

Barriers to Implementation of Maternal and Perinatal Death Surveillance and Response in Three Referral Hospitals in Edo State, Nigeria

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ABSTRACT

Despite Nigeria's formal adoption of maternal and perinatal death surveillance and response (MPDSR) guidelines, implementation remains suboptimal, prompting this study to identify barriers to MPDSR implementation in three Edo State referral hospitals from healthcare worker and policy stakeholder perspectives. This mixed-methods study involved 221 healthcare workers from three hospitals and 11 key informant interviews with administrators and policymakers, with quantitative data assessing 14 barrier domains through structured questionnaires while qualitative data explored implementation challenges through in-depth interviews using descriptive statistics and thematic analysis. Multiple interrelated barriers emerged across individual, organizational, and system levels, with individual-level barriers including poor MPDSR knowledge (83.3% inadequate), lack of training (91.4% untrained), heavy workload, and fear of blame, while organizational barriers encompassed absent written policies, unavailable standardized forms, inadequate staffing, weak committee structures, poor record-keeping, and insufficient management support. System-level barriers included inadequate guideline dissemination (only 12.7% accessed guidelines), poor funding, weak community engagement, absent supervision, non-implementation of recommendations, lack of feedback mechanisms, and inadequate political commitment, with qualitative findings revealing synergistic barrier interactions creating implementation bottlenecks. MPDSR implementation faces substantial multilevel barriers spanning knowledge deficits, organizational infrastructure weaknesses, and systemic resource gaps, and their complex, interrelated nature suggests piecemeal interventions will fail, indicating that comprehensive, multilevel strategies are essential, simultaneously addressing capacity building, organizational strengthening, system-level support, and enabling environments through management commitment and quality improvement integration, without which MPDSR will remain suboptimal, leaving its mortality-reduction potential unrealized.

Keywords: Health system strengthening, Healthcare workers, Implementation barriers, Maternal and perinatal death surveillance, MPDSR Challenges, Multilevel interventions, Nigeria

INTRODUCTION

Maternal and perinatal death surveillance and response (MPDSR) represents a critical public health intervention for systematically identifying, reviewing, and responding to maternal and perinatal deaths to prevent future occurrences.¹

The World Health Organization (WHO) launched the Maternal Death Surveillance and Response (MDSR) framework in 2012, which Nigeria subsequently adopted and expanded to include perinatal deaths, formally launching the MPDSR national guideline in November 2016.²⁻³ However,

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policy adoption does not automatically translate into effective implementation. A substantial 'know-do gap' often exists between evidence-based policies and their actual implementation in real-world healthcare settings.⁴

Implementation science recognizes that translating policies into practice is a complex process influenced by multiple factors operating at different levels of the health system.⁵ These factors can either facilitate or impede implementation, with barriers representing obstacles that prevent or limit the uptake, adoption, or sustained use of evidence-based interventions.⁶ Understanding these barriers is essential for developing targeted strategies to overcome them and improve implementation fidelity.

The literature on health intervention implementation identifies barriers operating at multiple levels. Individual-level barriers relate to the knowledge, skills, attitudes, and motivations of healthcare workers who must implement interventions.⁷ Organizational-level barriers concern the structural, cultural, and resource-related characteristics of healthcare facilities and teams.⁸ System-level barriers encompass broader health system factors including policies, financing, governance, and coordination mechanisms.⁹ These multilevel barriers often interact in complex ways, with challenges at one level amplifying difficulties at others.¹⁰

International evidence on MPDSR implementation reveals diverse barriers across different settings. Ethiopian studies found inadequate training, poor supervision, fear of blame, and resource constraints.¹¹ Tanzanian research documented challenges with staff turnover, competing priorities, and weak feedback mechanisms.¹² Malawian studies identified unclear roles, limited management support, and inadequate community engagement.¹³ While specific barriers vary by context, common themes emerge around capacity deficits, resource limitations, weak accountability, and inadequate integration into health systems.

In Nigeria, despite growing recognition of MPDSR's importance and various implementation initiatives, systematic documentation of implementation barriers remains limited. Most existing studies have described implementation challenges qualitatively or anecdotally rather than comprehensively

characterizing the full spectrum of barriers from multiple stakeholder perspectives.¹⁴⁻¹⁵ Furthermore, few studies have examined how barriers at different levels interact to constrain implementation.

Previous papers on this study have documented poor knowledge of MPDSR among healthcare workers (83.3% with inadequate knowledge), though generally positive attitudes (88.2%), poor practice (77.4%), and weak compliance with national guidelines (73.8% non-compliant). These findings suggest substantial implementation challenges, but the underlying barriers driving these deficits require explicit examination.

This study aimed to identify and characterize barriers to MPDSR implementation in three referral hospitals in Edo State, Nigeria, examine barriers operating at individual, organizational, and system levels, explore interactions among barriers, and provide evidence to inform comprehensive strategies for strengthening MPDSR implementation.

MATERIALS AND METHODS

Study Design and Setting

This was a descriptive cross-sectional study employing mixed methods to comprehensively characterize implementation barriers. The study was conducted in three purposively selected referral hospitals in Edo State, Nigeria: Central Hospital Benin (a secondary facility), University of Benin Teaching Hospital (UBTH), and Irrua Specialist Teaching Hospital (ISTH), both tertiary institutions. These facilities were selected based on their status as major referral centers expected to implement MPDSR.

Study Population and Sampling

The quantitative component involved 221 healthcare workers (doctors, nurses, and midwives) working in maternity, neonatal, and pediatric units, selected using simple random sampling. The qualitative component included 11 key informant interviews with purposively selected stakeholders: hospital medical directors, heads of obstetrics and gynecology and pediatrics departments, MPDSR focal persons, and policy makers at the State Ministry of Health, including the Commissioner for Health and the Permanent Secretary.

Data Collection

Quantitative data were collected using a pre-tested, structured questionnaire that included a section on barriers to MPDSR implementation. This section assessed 14 potential barrier domains covering individual, organizational, and system levels. Healthcare workers rated the presence and severity of each barrier based on their experiences. The questionnaire was administered by six trained research assistants over a nine-month period.

Qualitative data were collected through semi-structured key informant interviews lasting 30-60 minutes each. Interview guides explored stakeholders' perspectives on implementation challenges, specific barriers encountered, contextual factors influencing implementation, strategies attempted to address barriers, and recommendations for strengthening implementation. Interviews were conducted in English, audio-recorded with permission, and transcribed verbatim. Field notes captured non-verbal cues and contextual observations.

Data Analysis

Quantitative data were analyzed using IBM SPSS version 25. Descriptive statistics including frequencies and percentages were computed to characterize the prevalence of different barriers. Barriers were categorized into individual, organizational, and system levels using an adapted implementation framework.

Qualitative data were analyzed thematically following Braun and Clarke's framework. Transcripts were read multiple times for familiarization, initial codes were generated inductively from the data, codes were organized into potential themes, themes were reviewed and refined, and final themes were defined and named. Analysis was conducted by two researchers independently, with discrepancies resolved through discussion. NVivo software facilitated data organization and coding.

Ethical Considerations

Ethical approval was obtained from the Ethics and Research Committee of the College of Medical Sciences, University of Benin (Protocol No. CMS/REC/2021/244). Administrative permissions were secured from all participating facilities and the State Ministry of Health. All participants provided

verbal informed consent after receiving comprehensive information about the study. Confidentiality was maintained throughout data collection, analysis, and reporting.

RESULTS

Analysis of quantitative and qualitative data revealed multiple barriers to MPDSR implementation operating at individual, organizational, and system levels.

Individual-Level Barriers

Poor Knowledge and Limited Training

The most prominent individual-level barrier was inadequate knowledge of MPDSR. Quantitative findings showed that 83.3% (184) of healthcare workers had poor knowledge, with particularly severe deficits in procedural knowledge (only 17.2% knew how to complete notification forms, 15.4% understood information flow systems, and 8.6% knew MPDSR officer responsibilities). This knowledge deficit was directly linked to lack of training, with 91.4% of healthcare workers reporting they had never received MPDSR training. Key informants consistently emphasized training gaps as a fundamental barrier.

Heavy Workload and Time Constraints

Healthcare workers and administrators consistently cited overwhelming workload as a barrier to MPDSR engagement. With most facilities facing staff shortages and high patient volumes, healthcare workers struggled to allocate time for MPDSR activities beyond immediate patient care. The absence of dedicated time for MPDSR activities meant that participation often depended on individual healthcare workers' goodwill and ability to extend working hours.

Fear of Blame and Legal Concerns

Despite the no-blame emphasis in MPDSR guidelines, fear of being blamed for deaths persisted as a significant barrier. Healthcare workers worried that honest reporting and discussion of deaths could expose them to criticism, disciplinary action, or legal consequences. This fear was particularly pronounced among junior staff who felt vulnerable in hierarchical healthcare settings.

Organizational-Level Barriers

Absence of Written Policies and Clear Procedures

Most facilities lacked written MPDSR policies defining roles, responsibilities, and procedures. This policy vacuum created confusion about who should do what, when, and how. Without clear policies, implementation depended on individuals' interpretations and initiatives rather than standardized institutional processes.

Unavailability of Standardized Forms and Tools

The absence of MPDSR notification forms and documentation tools was frequently cited as a critical barrier. Healthcare workers reported improvising documentation methods, which resulted in inconsistent, incomplete information that could not be aggregated for surveillance purposes. This infrastructure deficit reflected procurement challenges, inadequate budgetary allocations, and unclear responsibility for ensuring supplies.

Inadequate Staffing and High Turnover

Staff shortages and high turnover disrupted MPDSR implementation. When trained staff left, their MPDSR knowledge and responsibilities often left with them, requiring repeated training cycles. Key informants noted that staff transfers, particularly of MPDSR focal persons and committee members, significantly disrupted implementation momentum.

Weak MPDSR Committee Structures

While many facilities had nominally established MPDSR committees, these often functioned sub-optimally. Committees met irregularly, lacked clear terms of reference, suffered from poor attendance, and failed to follow structured review processes. This weak committee functionality undermined the systematic, thorough reviews that MPDSR requires.

Poor Record-Keeping Systems

Inadequate medical records systems posed substantial barriers to conducting quality death reviews. Missing files, incomplete documentation, and poor record storage made it difficult to reconstruct events leading to deaths. This records barrier reflected broader health information system weaknesses beyond MPDSR specifically.

Insufficient Management Support

While some facility leaders provided visible support for MPDSR, many healthcare workers perceived insufficient management commitment. This manifested as limited resource allocation, irregular attendance at review meetings by senior

management, and lack of follow-through on recommendations.

System-Level Barriers

Inadequate Guideline Dissemination

Despite the 2016 launch of MPDSR national guidelines, dissemination to facility level remained inadequate. Only 12.7% (28) of healthcare workers cited the national guideline as their information source, with most relying on medical experience 57.5% (128). Key informants reported receiving few copies of guidelines, which were retained at senior management levels rather than distributed to frontline staff.

Poor Funding and Resource Allocation

Inadequate financial resources for MPDSR implementation was universally cited as a critical system barrier. Facilities lacked dedicated MPDSR budgets, limiting their ability to procure forms, conduct training, organize review meetings, or provide transport for community surveillance. This funding gap reflected broader challenges in health system financing and budget allocations.

Lack of Community Engagement

MPDSR implementation focused almost exclusively on facility-based deaths, with minimal community engagement. Given that substantial proportions of maternal and perinatal deaths occur in communities, this limited scope undermined surveillance comprehensiveness. Key informants noted absence of partnerships with community health workers, traditional birth attendants, or community leaders.

Weak Inter-Sectoral Collaboration

Maternal and perinatal deaths often involve factors beyond the health sector, including education, transportation, poverty, and gender issues. However, MPDSR implementation lacked meaningful engagement with other sectors. Recommendations requiring intersectoral action remained unimplemented because no coordination mechanisms existed.

Absence of Supportive Supervision

Facilities reported infrequent or absent external supervision for MPDSR. Without regular oversight, facilities struggled to maintain implementation momentum, address emerging challenges, or receive technical guidance. This supervision gap reflected

weak supervisory systems generally in the health system.

Non-Implementation of Recommendations

Perhaps the most demoralizing barrier was systematic failure to implement recommendations from death reviews. Healthcare workers invested time in reviews but saw recommendations ignored, creating perceptions of wasted effort. This implementation failure reflected unclear accountability, inadequate resources, and absence of tracking systems.

Lack of Feedback Mechanisms

Facilities reporting deaths to higher levels rarely received acknowledgment or feedback. This absence of feedback signaled that reporting was not valued, undermining motivation for continued surveillance efforts.

Competing Health Priorities

MPDSR competed with numerous other health priorities and vertical programs for attention and resources. In contexts of limited capacity, MPDSR often lost out to more visible, donor-driven

programs.

Inadequate Political Commitment

While political leaders expressed rhetorical support for reducing maternal mortality, this did not consistently translate into sustained commitment to MPDSR implementation. Lack of political prioritization manifested in insufficient budget allocations, limited accountability for implementation, and absence of high-level championing.

Interactions Among Barriers

Qualitative analysis revealed that barriers did not operate independently but interacted synergistically to compound implementation challenges. For example, inadequate training was exacerbated by lack of training budgets and high staff turnover. Similarly, fear of blame was amplified by absence of clear no-blame policies and inadequate supervision to reinforce non-punitive approaches. These interactions created implementation bottlenecks where addressing single barriers would be insufficient without tackling related barriers simultaneously.

Table 1: Summary of Key Barriers to MPDSR Implementation by Level^S

Level	Key Barriers
Individual	<ul style="list-style-type: none"> • Poor knowledge (83.3% (184) inadequate) • Lack of training (91.4% never trained) • Heavy workload and time constraints • Fear of blame and legal concerns
Organizational	<ul style="list-style-type: none"> • Absence of written MPDSR policies • Unavailability of standardized forms • Inadequate staffing and high turnover • Weak MPDSR committee structures • Poor record-keeping systems • Insufficient management support
System	<ul style="list-style-type: none"> • Inadequate guideline dissemination (12.7% (28) accessed guidelines) • Poor funding and resource allocation • Lack of community engagement • Weak inter-sectoral collaboration • Absence of supportive supervision • Non- • Lack of feedback mechanisms

DISCUSSION

This study reveals a complex constellation of barriers operating at individual, organizational, and system levels that collectively constrain MPDSR implementation in the selected referral hospitals in Edo State. The multilevel, interacting nature of these barriers helps explain the poor knowledge,

suboptimal practice, and weak compliance documented in previous publications. Importantly, the barriers identified are not isolated challenges but interconnected obstacles that amplify each other's effects, suggesting that comprehensive, multilevel interventions are needed rather than piecemeal solutions.

At the individual level, the knowledge deficit (83.3% with poor knowledge) directly stemming from lack of training (91.4% never trained) represents a fundamental barrier. This finding aligns with implementation science literature showing that knowledge and skills are foundational requirements for practice change.¹⁶ However, unlike some interventions where knowledge gaps can be addressed through self-directed learning, MPDSR requires specialized knowledge of surveillance systems, review methodologies, and data analysis that typically necessitate formal training.

The workload and time constraint barrier resonates with findings from multiple settings showing that competing demands limit healthcare workers' engagement in quality improvement activities.¹⁷ This barrier is particularly challenging because it reflects genuine resource constraints rather than lack of willingness. Healthcare workers in Nigerian hospitals often face patient-to-staff ratios far exceeding recommended standards, making it difficult to create protected time for MPDSR without compromising patient care. Addressing this barrier requires organizational solutions including adequate staffing, role clarification so MPDSR becomes part of routine work rather than additional burden, and potentially task-shifting to dedicated MPDSR focal persons.

The persistence of fear of blame despite no-blame policy provisions is concerning and reflects deeper cultural and structural issues in healthcare systems. Blame cultures are reinforced by hierarchical power dynamics, absence of psychological safety, and real or perceived risks of punitive consequences.¹⁸ Creating truly non-punitive environments requires more than policy statements—it necessitates consistent demonstration through leadership behavior, explicit protection of honest reporters, focus on system factors rather than individual culpability, and use of review findings solely for learning and improvement.

At the organizational level, the absence of written MPDSR policies reflects a common pattern where interventions are initiated without adequate formalization. Policies serve critical functions: they clarify expectations, define responsibilities, establish procedures, and legitimize resource

allocation.¹⁹ Without policies, MPDSR remains dependent on individual champions whose departure can collapse implementation. Developing facility-level policies requires adaptation of national guidelines to local contexts, stakeholder consultation, explicit approval by facility leadership, and wide dissemination to all relevant staff.

The unavailability of MPDSR forms and tools, while seemingly a simple logistical issue, reflects systemic procurement and supply chain challenges. Forms are essential infrastructure for standardized data collection enabling surveillance. The form shortage illustrates how supply chain weaknesses—inadequate procurement planning, limited budgets, unclear responsibility chains, and weak logistics systems—can undermine even well-designed interventions.

The staffing and turnover barrier highlights challenges of implementing complex interventions in contexts of human resource constraints. High turnover, particularly of trained staff and MPDSR focal persons, creates implementation discontinuities requiring repeated training and capacity building. This barrier is exacerbated in Nigerian healthcare systems by policies allowing frequent staff transfers, limited retention incentives, and migration of healthcare workers to better opportunities. Addressing this requires human resource strategies including retention incentives, succession planning, documentation of MPDSR processes, and potentially longer tenure requirements for MPDSR focal persons.

The weak committee structures identified reflect common challenges in establishing and maintaining functional multidisciplinary teams. Effective committee function requires clear terms of reference, regular meetings with adequate time allocation, skilled facilitation, active participation by members, systematic follow-through on decisions, and accountability for outputs.²⁰ Many MPDSR committees lack these elements, operating more as nominal structures than functional entities. Strengthening committees requires explicit attention to team development, facilitation training, establishment of meeting schedules and accountability mechanisms, and ensuring

committees have authority and resources to fulfill their mandates.

The poor record-keeping barrier exemplifies how MPDSR effectiveness depends on broader health information systems. Death reviews require reconstructing clinical events from medical records, but incomplete documentation, missing files, and poor record storage make this difficult or impossible. This barrier extends beyond MPDSR to affect all quality improvement efforts and highlights the need for health information system strengthening as a foundational investment.

At the system level, the inadequate guideline dissemination represents a fundamental implementation failure. Guidelines cannot influence practice if healthcare workers lack access to them. The finding that only 12.7% obtained MPDSR information from national guidelines suggests that dissemination strategies focused on high-level launches and distribution to senior administrators rather than ensuring guidelines reach frontline users. Effective dissemination requires printing adequate copies, distributing to facility and frontline levels, providing orientation to guideline content, developing simplified job aids, and making guidelines available in multiple formats.

The funding barrier pervades virtually all aspects of MPDSR implementation. Without dedicated budgets, facilities cannot procure forms, conduct training, organize regular review meetings, provide transport for community surveillance, or implement recommendations requiring financial resources. This barrier reflects broader health financing challenges in Nigeria including overall low health expenditure, fragmented funding sources, competing program priorities, and weak budget execution. Addressing this requires advocacy for increased maternal health budgets, establishment of dedicated MPDSR budget lines, improved budget execution, and potentially exploring innovative financing mechanisms.

The lack of community engagement limits MPDSR's comprehensiveness and potential impact. Since substantial proportions of maternal and perinatal deaths occur outside facilities, facility-only surveillance provides incomplete pictures.²¹ Community engagement requires establishing

partnerships with community health workers and traditional birth attendants, creating simplified community notification systems, involving community leaders in review processes, and ensuring recommendations address community-level factors.

The weak intersectoral collaboration barrier reflects the reality that many factors contributing to maternal and perinatal deaths lie outside the health sector's direct control. Transportation delays, poverty preventing care-seeking, low education affecting health literacy, and gender inequities limiting women's autonomy all contribute to deaths but require intersectoral responses. However, health sectors typically lack mechanisms for engaging other sectors, and recommendations requiring intersectoral action often remain unimplemented. Addressing this requires establishing formal intersectoral coordination mechanisms, ensuring MPDSR processes include representatives from relevant sectors, and developing accountability frameworks for intersectoral recommendations.

The non-implementation of recommendations is perhaps the most demoralizing barrier because it undermines the entire purpose of MPDSR. Surveillance and review without response merely documents deaths without preventing future ones. This barrier reflects multiple failures: recommendations may be too vague or ambitious to be actionable, responsibility for implementation may be unclear, necessary resources may be unavailable, accountability mechanisms may be absent, and tracking systems to monitor implementation may not exist.²² Addressing this requires ensuring recommendations are SMART (Specific, Measurable, Achievable, Relevant, Time-bound), explicitly assigning implementation responsibility with timelines, allocating resources for implementation, establishing tracking systems, and reviewing implementation progress in subsequent MPDSR meetings.

The lack of feedback mechanisms violates the fundamental principle that surveillance systems should provide timely information to guide action. When facilities report deaths but receive no acknowledgment or feedback, it suggests that reporting is not valued and undermines motivation

for continued participation. Effective feedback requires establishing explicit communication channels and timelines, ensuring reports are acknowledged promptly, providing aggregated findings back to facilities, communicating actions taken based on surveillance data, and recognizing facilities' contributions to the surveillance system.

The finding that barriers interact synergistically has important implications. It suggests that addressing barriers in isolation may have limited effect because remaining barriers continue to constrain implementation. For example, providing training may have limited impact if healthcare workers lack time due to workload or if forms and policies are absent. This interaction pattern supports the need for comprehensive, multilevel implementation strategies that address multiple barriers simultaneously rather than sequential, single-barrier interventions.

Comparison with international literature reveals that barriers documented in this study are not unique to Nigeria but reflect common implementation challenges across low- and middle-income countries. Studies from Ethiopia, Tanzania, Malawi, and Kenya have documented similar barriers spanning capacity deficits, resource constraints, weak accountability, and inadequate integration.²³⁻²⁴ However, successful MPDSR implementations in countries like Morocco, Rwanda, and Sri Lanka demonstrate that these barriers are surmountable through sustained political commitment, adequate resource allocation, systematic capacity building, strong accountability mechanisms, and integration with broader health system strengthening efforts.²⁵⁻²⁶ This study has several important implications: the multilevel interacting nature of barriers necessitates comprehensive implementation strategies rather than piecemeal interventions; addressing barriers requires sustained commitment and investment over time rather than one-time initiatives; implementation strategies must be tailored to address context-specific barrier profiles while learning from successful implementations elsewhere; regular barrier assessment should be integrated into implementation monitoring to identify and address emerging challenges; and political commitment and leadership are essential for marshaling resources,

maintaining implementation momentum, and ensuring accountability.

This study has limitations. Barrier assessment relied primarily on self-report, which may be subject to social desirability bias or recall limitations. However, triangulation of quantitative healthcare worker data with qualitative key informant interviews strengthened findings. The cross-sectional design provides a snapshot at one point and cannot track how barriers evolve over time. The purposive facility selection may limit generalizability, though the facilities are representative of referral-level institutions in Nigeria.

LIMITATIONS

1. Recall bias may have occurred as respondents were made to recall certain information required of them.
2. The assessment of facility compliance to the national MPDSR guidelines was taken from the health workers perspective and as such may be affected by their individual knowledge and bias

CONCLUSION

Maternal and Perinatal Death Surveillance and Response implementation in the selected referral hospitals faces substantial, multilevel barriers that interact synergistically to constrain effective surveillance and response. These barriers span individual-level deficits (poor knowledge, lack of training, heavy workload, fear of blame), organizational weaknesses (absent policies and forms, inadequate staffing, weak committees, insufficient management support), and system-level gaps (poor guideline dissemination, inadequate funding, lack of community engagement, weak supervision, non-implementation of recommendations, absence of feedback mechanisms, competing priorities, limited political commitment). The complex, interrelated nature of these barriers indicates that addressing them requires comprehensive, multilevel implementation strategies rather than piecemeal interventions targeting single barriers.

Successful MPDSR implementation necessitates simultaneous interventions addressing: capacity

building through systematic training with adequate coverage; organizational strengthening including policies, forms, staffing, protected time, and functional committees; system support through guideline dissemination, adequate funding, robust supervision, and accountability mechanisms; and creation of enabling environments through management commitment, non-punitive cultures, feedback systems, and integration with broader quality improvement initiatives. Without addressing these barriers holistically and sustainably, MPDSR will remain suboptimally implemented, and its potential to generate learning and reduce preventable maternal and perinatal mortality will remain unrealized. The barriers documented in this study provide a roadmap for targeted interventions, while successful MPDSR implementations documented internationally demonstrate that with adequate commitment and resources, these barriers can be overcome.

RECOMMENDATIONS

Based on the comprehensive barrier assessment conducted in this study, the following multilevel recommendations are proposed:

Individual Level

1. Launch comprehensive, scaled-up MPDSR training programs targeting at least 80% coverage of healthcare workers within two years, with competency-based curricula, practical skill development, and regular refresher courses.
2. Integrate MPDSR content into pre-service training for medical, nursing, and midwifery students to ensure future graduates enter the workforce with foundational MPDSR knowledge and positive attitudes.

Organizational Level

3. Mandate development and adoption of facility-level MPDSR policies defining roles, responsibilities, procedures, and accountability mechanisms, adapted from national guidelines to local contexts.
4. Ensure reliable procurement and distribution of MPDSR forms and tools through establishment of dedicated supply chains, adequate budget allocations, and clear responsibility for maintaining adequate stocks.
5. Address staffing constraints through advocacy for

increased maternal health workforce, retention incentives for trained staff, succession planning for MPDSR focal persons, and task-shifting strategies.

6. Strengthen MPDSR committee functionality through development of clear terms of reference, regular scheduled meetings with protected time, facilitation training, active engagement of members, and accountability for outputs.

7. Create protected time for MPDSR activities by integrating surveillance and review into job descriptions, ensuring adequate staffing to allow participation without compromising patient care, and recognizing MPDSR engagement in performance evaluations.

System Level

8. Implement comprehensive guideline dissemination strategy including printing adequate copies, distribution to facility and frontline levels, orientation sessions on guideline content, development of simplified job aids, and digital versions accessible via mobile devices.

9. Establish dedicated MPDSR budget lines at state and facility levels with adequate allocations for forms, training, review meetings, community surveillance, and implementation of recommendations.

10. Expand MPDSR to include community-based surveillance through partnerships with community health workers and traditional birth attendants, simplified community notification systems, and inclusion of community deaths in facility reviews.

11. Establish intersectoral coordination mechanisms at state and local levels for addressing contributing factors beyond health sector control, with clear frameworks for developing and tracking intersectoral recommendations.

12. Strengthen supportive supervision through development of supervision schedules and standardized checklists, training of supervisors in MPDSR technical content and supportive approaches, adequate resources for regular facility visits, and linking supervision to technical assistance.

13. Establish accountability mechanisms for implementing recommendations through ensuring recommendations are SMART, explicit assignment of implementation responsibility with timelines,

allocation of resources for implementation, tracking systems to monitor progress, and review of implementation status in subsequent meetings.

14. Develop and implement robust feedback mechanisms with clear timelines for acknowledging facility reports, regular sharing of aggregated findings, explicit communication of actions taken, and recognition of facilities demonstrating good implementation.

15. Integrate MPDSR into broader health system strengthening efforts rather than maintaining it as a vertical program, leveraging existing quality improvement structures, creating synergies with other patient safety initiatives, and embedding in health sector strategic plans.

REFERENCES

- World Health Organization. Maternal death surveillance and response: technical guidance information for action to prevent maternal death. Geneva: World Health Organization; 2013. https://iris.who.int/bitstream/handle/10665/87340/9789241506083_eng.pdf?sequence=1. Accessed 16 June 2025
- World Health Organization. Strategies toward ending preventable maternal mortality (EPMM). Geneva: World Health Organization; 2015. <https://iris.who.int/handle/10665/153544>. Accessed 16 June 2025
- Federal Ministry of Health Nigeria. National Guidelines for Maternal and Perinatal Death Surveillance and Response. Abuja: Federal Ministry of Health; 2017. <https://nationalqoc.fmohconnect.gov.ng/wp-content/uploads/2023/11/National-Guidelines-for-Maternal-and-Perinatal-Death-Surveillance-and-Response-in-Nigeria.pdf>. Accessed 16 June 2025
- Eccles MP, Mittman BS. Welcome to Implementation Science. *Implement Sci.* 2006;1:1.
- Damschroder LJ, Aron DC, Keith RE, Kirsh SR, Alexander JA, Lowery JC. Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. *Implement Sci.* 2009;4:50.
- Peters DH, Adam T, Alonge O, Agyepong IA, Tran N. Implementation research: what it is and how to do it. *BMJ.* 2013;347:f6753.
- Cabana MD, Rand CS, Powe NR, Wu AW, Wilson MH, Abboud PA, Rubin HR, et al. Why don't physicians follow clinical practice guidelines? A framework for improvement. *JAMA.* 1999;282(15):1458-65.
- Greenhalgh T, Robert G, Macfarlane F, Bate P, Kyriakidou O. Diffusion of innovations in service organizations: systematic review and recommendations. *Milbank Q.* 2004;82(4):581-629.
- World Health Organization. Everybody's business: strengthening health systems to improve health outcomes: WHO's framework for action. Geneva: World Health Organization; 2007. https://iris.who.int/bitstream/handle/10665/43918/978941596077_eng.pdf?sequence=1. Accessed 16 June 2025
- Kaplan HC, Brady PW, Dritz MC, Hooper DK, Linam WM, Froehle CM, Margolis P. The influence of context on quality improvement success in health care: a systematic review of the literature. *Milbank Q.* 2010;88(4):500-59.
- Tura AK, Fage SG, Ibrahim AM, Mohamed I, Ahmed R, Gure T, et al. Beyond no blame: Practical challenges of conducting maternal and perinatal death reviews in eastern Ethiopia. *Glob Health Sci Pract.* 2020;8(2):150-4.
- Nyamtema AS, Urassa DP, Pembe AB, Kisanga F, van Roosmalen J. Factors for change in maternal and perinatal audit systems in Dar es Salaam hospitals, Tanzania. *BMC Pregnancy Childbirth.* 2010;10:29.
- Kongnyuy EJ, Mlawa G, van den Broek N. Facility-based maternal death review in three districts in the central region of Malawi: an analysis of causes and characteristics of maternal deaths. *Womens Health Issues.* 2009;19(1):14-20.
- Okonofua F, Imosemi D, Igboin B, Adeyemi A, Chibuko C, Idowu A, et al. Maternal death review and outcomes: An assessment in Lagos State, Nigeria. *PLoS One.* 2017;12(12):e0188392.
- Aikpitanyi J, Ohenhen V, Ugbodaga P, Ojemhen

- B, Omo-Omorodion BI, Ntoimo LF, et al. Maternal death review and surveillance: The case of Central Hospital, Benin City, Nigeria. *PLoS One*. 2019;14(12):e0226075.
16. Michie S, van Stralen MM, West R. The behaviour change wheel: a new method for characterising and designing behaviour change interventions. *Implement Sci*. 2011;6:42.
17. Bradley S, Kamwendo F, Chipeta E, Chimwaza W, de Pinho H, McAuliffe E. Too few staff, too many patients: a qualitative study of the impact on obstetric care providers and on quality of care in Malawi. *BMC Pregnancy Childbirth*. 2015;15:65.
18. Edmondson AC. Speaking up in the operating room: how team leaders promote learning in interdisciplinary action teams. *J Manag Stud*. 2003;40(6):1419-52.
19. Grol R, Wensing M. What drives change? Barriers to and incentives for achieving evidence-based practice. *Med J Aust*. 2004;180(6 Suppl):S57-60.
20. Lemieux-Charles L, McGuire WL. What do we know about health care team effectiveness? A review of the literature. *Med Care Res Rev*. 2006;63(3):263-300.
21. Thaddeus S, Maine D. Too far to walk: maternal mortality in context. *Soc Sci Med*. 1994;38(8):1091-110.
22. Pattinson RC, Say L, Makin JD, Bastos MH. Critical incident audit and feedback to improve perinatal and maternal mortality and morbidity. *Cochrane Database Syst Rev*. 2005;(4):CD002961.
23. Smith H, Ameh C, Roos N, Mathai M, Broek N. Implementing maternal death surveillance and response: a review of lessons from country case studies. *BMC Pregnancy Childbirth*. 2017;17(1):233.
24. Kinney MV, Ajayi G, de Graft-Johnson J, Hill K, Khadka N, Om'Iniabohs A, et al. 'It might be a statistic to me, but every death matters.': An assessment of facility-level maternal and perinatal death surveillance and response systems in four sub-Saharan African countries. *PLoS One*. 2020;15(12):e0243722.
25. De Brouwere V, Zinnen V, Duale S. Improving the quality of maternal health services: the Moroccan initiative for preventing maternal deaths. *Trop Med Int Health*. 2014;19(8):1024-31.
26. Sayinzoga F, Bijlmakers L, van Dillen J, Mivumbi V, Ngabo F, van der Velden K. Maternal death audit in Rwanda 2009-2013: a nationwide facility-based retrospective cohort study. *BMJ Open*. 2016;6(1):e009734.