interview is confidential. We will not record the names of any patients during this assessment. Your name, and your facility's name, will not be included in the final report. There will be no direct benefit to you from participating in this study but we expect the findings will inform activities to improve services and care for women and babies overall. We are asking for your help to ensure that the information we collect is accurate.

Do you have any questions about the study? Do we have your agreement to proceed?

Appendix 3: MCSP MPDSR Implementation Scoring Scheme for Facilities

Implementation construct	Progress marker	Instrument items
1. 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) *1 point*
		Clear leader(s) involved in establishing and championing MPDSR (past or future) *1 point*
2. 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? *1 point*
	Steering committee	MPDSR leadership team or steering committee established *1 point*
3. Taking ownership (6 points maximum)	Tools available	MPDSR data collection form available *1 point*
		Tools include cause of death *1 point*
		Tools include modifiable factors *1 point*
		Tools include place to follow up on actions taken *1 point*
	Meeting process established	Ability to describe or show documentation of meeting process *0.5 points*
		Staff meeting conduct agreement available *0.5 points*
	Resources allocated	Allocations from the hospital budget to establish MPDSR *0.5 points*
		Allocations from other partners to establish MPDSR *0.5 points*
4. Evidence of practice (7 points maximum)	Evidence of MPDSR meetings	Meeting minutes available *1 point*
		Meeting minutes include action items *1 point*
		Meeting minutes include follow up from previous meetings *1 point*

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

Appendix 4: Key Informant Questionnaires

MPDSR In-Depth Facility Assessment Tool, Version 2
Checklist/Questionnaire A

1. Data Collector Name: _____
2. Date completed (dd/mm/yyyy): _____/_____/_____

A. FACILITY INFORMATION

3. Geopolitical Zone: ☐ Northern-West ☐ North-East ☐ North-Central ☐ South-East ☐ South-West ☐ South-South
4. State: _____
5. Name of the Facility: _____
6. Level of Facility: ☐ Tertiary Health Facility ☐ Secondary Heath Facility ☐ Primary Health Facility
7. Category of facility: ☐ Public ☐ Faith-Based ☐Private-for-profit
8. Contact Person Designation (person interviewed): _____
9. Tel: _____
10. Email: _____

B. HISTORY OF M/PDR IMPLEMENTATION AT THE FACILITY

11. Does the facility have a formal system for reviewing maternal deaths, stillbirths, and/or neonatal deaths? When was it started at the facility/community?
    a. Maternal deaths: ☐ Yes ☐ No ☐ Unsure If Yes, since when? (Year) _____
    b. Perinatal deaths: ☐ Yes ☐ No ☐ Unsure If Yes, since when? (Year) _____
    c. Stillbirths: ☐ Yes ☐ No ☐ Unsure If Yes, since when? (Year) _____
    d. Neonatal death: ☐ Yes ☐ No ☐ Unsure If Yes, since when? (Year) _____
    e. Near-misses? ☐ Yes ☐ No ☐ Unsure If Yes, since when? (Year) _____
12. If No to any of the above, state reasons:

    _____

    _____

    _____
13. Where did the decision to undertake M/PDR originate?

    ☐ National level ☐ State level ☐ LGA ☐ Facility level ☐ Other: _____
14. Was there a specific occasion or meeting where the decision to implement M/PDR was taken?

    ☐ Yes ☐ No ☐ Unsure, If yes, approximate date: _____
15. Was there an implementation or action plan established? ☐ Yes ☐ No ☐ Unsure
16. Is there written minutes or documentation of the decision?

☐ Yes ☐ No ☐ Unsure (If No, Unsure, Go to Q18)

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

    a. Documentation seen ☐ Yes ☐ No

    b. Document received / photographed ☐ Yes ☐ No

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

    ☐ Yes ☐ No ☐ Unsure (If No, Unsure, Go to Q21)

19. If yes, describe what decisions have already been taken, in respect of:

    The specifics:

    _____

    _____

    _____

    Who will be involved:

    _____

    _____

    _____

    When implementation will start:

    _____

    Any existing or anticipated challenges to starting:

    _____

    _____

    _____

20. Before starting M/PDR, did the facility systematically document the following baseline data?

    a. Number of maternal deaths: ☐ Yes ☐ No ☐ Unsure

    b. Cause of maternal deaths: ☐ Yes ☐ No ☐ Unsure

    c. Number of perinatal deaths: ☐ Yes ☐ No ☐ Unsure

    d. Cause of perinatal deaths: ☐ Yes ☐ No ☐ Unsure

    e. Number of Neonatal death: ☐ Yes ☐ No ☐ Unsure

    f. Cause of Neonatal death: ☐ Yes ☐ No ☐ Unsure

21. Does the facility/community have a steering committee for reviewing?

    a. Maternal deaths: ☐ Yes ☐ No ☐ Unsure If Yes, since when? (Year) _____

    b. Perinatal deaths: ☐ Yes ☐ No ☐ Unsure If Yes, since when? (Year) _____

    c. Stillbirths: ☐ Yes ☐ No ☐ Unsure If Yes, since when? (Year) _____

    d. Neonatal death: ☐ Yes ☐ No ☐ Unsure If Yes, since when? (Year) _____

    e. Near-misses? ☐ Yes ☐ No ☐ Unsure If Yes, since when? (Year) _____

22. If Yes, when was the last committee meeting held? - Month and Year?

    a. Maternal deaths: _____/_____

    b. Perinatal deaths: _____/_____

    c. Stillbirths: _____/_____

    d. Neonatal death: _____/_____

    e. Near-misses: _____/_____

23. Before being involved in M/PDR, were the committee members trained on MDR/PNDR?

    ☐Yes ☐No ☐ Unsure

C. M/PDR ROLE-PLAYERS

24. Is there a MDR coordinator or focal person at the facility/community?

    ☐ Yes ☐ No ☐ Unsure

25. Coordinator/Focal person Job title: _____ *(write **none** if there is no MDR)*

26. Is there a PDR coordinator or focal person at the facility/community?

    ☐ Yes ☐ No ☐ Unsure

27. Job title: _____ *(write none if there is no PDR)*

28. Does the coordinator/Focal person (s) (Q24 & Q26) have other responsibilities ☐Yes ☐No

29. If Yes, which ones (e.g. information officer, QI focal point, etc.): _____

30. Has anyone in this facility or state leadership signed a commitment or undertaking and agreement that s/he would ensure that M/PDR is implemented in the facility/community?

    ☐ Yes ☐ No ☐ Unsure If yes, specify title of the person: _____

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

    a. State Government (Commissioner/ Perm-Secretary/MNCH & RH Directors):

    _____

    b. State information officer (or equivalent) :

    _____

    c. Local Government (Chairman/Health Counsellor/MNCH & RH Coordinator):

    _____

    d. Facility director:

    _____

    e. Matron / Nursing service manager:

    _____

    f. Unit manager (neonatal unit or maternity):

    _____

    g. Obstetrician:

    _____

    h. Paediatrician:

    _____

i. Facility information officer:

_____

j. Other, specify:

_____

32. Do you or did you have educational activities in your facility/community to introduce M/PDR to staff/community members?

☐ Yes ☐ No ☐ Unsure If yes, describe: _____

33. Are/were these activities:

☐ Internal ☐ Led by State ☐ Led by national? ☐ Led by NGO ☐ Professional Association (Specify: _____)

34. Are/were these activities held: ☐ On-site ☐ Off-site?

35. Approximately how many staff/community members are currently involved in your M/PDR Committee?

a. Total: _____

b. Managers (e.g. facility administrators): _____

c. Clinicians (doctors or medical officers): _____

d. Nurses/midwives: _____

e. Pharmacists: _____

f. Data Clerk/HIMS: _____

g. Other (specify): _____

36. Have you received support (financial or in-kind) from the hospital, community, LGA or State budget to establish M/PDR? ☐ Yes ☐ No ☐ Unsure ***(If No, Unsure, Go to Q39)***

37. If yes, describe origin of the support:
☐ Hospital ☐ LGA ☐ State ☐ National ☐ NGO: _____
☐ Professional Association (Specify: _____) ☐ Other: _____

38. Describe type of support received:

_____

D. M/PDR PRACTICE

39. Are there any written policies, guidelines or protocols regarding your practice of M/PDR?

☐ Yes ☐ No ☐ Unsure If yes, describe: _____

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

E. MPDSR CYCLE: IDENTIFYING DEATHS

40. 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)

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

41. Are maternal and/or perinatal deaths that occur in the community documented at this facility?

    ☐ Yes ☐ No ☐ Unsure (If No, Unsure, Go to Q43)

42. If yes, what is the process for identifying and documenting these? _____

    _____

    _____

F. M/PDR CYCLE: COLLECTING INFORMATION

43. How is information about maternal and/or perinatal deaths collected and summarised for MPDSR?

    _____

44. Are M/PDR Tools developed?

    a. MDR Tools: ☐Yes ☐No

    b. PNDR Tools: ☐Yes ☐No

45. If Yes, Ask to see a copy of the forms used. Do the forms include sections on:

    a. Cause of death ☐Yes ☐No

    b. Avoidable/Modifiable factors ☐Yes ☐No

    c. Solutions (recommendations) to alleviate the factors ☐Yes ☐No

    d. (Obtain a copy or request to take a photograph, specifically capturing these sections – it should be blank copies)

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

☐ Patient charts / case notes

☐ Registers

☐ None

☐ Other, specify:

_____

47. 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?

☐Yes ☐No ☐Not sure

48. If No, what is your suggestions to improve them?

_____

49. 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)? ☐Yes ☐No

50. What system is used to classify cause of death on the mortality audit forms?

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

51. What system is used to classify modifiable factors or sub-standard care?

☐ 3 delays

☐ Root cause analysis

☐ Patient – Provider – Administrator

☐ None

☐ Other, specify: _____

52. Are there any statistics related to M/PDR displayed somewhere (e.g. on a wall)?

☐ Yes ☐ No ☐ Unsure (If No, Unsure, Go to Q54)

53. If yes, describe what indicators are included:

_____

54. Are there official channels through which M/PDR findings are reported to different levels of management on a regular basis?

☐ Yes ☐ No ☐ Unsure (If No, Unsure, Go to Q56)

55. 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)

G. M/PDR CYCLE: ANALYSING DATA AND PRESENTING RESULTS

56. How frequent does the Facility/Community MDR/PNDR committee meet? (specify per type of committee)

MDR	PNDR
☐Weekly ☐Monthly ☐Quarterly ☐Yearly ☐Triennially ☐Other (Specify): _____	☐Weekly ☐Monthly ☐Quarterly ☐Yearly ☐Triennially ☐Other (Specify): _____

57. Who (positions/job titles) are invited to attend?

Obstetrician or an Experienced Personnel in Obstetrics	☐Yes ☐No
Physician or an Experienced Personnel	☐Yes ☐No
Neonatologist/Pediatrician or an Experienced Personnel in Pediatrics	☐Yes ☐No
Pathologist	☐Yes ☐No
Lab Technician	☐Yes ☐No
Nurses/Midwives	☐Yes ☐No
Anesthesiologist or Anesthetist	☐Yes ☐No
Community health worker	☐Yes ☐No
Facility Administrator/Director	☐Yes ☐No
Local Statistician	☐Yes ☐No
LGA Disease Surveillance Officer	☐Yes ☐No
Women advocacy group rep	☐Yes ☐No
LGA health Authority	☐Yes ☐No
Pharmacist	☐Yes ☐No
Community Leader/Local Community representative	☐Yes ☐No
Other (Specify): _____	☐Yes ☐No

58. Is attendance mandatory? ☐ Yes ☐ No ☐ Unsure

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

_____

60. What is the title of the staff or administrator who runs/chair the meetings?

_____

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

_____

62. Is every death reviewed or is a sample of deaths selected for discussion?

Maternal	Perinatal
☐ Every death ☐ Sample of deaths Specify proportion of deaths selected: _____	☐ Every death ☐ Sample of deaths Specify proportion of deaths selected: _____

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

Maternal : Criteria used	Perinatal : Criteria used

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

_____

65. Are meeting minutes taken? ☐ Yes ☐ No ☐ Unsure

66. (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)

H. M/PDR CYLCE: RECOMMENDING SOLUTIONS

67. How are modifiable factors linked to solutions in your M/PDR process?

_____

_____

_____

_____

68. How does the mortality review team identify and prioritize recommendations?

_____

_____

_____

_____

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

☐ Yes ☐ No ☐ Unsure ***(If No, Unsure, Go to Q71)***

70. If yes, describe what the action plan entails:

_____

_____

71. Are these action plans ever shared with the relevant staff of your facility/community?

☐ Yes ☐ No ☐ Unsure

If yes, please describe how this sharing is carried out:

_____

_____

I. M/PDR CYCLE: IMPLEMENTING CHANGES

72. 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 No, Unsure, Go to Q74)***

73. If yes, how is this assigned?

_____

_____

_____

_____

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

_____

_____

_____

75. 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)

76. In your opinion, what are some barriers to ensuring recommendations are implemented following mortality review (e.g. completing the "Response" portion of M/PDR)?

☐ MOH leadership/support

☐ Facility leadership/support

☐ State leadership/support

☐ Community leadership/support

☐ Lack of communication across levels

☐ Inadequate referral system

☐ Availability of essential commodities

☐ Availability of qualified personnel

☐ Availability of personnel with necessary up to date clinical competencies

☐ Availability of resources/finances

☐ Lack of community engagement

☐ Harmful local practices

☐ Others (describe):

_____

77. Do you regularly link M/PDR to any other quality improvement activities in your facility?

☐ Yes ☐ No ☐ Unsure(If No, Unsure, Go to Q79)

78. If yes, how:

_____

_____

_____

_____

79. Are success stories communicated? ☐ Yes ☐ No ☐ Unsure ***(If No, Unsure, Go to Q81)***

80. If yes, how:

_____

_____

_____

_____

J. AVOIDING BLAME AND ENSURING CONFIDENTIALITY

81. How do you ensure staff protection during the mortality review process?

_____

_____

_____

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

☐ Yes ☐ No ☐ Unsure ***(If No, Unsure, Go to Q84)***

83. If yes, please describe:

_____

_____

_____

_____

_____

84. Is there any connection to professional disciplinary action and the M/PDR system?

☐ Yes ☐ No ☐ Unsure (If No, Unsure, Go to Q86)

85. If yes, please describe:

_____

_____

_____

_____

_____

86. Do you see any risks associated with the M/PDR process? ☐ Yes ☐ No ☐ Unsure
(If No, Unsure, Go to Q88)

87. If yes, please describe:

K. CASE STUDY QUESTIONS

88. What do you think is working well in your facility/community regarding M/PDR? What were the main factors that facilitated implementation of M/PDR in your facility/community?

89. What are / were some of the barriers / obstacles to the implementation of M/PDR at your facility/community?

90. What changes would be most helpful to improve the M/PDR process in your facility/community?

91. 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?

92. Approximately how much time (cumulative hours) does the M/PDR committee spend per month on all activities related to M/PDR in your facility/community?

_____

_____

93. Sometimes mortality audit can be a demoralising activity for staff. How do you maintain morale in meetings?

_____

_____

_____

_____

_____

94. In your view how useful is M/PDR for improving the quality of care and health outcomes for women and newborns in your facility/community?

_____

L. ASSESSOR'S GENERAL OBSERVATIONS AND IMPRESSIONS

95. Impressions regarding the intensity of involvement of facility senior management in conducting M/PDR

☐ A lot of involvement and/or support (moral, material, etc)

☐ Some involvement and/or support (moral, material, etc)

☐ Neutrality / Little support

☐ Resistance

Comments:

_____

_____

_____

_____

_____

96. Impressions of the quality of data captured in M/PDR summary forms

☐ Excellent ☐ Average ☐ Poor

Comments :

_____

_____

_____

_____

_____

97. Impressions of the quality of recommendations contained in the review meeting notes

☐ Excellent ☐ Average ☐ Poor

Comments :

_____

_____

_____

_____

_____

98. Impressions of the quality of follow up actions

☐ Excellent ☐ Average ☐ Poor

Comments:

_____

_____

_____

_____

_____

99. Other comments and observations:

_____

_____

_____

_____

_____

M. COMMENTS FOR FACILITY/COMMUNITY (FOR IMMEDIATE FEEDBACK)

100. General impressions of monitor/assessor

_____

_____

_____

_____

_____

101. Recommendations for local consideration

_____

_____

_____

_____

_____

102. Ideas for policy makers and other levels of management

_____

_____

_____

_____

_____

Name of assessor **Signature** **Date**

MATERNAL/PERINATAL DEATH REVIEW: STAKEHOLDERS ASSESSMENT TOOL, VERSION 2

Checklist/Questionnaire B

1. Data Collector Name: _____
2. Date completed (dd/mm/yyyy): _____/_____/_____

A. STAKEHOLDER INFORMATION

3. Stakeholder interviewed:

   a. Position: _____

   b. Unit/Department you work in: _____

   c. The sector you work in: ☐ Public ☐ Faith-based ☐ Private-for-profit

4. Level of Intervention of stakeholder:

   ☐ National ☐ State ☐ LGA ☐ Facility ☐ Community

5. Geopolitical Zone:

   ☐ Northern-West ☐ North-East ☐ North-Central ☐ South-East ☐ South-West ☐ South-South

6. Name of State: _____
7. Name of LGA: _____
8. Name of Community: _____

B. M/PDR ROLE-PLAYERS

9. Is there a state/national MDR coordinator? ☐ Yes ☐ No ☐ Unsure
10. Is there a state/national PDR coordinator? ☐ Yes ☐ No ☐ Unsure
11. What is the role(s) of the coordinator(s) in relation to M/PDR?

    _____

    _____

    _____

    _____

    _____

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

    _____

    _____

    _____

    _____

    _____

C. M/PDR PRACTICE

13. Are there guidelines in place for review of maternal deaths? ☐ Yes ☐ No ☐ Unsure
(If No, Unsure, Go to Q15)

14. If yes, at what levels are these guidelines (e.g. national, state, LGA, Community):

_____

_____

_____

_____

_____

15. Are there guidelines in place for review of perinatal deaths? ☐ Yes ☐ No ☐ Unsure
(If No, Unsure, Go to Q18)

16. If yes, at what level are these guidelines (e.g. national, state, LGA, community):

_____

_____

_____

_____

_____

17. 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

☐ Process for conducting death audit (facility-type or verbal autopsy)

☐ Stratification of guidelines by facility level (1°, 2° or 3°) and category (public/private)

☐ Integration with quality improvement approaches

18. Are M/PDR systems integrated with the following structures:

a. HMIS ☐ Yes ☐ No ☐ Unsure

b. CRVS ☐ Yes ☐ No ☐ Unsure

c. IDSR ☐ Yes ☐ No ☐ Unsure

d. Other (describe): _____

19. Is a central M/PDR report compiled? ☐ Yes ☐ No ☐ Unsure ***(If No, Unsure, Go to Q24)***

20. If yes, when was the most recent report compiled (Month and Year)?

_____

21. At what level (Please tick as applicable)? ☐State ☐National ☐LGA
☐ Other? _____

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

_____

23. What is/was done with the recommendations contained in the report?

_____

_____

_____

_____

_____

24. Community links

25. Do facility-based M/PDR process involve getting input from the community?

☐ Yes ☐ No ☐ Unsure

26. What current mechanisms exist to identify deaths at community and make sure they get reported?

_____

_____

_____

_____

_____

D. TECHNICAL: ABILITY TO GENERATE HIGH-QUALITY DATA AND ANALYSES

Can you tell us about a policy or program related decision, or change in service delivery that has been based upon M/PDR findings **at your level** (state, LGA, facility, community, etc)?

_____

_____

_____

_____

_____

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

☐ Yes ☐ No ☐ Unsure Comments:

_____

_____

_____

28. Do you have any concerns about the quality of information around maternal deaths, stillbirths, and/or neonatal deaths? ☐ Yes ☐ No ☐ Unsure ***(If No, Unsure, Go to Q31)***

29. If Yes, which concerns?

30. How could these concerns be addressed?

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

☐ Yes ☐ No ☐ Unsure (If No, Unsure, Go to Q33)

32. What is your team involvement?

33. In your opinion, what are some factors that are barriers to ensuring community, state or national level actions take place following mortality review (e.g. completing the "Response" portion of M/PDR)? (Specify barriers and tick level where it is applicable)

Barriers	National	State	LGA	Facility	Community
a. ☐ MOH leadership/support					
b. ☐ Inter-departmental leadership/support					
c. ☐ Disconnect between national and/or state and facilities					
d. ☐ Inadequate referral system					
e. ☐ Availability of essential commodities					
f. ☐ Availability of qualified personnel					

Barriers	National	State	LGA	Facility	Community
g. ☐ Availability of personnel with necessary up to date clinical competencies					
h. ☐ Availability of resources/finances					
i. ☐ Harmful local practices					
j. ☐ Other (specify):					

34. What strategies/mechanisms have you adopted to overcome these barriers/challenges?

_____

_____

_____

_____

_____

E. LOCAL GOVERNMENT AUTHORITY HEALTH MANAGEMENT LEVEL ONLY

(Skip this section if the interviewee is a state level stakeholder)

35. Where did the decision to undertake M/PDR originate?

☐ National level ☐ State level ☐ LGA Level ☐ Facility level
☐ Other: _____

36. How does your state support health facilities to gather and analyse the necessary data to make decisions?

_____

_____

_____

_____

_____

37. What support the LGA also provides for the M/PDR process?

_____

_____

_____

_____

_____

38. How is M/PDR information used by the LGA health management team to improve MNH services?

_____

_____

_____

_____

_____

39. Does your state provide any support training for facility staff:

a. In data collection? ☐ Yes ☐ No ☐ Unsure

b. In using data for quality improvement? ☐ Yes ☐ No ☐ Unsure

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

_____

_____

_____

_____

_____

41. Do you have Community M/PDR Committee(s)? ☐ Yes ☐ No ☐ Unsure

42. Is verbal autopsy used by this committee? ☐ Yes ☐ No ☐ Unsure

43. If yes, what method is used to implement "cause of death assignment and ICD coding"?

☐Special Committee ☐Designated Doctor ☐Other (specify): _____

44. Do you see any risks associated with the M/PDR process? ☐ Yes ☐ No ☐ Unsure
(If No, Unsure, Go to Q47)

45. If yes, please describe these risks:

_____

_____

_____

_____

_____

46. How could these risks be minimized?

_____

_____

_____

_____

_____

47. Is there anything else you would like to discuss today?

_____

_____

_____

_____

_____