NCOVERING BARRIERS TO MATERNAL MORTALITY AUDITS: AN UNSEEN CHALLENGE

By Salsabila Dinda Nuril Ishlahi

WORD COUNT 8326
TIME SUBMITTED 29-OCT-2024 02:44PM
PAPER ID 112622215

p-ISSN 2086-6380, e-ISSN 2548-7949

Jurnal Ilmu Kesehatan Masyarakat (JIKM)

UNCOVERING BARRIERS TO MATERNAL MORTALITY AUDITS: AN UNSEEN CHALLENGE

Salsabila Dinda Nuril Ishlahi[1]*, Metta Octora[2], Latifah Barirah[3], Ario Danianto[4]

[1]Medical Student, Faculty of Medicine, Mataram University, Jl. Majapahit No.62, Dasan Agung Baru, Selaparang, Mataram, West Nusa Tenggara, 83125, Indonesia

[2]Department of Public Health, Faculty of Medicine, Mataram University, Jl. Majapahit No.62, Dasan Agung Baru, Selaparang, Mataram, West Nusa Tenggara, Indonesia

[3,4]Department of Obstetrics and Gynecology, Faculty of Medicine, Mataram University, Jl. Majapahit No.62, Dasan Agung Baru, Selaparang, Mataram, West Nusa Tenggara, Indonesia

* Correspondence Author: acabela763@gmail.com

ARTICLE INFO

Article History:

Received : August 30, 2024

Accepted : October 28, 2024

Published: November 1, 2024

DOI:

https://doi.org/10.26553/jikm.2024.15.3.272-287

Available online at

http://ejournal.fkm.unsri.ac.id/index.php/jikm

ABSTRACT

Maternal mortality is still a global health problem. Indonesia has the third highest maternal mortality rate in ASEAN. The Maternal Perinatal Death Surveillance and Response (MPDSR) program was established to reduce the high maternal mortality rate. However, the effectiveness of maternal audit implementation is still experiencing many obstacles, not only in Indonesia but also in various countries around the world. This study aims to describe the obstacles faced by the MPDSR team in assessing maternal mortality in Lombok Island, which was ranked eighth in Indonesia and significantly affected the national total. This research can be used by the Government of Indonesia to develop local policy strategies and specific interventions according to the problems and constraints experienced in each region to reduce maternal mortality worldwide. This research used a case study design with qualitative analysis through in-depth interviews with nine respondents from two MPDSR program holders at the Health Offices on Lombok Island and one MPDN application coordinator at the West Nusa Tenggara Provincial Health Office in 2022 who were willing to be a respondent. This research used several kinds of triangulation, such as method triangulation, triangulation between researchers, triangulation of data sources, and theoretical triangulation. The results showed that the problems faced by the MPDSR team were very complex, including attention, cooperation, and commitment in the team; digitization transition; budget allocation; collection and filling of maternal death forms; MPDN application features; blame culture; discrepancies in diagnoses of causes of maternal death; and sustainability of recommendation results. In conclusion, problems and constraints in the implementation of maternal mortality audit assessments were very complex, with different variations between districts, so it was necessary to establish communication and discussion to find strategies and solutions based on a priority scale.

Keywords: maternal mortality, maternal mortality audit assessment, MPDSR performance, Lombok Island.

Introduction

Maternal mortality is the death of a woman during pregnancy and childbirth or within 42 days after childbirth that is purely due to pregnancy or its management without being caused by other factors, such as accidents, falls, or others[1]. The prevalence of maternal mortality in the world is estimated at 287,000 deaths, with 800 deaths occurring every day due to complications of pregnancy and childbirth, even though these causes of death are preventable[2,3,4]. Indonesia's maternal mortality rate ranks third in ASEAN with 305 deaths per 100,000 live births, which is still far from the Government and SDGs targets of 183 deaths per 100,000 live births by 2024 and 70 deaths per 100,000 live births by 2030[5]. On the other hand, the absolute number of maternal deaths in the West Nusa Tenggara region increased to 144 deaths in 2021, except for a decrease in the number of deaths that occurred in 2019 compared to one year earlier[6,7]. The Indonesian Government established the Maternal Perinatal Death Surveillance and Response (MPDSR) program, which was adopted from the WHO global guidelines with several revisions[8].

MPDSR is a program of structured and continuous activities regarding the determination of the diagnosis of the causes of maternal and perinatal deaths in accordance with the ICD code (*International Classification of Disease*) through an audit assessment based on death documents so that recommendations are obtained to prevent maternal and perinatal deaths in the future. The management of district/municipal MPDSR activities consists of coaches, managers, observers, and community involvement in accordance with the district/municipal degree. The limitation period of maternal mortality is from the first day of the last menstrual period to 42 days after the end of the pregnancy period, regardless of gestational age. MPDSR components, including identification, reporting, assessment, and response to follow-up by applying absolute principles, such as no name, no shame, no blame, and no pro justitia[9].

Maternal mortality reflects the quality of health services provided and the level of welfare in a country. Therefore, information related to maternal mortality can be helpful in the development of reproductive health programs, including health services for pregnant women, providing education to families, delivery by medical personnel, and handling complications with appropriate and immediate referrals[9]. The reduction in maternal mortality globally only reached one-third (2.1%) of the target set by the SDGs program (6.4%) by 2030. Maternal mortality rates in most high-income countries were still in the low range and tended to be stable. However, the maternal mortality rate in low-income countries was still in the high range compared to other countries despite a gradual decline. 95% of all maternal deaths occurred among people in low- and middle-income countries[10]. Even maternal mortality rates have almost doubled in high-income countries, such as the United States, with a mortality rate of 17.4 deaths per 100,000 live births in 2018 to 32.9 deaths per 100,000 live births in 2020[11]. The increase in maternal mortality is a cause for concern that needs to be addressed. Various statements and goals set by UN network agencies, such

as: "Strategies toward ending preventable maternal mortality, "Sustainable Development Goals", or the Millennium Development Goals" are reflections of the importance of maternal health services to reduce maternal mortality in the world[12,13]. Therefore, research on the implementation of the MPDSR program needs to be conducted in order to provide input and evaluation for the Government of Indonesia to develop local policy strategies into specific interventions according to the problems and constraints experienced in each region.

The effectiveness of maternal audit implementation is still questionable due to the frequent occurrence of maternal deaths with the exact cause [14,15]. Constraints experienced in the implementation of MPDSR, not only in Indonesia but also in various countries worldwide [16,17]. Until now, research on the implementation of MPDSR in several regions in Indonesia and even in other countries has been limited. Several studies conducted previously have found similarities and differences in constraints in the assessment of maternal death audits, such as incomplete information on maternal deaths, unsynchronized information on referral cases, no internal audits by health workers in hospitals, lack of objectivity in maternal death case assessment, lack of cooperation between hospital teams and health offices, blame culture, lack of training and skills in MPDSR teams, and lack of funding[18,19,20,21].

West Nusa Tenggara ranked eighth highest in Indonesia with a maternal mortality rate of 257 deaths per 100,000 live births, which is higher than the national maternal mortality rate of 189 deaths per 100,000 live births in 2020. West Nusa Tenggara's population was around 1.97% of Indonesia's population. This research was conducted on Lombok Island because Lombok Island has the most extensive population distribution compared to other islands in the West Nusa Tenggara region. East Lombok District (45 deaths) and Central Lombok District (33 deaths) contributed the highest absolute number of maternal deaths, while the highest maternal mortality rate was still held by Mataram City (216 deaths per 100,000 live births) in 2020 in the West Nusa Tenggara region[8,9]. Describing and mapping the obstacles to the implementation of maternal mortality audits in each region needs to be done to determine the priority scale in handling problems.

Previous research revealed that there was a need to improve the competence of health workers (midwives and doctors), the availability of blood stocks, the completeness of filling in maternal medical record documents, and the implementation of the assessment of all maternal cases in West Lombok District[21]. Until now, research on the implementation of maternal mortality audit assessments in the West Nusa Tenggara region is scarce and has not been updated. The difference between this study and previous studies is the review of regional MPDN data in West Nusa Tenggara Province to explore information related to maternal mortality data, which is the basis for in-depth interview questions in district health offices in Lombok Island, West Nusa Tenggara. Maternal Perinatal Death Notification (MPDN) is an application that can be accessed through a smartphone to report, review, and analyze maternal and neonatal death cases effectively and

efficiently to evaluate the causes of these deaths so as to reduce maternal and neonatal mortality in the future[7]. This study will focus on and specifically assess the MPDSR performance in the assessment of maternal mortality audits in the Lombok Island Region, West Nusa Tenggara in 2022.

Methods

This research used a case study design with qualitative analysis through in-depth interviews and focused data review on the MPDN application[22,23]. Data collection began in September to October 2023. Purposive sampling was used to select two MPDSR program holders at the Health Offices on Lombok Island and one MPDN application coordinator at the West Nusa Tenggara Provincial Health Office in 2022 who were willing to be a respondent, while the exclusion criteria were respondents who were sick or not fully conscious. The procedure for data collection in this research began with preparing the research permit files and submitting them to the Health Research Ethics Commission of the Faculty of Medicine, Mataram University to obtain an Ethical Clearance Decision Letter. After the permit was approved, then the researchers would contact a group of people with authority and interest in the MPDSR program in the District /City Health Offices and West Nusa Tenggara Provincial Health Office to send a permit letter and explain the informed consent to the research to be carried out. If the respondents are willing, the researchers and respondents will agree on a suitable time and place for the interview. The interview, typically lasting about an hour, will start face-to-face with the researchers introducing themselves, followed by the respondents' introduction, including their positions, which will be anonymized during data processing. The interview will be guided by the researchers' questions, which will be further developed based on the respondents' explanations. The researchers will review MPDN application data under the active supervision of the MPDN application manager, ensuring the accuracy and relevance of the information obtained. The collected data will be stored on the researchers' devices and analyzed until it is compiled into this research report. Once the data analysis is complete, the records stored on the researchers' devices will be deleted to ensure data security and prevent any potential data leakage.

The topic of the interview, which discusses MPDSR constraints, such as team attention, team commitment, and management of the MPDN application system in the scope of questions, includes: (1)."How is the implementation of MPDSR socialization?"; (2)."How is the implementation of MPDSR activities?"; (3)."How is maternal mortality data reported?"; (4)."How is maternal mortality audit review conducted?". Data will be recorded and transcribed verbatim and then coded using framework analysis[24]. Data validation in this research used several kinds of triangulation, such as method triangulation (comparing information from MPDSR program holders in each district and MPDN coordinators at the provincial level), triangulation between researchers

(more than one researcher in data collection and analysis), triangulation of data sources (in-depth interviews and MPDN application data), and theoretical triangulation (comparing information with relevant theoretical perspectives). This research, which has been approved by the Health Research Ethics Commission of the Faculty of Medicine, Mataram University with Number **412/UN18.F8/ETIK/2023,** underscores the research's ethical considerations and compliance, providing reassurance about the research's integrity.

Results

Nine respondents were from each Health Office on Lombok Island and the MPDN application coordinator at the West Nusa Tenggara Provincial Health Office in 2022. Data collection at the Central Lombok District Health Office was not included due to lack of permission, which caused the interview process to be unable to continue (**Table 1**).

Table 1. Respondents Profile

Code	Position
Respondent 1	MPDSR program holder at the East Lombok District Health Office
Respondent 2	MPDSR program holder at the East Lombok District Health Office
Respondent 3	MPDSR program holder at the West Lombok District Health Office
Respondent 4	MPDSR program holder at the West Lombok District Health Office
Respondent 5	MPDSR program holder at the North Lombok District Health Office
Respondent 6	MPDSR program holder at the North Lombok District Health Office
Respondent 7	MPDSR program holder at the Mataram City Health Office
Respondent 8	MPDSR program holder at the Mataram City Health Office
Respondent 9	MPDN application coordinator at the West Nusa Tenggara Provincial Health Office

The coding of problems and obstacles experienced by each health office in the framework analysis (**Table 2.**)

Table 2. Data Analysis Framework

Theme	Category	Sub-categories	Code
Performance assessment of the MPDSR	MPDSR team's attention	Knowledge and understanding	➢ There were still district/city areas that had not implemented the socialization of the MPDSR program.
			➢ Lack of understanding of MPDSR socialization materials by participants.
			➢ Health workers who did not understand the writing and categorization of the causes of maternal death in accordance with the column of the medical certificate of Cause of death based on the ICD-10 code in cases outside the field of obstetrics, so they were included with information as other causes.
		Timeliness of work	➢ Delayed collection and incompleteness of maternal death data, such as maternal verbal autopsies, maternal medical records, and intermediate maternal medical records.
		Fund allocation	➢ Limited funds for the implementation of the MPDSR assessment.
			➢ Limited funds for the number of MPDSR review teams.
			➢ Limited funds for follow-up of MPDSR recommendations.
	MPDSR team's commitment	Work Quality	➢ Health workers have not been trained in the process of inputting maternal death data in the MPDN application.
			➢ Not all death cases will be assessed.
			➢ There was still a culture of blaming each other when the assessment activities took place.

		➢ The review team had difficulty determining the Cause of maternal death due to incomplete maternal death data. ➢ Suboptimal monitoring of the sustainability of MPDSR recommendation results.
	Work quantity	➢ The assessment was still carried out in a hybrid manner due to the review team could not read the documents in the MPDN application or the documents were not inputted in the MPDN application, so the health offices also provided hard files of maternal verbal autopsy, maternal medical records, and intermediate maternal medical records to the review team for assessment. ➢ Rotation of health workers so that it is necessary to carry out training.
	Cooperation	➢ Maternal death cases in wards other than obgyn have not been monitored. ➢ There has not been good communication and cooperation between health offices so maternal medical record documents are often not collected. ➢ There was a sense of reluctance in the health office towards health workers and hospitals.
	Responsibility	➢ The health offices and health workers were busy with other work activity programs, resulting in a lack of attention to the MPDSR program. ➢ There was a lack of responsibility for the work obligations so there was one member who completed the duties of other members.
Management of the MPDN application system	How the MPDN application works	➢ Maternal death notifications in the MPDN application only appeared for requests to upload maternal verbal autopsy documents, so filling in the intermediate maternal medical records was often missed due to the absence of notifications.
	App features MPDN	➢ The maternal verbal autopsy documents could not be inputted into the MPDN application due to the unclear division of working areas of public health centers. ➢ The features of inputting maternal medical record documents and intermediate maternal medical records were overlapping, so that only one of the documents could be inputted.

The effectiveness of the implementation of the MPDSR program socialization on the level of understanding of the material on the participants has not been fully achieved due to several obstacles experienced which are understandable, such as the schedule of socialization activities that conflict with other activities and the limited audience invited.

"Yes, they overlapped. Like earlier, there were people who could attend but could only attend for a short time because they had to leave immediately."

(Respondent 1)

Moreover, the limited socialization through the distribution of soft files of the MPDSR guidebook online has caused misperceptions of the North Lombok District Health Office by conducting feedback on internal discussions by health workers at the public health center to determine the diagnosis of the Cause of maternal death with the expenditure of funds outside the MPDSR activity design so that the visit uses personal funds.

" We had an agenda to provide input to the public health center, but often our funds were limited because there was no budget for such activities. So, we went there at our own expense, they only provided modest consumption."

(Respondent 5)

To solve this problem, the North Lombok District Health Office discussed with the Head of the Sector Health Office not to return feedback to the public health center in the coming year so that the allocation of funds is focused on implementing MPDSR activities at the district level.

"We coordinated with the head of the health office sector so that in the future we would not do feedback to the health centers, so that the budget was withdrawn all to the district level."

(Respondent 5)

The topic of budget constraints is the main problem that respondents often complain about. This makes them carry out MPDSR activities less optimally and even do not meet the standardization of the MPDSR guidebook.

"...the current budget only allowed for two reviewers, which did not allow us to invite a larger team of reviewers."

(Respondent 2)

"Funding for the implementation of MPDSR activities mostly used the special allocation funds from the state budget because the budget provided by the regions was relatively small."

(Respondent 3)

"The results of the MPDSR program assessment recommendations, such as increasing the capacity of health workers and training basic emergency obstetric neonatal services, could not be implemented due to limited funds."

(Respondent 7)

"Our budget was only enough for once a year. So, only one assessment for the child, and only one assessment for the mother."

(Respondent 7)

The change in the maternal death data reporting system from manual to digital requires health workers to input maternal death data into the MPDN application. However, respondents said there were some problems with the way the MPDN application worked, which affected the performance of the MPDSR team.

"The notification of the request for the creation of maternal death data in the MPDN application only appeared on the request for the maternal verbal autopsy data, so health workers, especially in private hospitals, often forgot to create intermediary maternal medical record data."

(Respondent 2)

"The division of public health center areas in the MPDN application was based on sub-district areas, while we experienced problems in the division of areas. One public health center could cover two sub-districts at once. So, public health officers at the public health center couldn't fill in the maternal verbal autopsy data in the MPDN application, while filling in the maternal medical record and the intermediary maternal medical record were interrelated to each other so

that when the maternal medical record data was filled in, the intermediary maternal medical record data couldn't be filled in.

(Respondent 8)

The Mataram City Health Office has requested assistance from the West Nusa Tenggara Provincial Health Office, which was responded to by creating 17 village midwife accounts. However, the MPDN application system couldn't read the account as the owner of the region because the account system with ownership of each public health center that oversees one sub-district so the account creation was not successful.

"We created a new account. However, it was still not possible because MPDN, as the owner of the public health center area, couldn't read, so the maternal verbal autopsy data couldn't be filled in."

(Respondent 8)

The division and implementation of work programs in the MPDSR team were still not optimal due to the high workload so the focus of health workers was not only on MPDSR activities.

"We did not have time to consult the MPDN application features because the technician was busy as the person in charge of the unit expenditure accountability report."

(Respondent 7)

"The human resources were still limited, sometimes one person held many programs, so it was not focused."

(Respondent 9)

The MPDSR team's busy schedule also contributed to the incomplete and delayed collection of maternal death data beyond the predetermined time limit.

"The filling and collection of maternal mortality data for 2022 was still very messy."

(Respondent 9)

"Due to accreditation preparations, we couldn't urge health workers to complete their data immediately."

(Respondent 7)

Efforts were made by the health office team to deal with this by providing time flexibility and reminding by telephone.

"We still have a minimum grace period of less than one month because health workers in hospitals also need time for internal discussions."

(Respondent 4)

"We usually reminded them by phone, but we also had a lot of work here, so we couldn't remind them too often."

(Respondent 7)

The collection of intermediary maternal medical records was often hampered by cross-border data collection, which required communication between the region where the mother died and the region where the mother was domiciled. Some health offices found it difficult to obtain the medical records of intermediate mothers because there was no bridge that chained the data.

"We asked to be facilitated by the hospital to make the manual maternal medical record for us. However, the Mataram City Health Office stated that they would coordinate directly with the hospital. Would it be ethical for me to ask directly to the city hospital?"

(Respondent 3)

The response of the Mataram City Health Office was to suggest that health offices communicate directly by sending a request letter to the health officer at the city hospital, similar to the experience of the Mataram City Health Office. The Mataram City Health Office also felt that it had not received requests for intermediary maternal medical records from other health offices.

"For confirmation, we went directly to the hospital because the hospital that filled in the medical record of the delivery mother, usually the daily nurses who made the maternity records, we did not know if it was outside the region. However, we based on our experience. No one from outside the region called or communicated with us about correspondence."

(Respondent 8)

Lack of understanding and thoroughness of health workers in filling in data at the finishing stage who thought the data could be inputted automatically, but apparently the notification did not go to the health office, which after further investigation turned out to require the process of clicking the 'save' feature.

"Sometimes it gets skipped, so it doesn't get saved. When we talked about it together, it turned out that after clicking 'save', the file could be read to completion."

(Respondent 4)

"The knowledge of how to input data in the MPDN application was still lacking. This happened perhaps due to a lack of socialization, health workers who were not familiar with the long flow of data entry, an application that was in error, and a change in the rotation of health workers who did not inform the workflow of the MPDN application and password to the next health worker."

(Respondent 9)

There was still a reluctance from the health office to remind or reprimand health workers to collect and complete maternal death data so that the writing and determination of the disease diagnosis category were in accordance with the column placement in the medical certificate of the Cause of death.

"...maybe if it was someone who was more expert, it might not be a problem, but we as a management team felt reluctant with it."

(Respondent 4)

Births assisted by traditional birth attendants still occur due to various personal reasons of the mother, although the number of cases was small.

"There were still three or four...the mother really wanted to have the delivery assisted by a traditional birth attendant because it might be far to go to the public health center, did not want to leave the livestock. It was more comfortable to give birth at home with the help of a traditional birth attendant".

(Respondent 5)

Efforts made by the health service team to deal with this are through a family approach and regular monitoring.

"Well, so at that time, our follow-up was that first, there was a family relationship between the village midwife and the traditional birth attendant. That was the approach. The second is the duty of the village head, whether through his staff or others, to monitor regularly. If there is a delivery, it is immediately reported to the nearest village midwife".

(Respondent 1)

Monitoring of maternal death reporting by operators was limited to maternal perinatal wards at the West Lombok District Health Office. However, monitoring in other health offices was already well underway.

"It should have been in the system, but it wasn't. We were still focusing on the delivery room."

(Respondent 3)

The percentage of other causes (26.1%) in the diagnosis of causes of maternal death was still high in the MPDN application (**Figure 1.**)

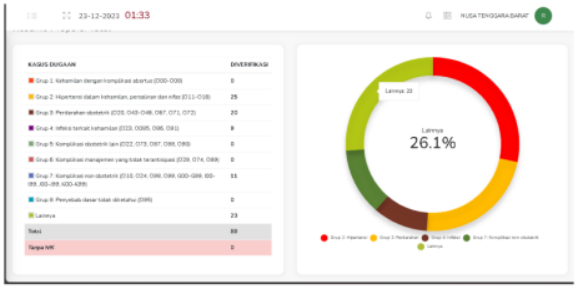

Figure 1. The proportion of Causes of Maternal Mortality in West Nusa Tenggara in 2022 (Secondary Data MPDN Application)

"Health workers at the hospitals filled in the maternal medical records not in accordance with the ICD-10 code, then there were also cases of death outside obstetric cases, and some died on the way. So they were confused to give a diagnosis when the mother died, so they ended up writing something else."

(Respondent 8)

"Other causes were still a problem, even the provincial hospital did not know how to determine the appropriate cause of death because there was no socialization there."

(Respondent 9)

The maternal mortality audit assessment was conducted in a hybrid manner. Maternal mortality data was directly accessible to the assessment team through the MPDN application but was also available in hard files submitted to the assessment team.

"We tried to go paperless in the hope that the reviewers could read it, but they couldn't. Finally, we combined digital and manual."

(Respondent 3)

"Digital assessment reporting has not all been uploaded to the MPDN application due to health workers who were not familiar with the long flow of data entry and application that was in error."

(Respondent 9)

All maternal death cases were assessed without exception. However, some health offices were unable to assess all cases due to constraints (**Table 3**).

Table 3. Total Maternal Deaths, Total Maternal Deaths Assessed, and Causes of Death Cases Assessed

No.	District/City Health Offices	Total Maternal Deaths	Total Maternal Deaths Assessed	Causes of Maternal Death Cases Assessed
1.	East Lombok District Health Office	34	6	Bleeding (2), Eclampsia (2), Puerperal Infection (2)
2.	West Lombok District Health Office	10	10	Postpartum Hemorrhage (5), Severe Pre-eclampsia (4), Embolism (1)
3.	North Lombok District Health Office	3	3	Postpartum Hemorrhage (1), Eclampsia (1), Malaria (1)
4.	Mataram City Health Office	6	4	Postpartum Hemorrhage (3), Severe Pre-eclampsia (1)

(Secondary Data Local Area Monitoring of Maternal and Child Health Program)

"We planned to do the assessment once a year, which is in the 4th quarter, between October, November, and December. We wanted to do it in October. It turned out that near the end of the year, on the 30th and 31st, there were two new death cases. So we didn't have time to assess it because it was at the end of the year and it was unexpected."

(Respondent 7)

"Monitoring and evaluation activities from the provincial health office for the assessment of maternal mortality audits every three months had not yet been implemented."

(Respondent 9)

The principles of no name, no shame, and no pro justitia had been well implemented, but the application of no blame had not yet been implemented.

"There was one, actually, because the midwife and doctor were nervous when asked, so their answers often changed when asked again. There were still some like that."

(Respondent 7)

Monitoring the sustainability of recommendations was carried out through monitoring and evaluation along with other health programs; unfortunately, this monitoring was not optimal, and there were still several things that had not been monitored (**Table 4**).

Table 4. Recommendations of Maternal Death Assessment and Responses

No.	District/City Health Offices	Recommendations	Responses
1.	East Lombok District Health Office	18	16
2.	West Lombok District Health Office	24	23
3.	North Lombok District Health Office	14	10
4.	Mataram City Health Office	7	3

(Secondary Data Local Area Monitoring of Maternal and Child Health Program)

"If specifically for monitoring and evaluation activities related to MPDSR, maybe not; maybe we combined it with other activities while we also asked whether the results that we had recommended, had been implemented or not? We will check again."

(Respondent 5)

Similarities and differences in constraints experienced between Health Offices in Lombok Island (**Table 5.**)

Table 5. Similarities and Differences in Constraints between Health Offices in Lombok

District/City Health Offices	Constraints	
	Differences	**Similarities**
East Lombok District Health Office	➢ MPDSR socialization schedule clashed with other activities so participants did not follow the event until the end or did not have the opportunity to attend. ➢ There was no regent's decree regarding the implementation of MPDSR. However, it already exists in 2023. ➢ The budgeting for the review team was limited to 2 people only. ➢ Only 6 out of 34 maternal death cases were assessed. ➢ Notification of maternal deaths in the MPDN application only appears for requests to upload maternal verbal autopsy documents, so filling in the intermediate maternal medical record is often missed due to the absence of notification.	➢ Lack of understanding of MPDSR socialization materials by participants. ➢ Limited funds for follow-up of MPDSR recommendations. ➢ Delayed collection and incompleteness of maternal medical records ➢ There has not been good communication and cooperation between health offices, so the intermediate maternal medical record documents are often not collected, except at the Mataram City Health Office. ➢ Delayed collection and incompleteness of intermediate maternal medical records, except at the Mataram City Health Office. ➢ Health workers have not been trained in the process of inputting maternal death data in the MPDN application.
West Lombok District Health Office	➢ Incomplete maternal verbal autopsy documents. ➢ There has been no monitoring of maternal mortality cases in wards other than ob-gyn.	➢ The assessment was still carried out in a hybrid manner. ➢ The health offices and health workers were busy with other work activity programs, resulting in a lack of attention to the MPDSR program.
North Lombok	➢ There has been no socialization of	

District Health Office	MPDSR materials. ➢ Uneven division of labor. ➢ The absence of the medical certificate of Cause of death document.	➢ Health workers did not understand the writing and categorization of the causes of maternal death in accordance with the column of the medical certificate of Cause of death based on the ICD-10 code in cases outside the field of obstetrics, so they were included with information as 'other causes'.
Mataram City Health Office	➢ There was no regent's decree regarding the implementation of MPDSR. However, it already exists in 2023. ➢ No input of maternal verbal autopsy documents due to unclear division of community health center areas. ➢ There was limited funding for the implementation of the maternal mortality audit. So, the assessment was only carried out once a year, so only 4 out of 6 maternal death cases were assessed. ➢ The document input features of maternal medical records and intermediate maternal medical records were interlinked so that only one of the two documents could be inputted. ➢ The monitoring of the sustainability of the MPDSR recommendations was not optimized.	➢ The review team had difficulty determining the Cause of maternal deaths due to incomplete maternal death data at the West Lombok District Health Office and North Lombok District Health Office. ➢ There was still a culture of blaming each other when the assessment activities took place, except at the North Lombok District Health Office. ➢ There was a sense of reluctance in the health office towards health workers and hospitals.

Discussion

The MPDSR guidebook was socialized at the end of 2020 as a new guide for health offices in implementing maternal perinatal audit activities in Indonesia[8]. The success of the socialization can be seen from the level of knowledge and understanding of health workers about the structure, objectives, and values of a program, which will undoubtedly have an impact on the performance of implementing MPDSR activities[25]. The accuracy of maternal mortality data is key to the success of audit activities[26]. Unfortunately, incomplete and late collection of forms often occurs due to the busy schedules of health workers, so an evaluation is needed so that health workers only fill in the required information records so that they do not feel burdened. Our results reported that access to intermediary maternal medical record documentation was complicated due to the lack of communication and cooperation between MPDSR teams, similar to other findings[18,19]. This lack of communication resulted in intermediary maternal medical record data often not being filled in, making it difficult for the review team to determine the Cause of maternal death. This requires socialization to gain a good understanding of the reporting flow of cross-border deaths and the rights and obligations of each. In addition, there needs to be a joint meeting that mediates the formation of good communication links to share the problems and obstacles experienced by each health service, which involves coordination and authority from other health services.

The implementation of maternal mortality audits in developed countries, such as France, is well established through the method of confidential national investigations by a national committee of maternal mortality experts composed of six obstetrician-gynecologists, five anesthesiologists-resuscitators, one resuscitator, two midwives, an internist, and three epidemiologists for a three-

year renewable term. The audit reviews death cases from several years ago and is a time-consuming process. Reports were collected from multiple sources through direct reporting to email, death certificates from the epidemiology center, the national database of death certificates, and the national database of the medical information system program on maternal hospitalization, resulting in data on maternal deaths from pregnancy to one year after the end of delivery, which were documented through the completion of a standardized questionnaire including closed-ended questions and free-text descriptions along with copies of medical histories through the presentation of medical personnel and post-mortem examination reports on deaths that underwent medicolegal autopsies to the High Court. The success rate of data collection using these methods was 97.4%. All committee members reviewed the files and discussed the relationship between the Cause of maternal death and the health services provided. Clarification was categorized into two categories, 'unavoidable' and 'possibly avoidable' deaths, while in the absence of a clear assessment, the conclusion was 'not established'[27].

Based on the description of the implementation of maternal mortality audits, the committee members' attention and commitment are focused on the program with structured coordination with various stakeholders. However, the issue of limited funding is often encountered in the implementation of maternal mortality audits, even in developed countries, such as in Europe[28]. We also found in our research that budget constraints are a major problem in implementing MPDSR activities. These constraints can impact the limited socialization and training activities needed in the transformation process of digitizing reporting in the MPDN application and conducting maternal mortality assessments. The reasons behind this are the same, namely due to the low priority of the MPDSR program and the limited resources required for efficient implementation of MPDSR[28]. Therefore, the role and authority of the Government of Indonesia is expected to develop and establish policies that adapt the audit flow and consider it with the capacity and resources available for the implementation of maternal mortality audits in Indonesia accompanied by effective socialization activities.

The results of our study show that there are still deliveries assisted by traditional birth attendants, so there is no clear medical record or report regarding the mother's condition. These deliveries do not necessarily meet the standards of tools, materials, or procedures that may indirectly or directly contribute to maternal mortality[29]. In addition, notification or monitoring of maternal deaths in wards other than obgyn is needed to minimize the error between the actual number of maternal deaths and the number of unreported maternal deaths. Therefore, considerations regarding the socialization of maternal health to the community, as well as the role of health workers in providing maternal and child health services, are needed to reduce the number of deliveries without medical supervision. Besides that, there is a need for attention and coordination of the doctor in charge of the patient in reporting maternal deaths in the MPDSR

program, or consideration of the socialization of the MPDSR program to other fields other than obgyn who often intersect with maternal pregnancy and childbirth care because not all other relevant specialists, such as anesthesiologists, internist, cardiologists, surgeons or representatives of other specialists if needed to know about the MPDSR program.

Our results showed a high percentage of other causes. The determination of the underlying Cause of death was not in accordance with ICD-10 (*International Classification of Diseasese-10*) mortality rules[30]. Some reviewers still did not understand the writing and placement of the form's columns[17, 18, 31]. This is due to the review team feeling confused by the placement of information outside obstetric cases and cases that died in transit. ICD-10 (*International Classification of Diseasese-10*) is used to classify the causes of obstetric death adopted in the MPDSR guidebook[6]. The development of ICD-10 with some recent revisions into ICD-MM (*International Classification of Diseases Maternal Mortality*) includes guidelines for the classification of primary and secondary causal factors in maternal mortality, as well as guidelines for consistent collection, analysis, and interpretation of maternal mortality data[32]. Besides that, ICD-11 will be implemented in France in 2024[27]. Determining the use of the right type of form and filling needs to be considered in order to provide accurate information for review. Socialization and training on filling in the Cause of maternal death classification may be needed to minimize the writing of other causes.

A culture of blame still prevails during the audit process, as in our findings and other research findings, both domestically and internationally[33,34,35]. This may be due to a lack of clarity regarding the purpose of the MPDSR program when it was first implemented, so there is a sense of threat or fear in telling the chronology of the causes of maternal death[34,35]. Therefore, it is necessary to instill a mindset and explain that the purpose of conducting an audit is to reduce maternal mortality, not to be judged. A conducive discussion atmosphere needs to be built with good conversation so as not to offend. Besides that, continuous and improved audit implementation with an emphasis on audit confidentiality can reportedly shift the blame culture[26,35].

There are four criteria in writing recommendations, including specific, measurable, achievable, relevant, and time-bound[8]. Our results show that the realization of most of the recommendations is constrained by budgetary limitations and the contribution and authority of government policymakers, as well as other findings[17,18]. The results of maternal mortality audit recommendations in developed countries, such as in Europe will be collected and published for researchers, clinicians, and policymakers in an effort to improve health services in the future[28]. The audit recommendations from Malaysia focus on improving health services, such as expanding access to skilled birth attendants, ensuring a quick and appropriate referral system, ensuring professional delivery services, ensuring emergency obstetric care, maintaining the quality of care, and providing necessary equipment and medicines for mothers[36]. Therefore, the formulation of recommendations first considers all four criteria, especially the 'achievable criteria', so that the

resulting recommendations can actually be implemented with an affordable budget and can provide benefits, such as in simulating emergency cases at public health centers.

Problems ranging from the process of identifying the findings of maternal death cases (the health history of pregnancy to the postpartum period of the mother), the process of reporting maternal death cases (notification of maternal deaths at health facilities, notification of maternal deaths, reporting the history of maternal medical records), reviewing maternal death cases (the process of running discussions and the results of discussions), and realizing the results of recommendations for maternal death cases need attention from the MPDSR team because these activities affect each other. Problems and constraints in the implementation of maternal death audit assessment in the MPDSR program were complex, with different variations among health offices on Lombok Island. However, similarities in the obstacles to the assessment of maternal death audits, such as the understanding and skills of the MPDSR team in their respective roles in the MPDSR program, communication and cooperation in collecting and completing maternal verbal autopsy data, maternal medical record data, and intermediary maternal medical record data in supporting the diagnosis of the Cause of maternal death, as well as the allocation of funds for maternal death audit activities need to be prioritized and addressed first. In addition, constraints on crucial matters that support maternal mortality audit activities, such as data entry in the MPDN application system at the Mataram City Health Office, also need to be addressed immediately so that the implementation of the assessment can run more optimally without any protracted obstacles. Studies conducted in other regions in Indonesia are needed to evaluate the realization of the national MPDSR program guidebook to the lower levels. In addition, there is a need for the role of the national MPDSR team in ensuring the smooth and effective implementation of MPDSR at the provincial and district/city levels by providing support and developing strategies and policies to reduce maternal mortality through cooperation between professional and community organizations, across sectors, across programs and others. On the other hand, the realization of the results of recommendations and improvement of maternal health services as a form of solution to the problems that cause maternal mortality needs to be evaluated and monitored for its sustainability in accordance with the objectives of the MPDSR program, namely reducing maternal mortality in the future.

Limitation

This research was conducted in 2023, so it is possible that memory bias could affect the answers given by respondents. Besides that, some respondents' words were cut off in answering the questions simultaneously, as well as the use of local language during the interview was less understood by the researchers as local residents outside the domicile of the research location.

Conclusion

Problems and constraints in the implementation of maternal mortality audit assessments were very complex, with different variations between districts, so it was necessary to establish communication and discussion to find strategies and solutions based on a priority scale. To minimize the limitations of this study, it is recommended that data collection in the following study be carried out immediately after the data discussion in a large meeting of the West Nusa Tenggara Provincial Health Office to minimize recall bias between the assessment in the period of the year under study and the current year. In addition, it is necessary to agree on the use of Indonesian as the national language or immediately to clarify the meaning of truncated words to minimize data interpretation errors. The authors hope that future research can use quantitative methods related to the statistical descriptions to complement the qualitative results in this study. In addition, the author hopes that future research can widen the topic of discussion on the performance of the MPDSR team at the provincial and national levels in dealing with the MPDSR program implementation policy and responding to the various obstacles experienced by each district/city in the results of previous studies.

Acknowledgment

The implementation of this research was made possible by the support and assistance of various parties. Therefore, the researchers would like to express their deepest gratitude to UNICEF and the West Nusa Tenggara Health Offices for their contribution to this research.

Funding

The authors declare that there is no funding for this research.

Conflict of Interest

The authors declare that there is no conflict of interest.

Reference

1. OECD/WHO. Maternal Mortality [Internet]. OECD. 2020. Available from: https://www.oecd-ilibrary.org/sites/12a2742f-en/index.html?itemId=/content/component/12a2742f-en
2. UNICEF. 2021. Available from: https://data.unicef.org/topic/maternal-health/maternal-mortality/

3. WHO. Maternal Mortality [Internet]. World Health Organization. World Health Organization: WHO; 2024 [cited 2024 Apr 26]. Available from: https://www.who.int/news-room/fact-sheets/detail/maternal-mortality.
4. WHO. Maternal mortality ratio (per 100 000 live births) [Internet]. World Health Organization; 2023. Available from: https://www.who.int/data/gho/indicator-metadata-registry/imr-details/26
5. Naviandi U, Wahyuni S, Ikawati D, Handiyatmo D, Parwoto, Trisnani D, et al. Mortalitas Di Indonesia: Hasil Long Form Sensus Penduduk 2020. Jakarta: Badan Pusat Statistik; 2023.
6. Badan Pusat Statistik. Hasil Long Form Sensus Penduduk 2020. Badan Pusat Statistik; 2023.
7. Dinas Kesehatan Provinsi Nusa Tenggara Barat. Profil Kesehatan Provinsi Nusa Tenggara Barat Tahun 2022 [Internet]. Dinas Kesehatan Provinsi Nusa Tenggara Barat; 2023.
8. Kemenkes RI. Audit Maternal Perinatal Surveilans Dan Respon. Jakarta: Kementerian Kesehatan Republik Indonesia; 2022.
9. Kemenkes RI. Pedoman Audit Maternal Dan Perinatal Surveilans Dan Respond (AMP-SR). Jakarta: Kementerian Kesehatan Republik Indonesia; 2021.
10. WHO. Maternal Mortality Ratio (per 100 000 live births) [Internet]. World Health Organization; 2023. Available from: https://data.who.int/indicators/i/C071DCB/AC597B1.
11. Joseph KS, Boutin A, Lisonkova S, Muraca GM, Razaz N, John S, et al. Maternal mortality in the United States: Recent trends, current status, and future considerations. Obstetrics & Gynecology [Internet]. 2021 Apr 8;137(5):763–71. Available from: https://journals.lww.com/greenjournal/Fulltext/9900/Maternal_Mortality_in_the_United_States__Recent.165.aspx.
12. WHO. Ending Preventable Maternal Mortality (EPMM). Geneva: World Health Organization [Internet]. World Health Organization; 2021 [cited 2024 Oct 5]. Available from: https://www.who.int/initiatives/ending-pre%20%20ventable-maternal-mortality.
13. WHO. Sustainable Development Goals 2021 [Internet]. Geneva: World Health Organization; 2021. Available from: https://www.who.int/europe/about-us/our-work/sustainable-development-goals.
14. Iriani, D, Ganap P, and Sulistyo H. Respons Tindak Lanjut Rekomendasi Audit Maternal Di Kabupaten Brebes Dan Kabupaten Banyumas. 2021; 24(02): 60–65. Available at: https://jurnal.ugm.ac.id/jmpk.
15. Susiana S. Angka Kematian Ibu : Faktor Penyebab Dan Upaya Penanganannya. PUSLIT BKD. 2019; 11(24): 14-16.

16. Kodan R, et al. Maternal Mortality Audit In Suriname Between 2010 And 2014. A Reproductive Age Mortality Survey. BMC Pregnancy and Childbirth. 2017; 17(1): 1–9. doi: 10.1186/s12884-017-1466-6.
17. Smith H, et al. Implementing Maternal Death Surveillance And Response In Kenya: Incremental Progress And Lessons Learned. Global Health Science and Practice. 2017; 5(3): 345–354. doi: 10.9745/GHSP-D-17-00130
18. Ambarwati D, Kartasurya I, and Purnami T. Towards Zero Maternal Mortality: The Role of Policy Makers in Maternal Perinatal Audit Surveillance and Response. Poltekita : Jurnal Ilmu Kesehatan. 2023; 17(1): 45–56. doi: 10.33860/jik.v17i1.2124.
19. Cahyanti, D, Widyawati W, and Hakimi M. "Sharp Downward, Blunt Upward": District Maternal Death Audits' Challenges To Formulate Evidence-based Recommendations In Indonesia 'A Qualitative Study'. BMC Pregnancy and Childbirth. 2021; 21(1): 1–14. doi: 10.1186/s12884-021- 04212-7.
20. Nataria D, et al. Analisis Penyebab Kematian Maternal Di Kabupaten Cirebon. Jurnal Kesehatan. 2020; 01: 22–32.
21. Adisasmita C. Pengalaman Review Kematian Ibu Dengan Sebab Kematian Perdarahan Pasca Persalinan menggunakan Metode Confidential Enquiry into Maternal Death (CEMD). I. Depok: Fakultas Kesehatan Masyarakat Universitas Indonesia. 2017.
22. Baxter P, & Jack S. Qualitative Case Study Methodology: Study Design And Implementation For Novice Researchers. The Qualitative Report. 2008; 13 (4): 544-559. http://www.nova.edu/ssss/QR/QR13-4/baxter.pdf.
23. Roberts E. 'Qualitative Interview Questions: Guidance For Novice Researchers', Qualitative Report. 2020; 25(9): 3185–3203. doi: 10.46743/2160-3715/2020.4640.
24. Jabareen Y. "Building A Conceptual Framework: Philosophy, Definitions, And Procedure". International Journal of Qualitative Methods. 2009; 8(4): 49- 62. DOI: 10.1177/160940690900800406
25. Rumangkit S. Pengaruh Sosialisasi Organisasi Pada Komitmen Afektif Yang Dimediasi Oleh Kesesuaian Nilai. Jurnal Bisnis Darmajaya. 2016; 2(1): 34–56. Available at: https://jurnal.darmajaya.ac.id/index.php/JurnalBisnis/article/view/618.
26. Tayebwa E, Sayinzoga F, Umunyana J, Thapa K, Ajayi E, Kim YM, et al. Assessing Implementation Of Maternal And Perinatal Death Surveillance And Response In Rwanda. Int J Environ Res Public Health. 2020 Jun 2;17(12):1–11.
27. Deneux-Tharaux C, Saucedo M. Enquête Nationale Confidentielle sur les Morts Maternelles en France, un système de surveillance améliorée depuis 25 ans, indispensable pour la caractérisation fiable des décès maternels. Gynécologie Obstétrique Fertilité & Sénologie . 2024 Apr 1;52(4):178–84.

28. Kallianidis AF, Velebil P, Alexander S, Kristufkova A, Savona-Ventura C, Mahmood T, et al. European Board and College of Obstetrics and Gynaecology Position Statement on Maternal Mortality Surveillance in Europe. European Journal of Obstetrics & Gynecology and Reproductive Biology [Internet]. 2024 Aug 1 [cited 2024 Aug 28];299:345–9. Available from: www.journals.elsevier.com/european-journal-of-obstetrics-and-gynecology-and reproductive-biology
29. Lusambili A, Jepkosgei J, Nzinga J, English M. What do we know about maternal and perinatal mortality and morbidity audits in sub-Saharan Africa? A scoping literature review. International Journal of Human Rights in Healthcare. 2019 Jul 19;12(3):192–207.
30. Meiningtyas & Yulia. Tinjauan Penerapan Rule Mortalitas Dalam Penentuan Sebab Dasar Kematian Di Rumah Sakit Pusat Pertamina. Prosiding 4 SENWODIPA 2020. 2020 November; 67–71.
31. Lusambili A, Jepkosgei J, Nzinga J, English M. What Do We Know About Maternal And Perinatal Mortality And Morbidity Audits In Sub-Saharan Africa? A Scoping Literature Review. Int J Hum Rights Healthc. 2019 Jun 28;12(3):192–207.
32. Cahyanti R, Widyawati W, Hakimi M. The reliability of maternal audit instruments to assign Cause of death in maternal deaths review process: a systematic review and meta-analysis. BMC Pregnancy and Childbirth. 2021;21(380):1–10.
33. Kodan LR, Verschueren KJC, van Roosmalen J, Kanhai HHH, Bloemenkamp KWM. Maternal mortality audit in Suriname between 2010 and 2014, a reproductive age mortality survey. BMC Pregnancy and Childbirth. 2017 Aug 29;17(1).
34. Rousseva C, Kammath V, Tancred T, Smith H. Health Workers' Views On Audit In Maternal And Newborn Healthcare In LMICs: A Qualitative Evidence Synthesis. Tropical Medicine And International Health. 2020 May 1;25(5):525–39.
35. Kinney MV, Walugembe DR, Wanduru P, Waiswa P, George A. Maternal and perinatal death surveillance and response in low- and middle-income countries: a scoping review of implementation factors. Health Policy and Planning. 2021 Mar 13;36(6):955–73.
36. Ravichandran J, Ravindran J. Lessons from the confidential enquiry into maternal deaths, Malaysia. BJOG: An International Journal of Obstetrics & Gynaecology. 2014 Sep;121:47–52.

NCOVERING BARRIERS TO MATERNAL MORTALITY AUDITS: AN UNSEEN CHALLENGE

ORIGINALITY REPORT

11%
SIMILARITY INDEX

PRIMARY SOURCES

1	jurnal.uinsu.ac.id Internet	45 words — 1%
2	ejournal.fkm.unsri.ac.id Internet	44 words — 1%
3	hdl.handle.net Internet	40 words — 1%
4	bmcpregnancychildbirth.biomedcentral.com Internet	34 words — < 1%
5	www.researchsquare.com Internet	32 words — < 1%
6	D Nandika, L Karlinasari, I Z Siregar, A T Lestari, M Y S Nababan. "Characteristics of exposed cavities of urban trees in a landscape of Southtern Jakarta and their filling using polyurethane foam", IOP Conference Series: Earth and Environmental Science, 2018 Crossref	30 words — < 1%
7	jurnal.untirta.ac.id Internet	24 words — < 1%
8	buleria.unileon.es Internet	22 words — < 1%

9	buttondown.email Internet	22 words — < 1%
10	perpustakaan.poltekkes-malang.ac.id Internet	21 words — < 1%
11	erepository.uonbi.ac.ke:8080 Internet	20 words — < 1%
12	indonesia.un.org Internet	19 words — < 1%
13	docplayer.net Internet	18 words — < 1%
14	repository.stikim.ac.id Internet	18 words — < 1%
15	Arlina Dewi, Sri Sundari, Nursetiawan Nursetiawan, Supriyatiningsih Supriyatiningsih et al. "Reducing Maternal Mortality: A Qualitative Study of Health Workers' Expectation in Urban Area, Indonesia", Open Access Macedonian Journal of Medical Sciences, 2021 Crossref	17 words — < 1%
16	smujo.id Internet	15 words — < 1%
17	www.coursehero.com Internet	15 words — < 1%
18	Sovia Salamah, Ristra Ramadhani, Mega Rizkya Arfiana, Ibrahim Syamsuri et al. "Impact of the COVID-19 pandemic on the outcomes of Indonesian chronic disease management program", Electronic Journal of General Medicine, 2023 Crossref	12 words — < 1%

19	e-journal.hamzanwadi.ac.id Internet	12 words — < 1%
20	journal.umy.ac.id Internet	12 words — < 1%
21	Agung Dwi Laksono, Ratna Dwi Wulandari, Irwan Budiana, Nikmatur Rohmah. "Institutional delivery in East Nusa Tenggara, Indonesia: does antenatal care matter?", Journal of Public Health, 2023 Crossref	11 words — < 1%
22	jhia-online.org Internet	11 words — < 1%
23	www.foodandnutritionjournal.org Internet	11 words — < 1%
24	www.mcrhjournal.or.id Internet	11 words — < 1%
25	Kim J.C. Verschueren, Rubinah R. Paidin, Annabel Broekhuis, Olivier S.S. Ramkhelawan et al. "Why magnesium sulfate 'coverage' only is not enough to reduce eclampsia: lessons learned in a middle-income country", Pregnancy Hypertension, 2020 Crossref	10 words — < 1%
26	cdn-links.lww.com Internet	10 words — < 1%
27	mchandaids.org Internet	10 words — < 1%
28	Kiprop, Mercy Chepkosgei. "High-Risk Fertility Behaviors: Impact on Child and Risks of Maternal	9 words — < 1%

Mortality in Kenya", Illinois State University, 2023
ProQuest

29	Widani Darma Isasih, Rizqa Inayati, Vinna Amalia Resi Damayanti, Iman Gunawan. "Implementation of Nawa Cita's 5th Agenda in The Healthy Indonesia Program with a Family Approach", MAHESA : Malahayati Health Student Journal, 2024 Crossref	9 words — < 1%
30	cgi.hasselbom.com.php54.levonline.com Internet	9 words — < 1%
31	dhsprogram.com Internet	9 words — < 1%
32	digilib.unisayogya.ac.id Internet	9 words — < 1%
33	etd.uwc.ac.za Internet	9 words — < 1%
34	etheses.bham.ac.uk Internet	9 words — < 1%
35	qcu.edu.ph Internet	9 words — < 1%
36	reproductive-health-journal.biomedcentral.com Internet	9 words — < 1%
37	Aflaki, Kayvan. "Maternal Deaths Using Ontario Coroner's Data: A Latent Class Analysis", University of Toronto (Canada), 2023 ProQuest	8 words — < 1%

38 Akhmad Saufi, Danny O'Brien, Hugh Wilkins. "Inhibitors to host community participation in sustainable tourism development in developing countries", Journal of Sustainable Tourism, 2013
Crossref
8 words — < 1%

39 Al Abri, Jamila. "National Survey and Review of Maternal Near Miss in Oman", The University of Liverpool (United Kingdom), 2020
ProQuest
8 words — < 1%

40 Fredrika Welhelmina, Wiwik Viatiningsih, Lily Widjaja, Noor Yulia. "KETEPATAN KODE DIAGNOSIS PENYEBAB DASAR KEMATIAN DI RUMAH SAKIT DI INDONESIA : LITERATUR REVIEW", Jurnal Kesehatan Tambusai, 2022
Crossref
8 words — < 1%

41 Jahanpour Alipour, Abolfazl Payandeh, Afsaneh Karimi. "Prevalence of maternal mortality causes based on ICD-MM: a systematic review and meta-analysis", BMC Pregnancy and Childbirth, 2023
Crossref
8 words — < 1%

42 Mastrole Surace, Barbara. "Policy and Leadership Implications Related to Assessment of Western New York Distribution of Reproductive, Maternal, Neonatal, and Child Health Care Settings and Outcomes.", Niagara University, 2021
ProQuest
8 words — < 1%

43 Tamba Mina Millimouno, Sidikiba Sidibé, Alexandre Delamou, Kéfilath Olatoyossi Akankè Bello et al. "Evaluation of the maternal deaths surveillance and response system at the health district level in Guinea in 2017 through digital communication tools", Reproductive Health, 2019
Crossref
8 words — < 1%

44	assets.researchsquare.com Internet	8 words — < 1%
45	cyberleninka.org Internet	8 words — < 1%
46	du.diva-portal.org Internet	8 words — < 1%
47	e-tarjome.com Internet	8 words — < 1%
48	gacetasanitaria.org Internet	8 words — < 1%
49	journals.plos.org Internet	8 words — < 1%
50	journalspress.com Internet	8 words — < 1%
51	jurnal.poltekkespalu.ac.id Internet	8 words — < 1%
52	pdffox.com Internet	8 words — < 1%
53	www.unfpa.org Internet	8 words — < 1%
54	Nurannisa Fitria Aprianti, Apriani Susmita Sari. "The Effectiveness of MONOGAMIA (Monopoly to Prevent Anemia) on Female Adolescent Knowledge about Anemia Prevention and Consumption of Iron Supplement", Babali Nursing Research, 2024 Crossref	7 words — < 1%

55 Ratnasari D Cahyanti, Widyawati Widyawati, Mohammad Hakimi. ""Sharp Downward, Blunt Upward": District Maternal Death Audits' Challenges to Formulate Evidence-based Recommendations in Indonesia - a Qualitative Study", Research Square Platform LLC, 2021
Crossref Posted Content
7 words — < 1%

56 "Abstracts of the Asian Congress of Nutrition 2019", Annals of Nutrition and Metabolism, 2019
Crossref
6 words — < 1%

57 Clifford O. Odimegwu, Yemi Adewoyin. "The Routledge Handbook of African Demography", Routledge, 2022
Publications
6 words — < 1%

58 Kristiani Desimina Tauho, Ferry Fredy Karwur. "AN INSIGHT INTO MATERNAL DEATH CAUSED BY POSTPARTUM HEMORRHAGE IN WESTERN TIMOR, INDONESIA", Jurnal Keperawatan Indonesia, 2019
Crossref
6 words — < 1%

59 Lucas, Kathryn A.. "Screening for Prevention of Preeclampsia with Low-Dose Aspirin in Navajo Women: A Program Evaluation Project", The Catholic University of America, 2023
ProQuest
6 words — < 1%

EXCLUDE QUOTES	OFF	EXCLUDE SOURCES	OFF
EXCLUDE BIBLIOGRAPHY	ON	EXCLUDE MATCHES	OFF