

Original Article

Towards Zero Maternal Mortality: The Role of Policy Makers in Maternal Perinatal Audit Surveillance and Response

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ABSTRACT

The city of Semarang has formed a Maternal Perinatal Surveillance and Response audit committee team. The purpose of this study is to analyze the role of policy actors in the implementation of Maternal Perinatal Surveillance and Response Audit using the policy triangle framework of actors, content, context and process. This research was conducted qualitatively with a case study approach. The selection of informants was carried out purposively. Data collection by in-depth interviews with 6 main informants and 9 triangulation informants. Data were analyzed using thematic analysis, with the inclusion criteria of health workers having more than 3 years' experience in handling maternal death cases. The results showed that the role of AMP-SR actors was optimal at the Health Service and Community Health Centers, the role of AMP-SR actors in hospitals was not optimal. Not all of the contents of the AMP-SR were understood by the midwives at the Health Centers and Hospitals, the identification and notifications were on time, the OVM and RMM reports were not complete, the maternal death assessment had not been all carried out, the responses had not been all followed up. The implementation process is hampered by limited staff and budget, medical devices are not routinely calibrated, the MPDN application has been used but is not optimal. In Conclusion, the role of policy makers is AMP-SR, intervening in reducing maternal mortality and improving the quality of care. Future research is expected to use the mixed method to find out the role of policymakers quantitatively and qualitatively.

Keywords: *Maternal Perinatal Audit, Actor, policy makers, Surveillance.*

<https://doi.org/10.33860/jik.v17i1.2124>



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INTRODUCTION

A global health problem that needs to be addressed immediately is the increasing number of maternal deaths. Globally, it is estimated that 287,000 maternal deaths will occur in 2020 with an overall Maternal Mortality Rate of 223/100,000 KH¹. In Indonesia the trend of maternal mortality increased in 2019 to 87.93/100,000 KH, in 2020 to 97.61/100,000 KH, in 2021 to 166.5/100,000

KH². In Central Java, maternal mortality has also increased in 2019 by 76.9/100,000 KH, in 2020 by 98.6/100,000 KH, and in 2021 it has increased by 199/100,000 KH³. The trend of the maternal mortality rate in the city of Semarang is fluctuating, in 2019 it was 75.8/100,000 KH, in 2020 it was 71.35/100,000 KH, in 2021 it was 95.3/100,000 KH⁴.

Global efforts to reduce cases of maternal mortality in the world were carried out by the World Health Organization (WHO) by

formulating a policy on Maternal Perinatal Surveillance and Response (AMP-SR) audits, but in several countries, the implementation of maternal mortality studies has not been carried out according to guidelines and has not been followed up. even the implementation practice is not following the standard^{5,6}. The policy guidelines for implementing maternal perinatal surveillance and response (AMP-SR) audits in 2021 issued by the Ministry of Health of the Republic of Indonesia must be used as guidelines and implemented by districts, cities and provinces in Indonesia. Implementation of AMP-SR is an effort to strengthen health in reporting and reviewing maternal and perinatal deaths which includes 4 cycles including: 1) Identification and notification 2) Reporting 3) Assessment, 4) Response and follow-up^{7,8}. AMP-SR is also the key to achieving the global target of zero preventable maternal deaths by 2030⁹. Indonesia is a developing country with a relatively high maternal mortality rate and it needs attention from various parties to overcome this problem. Based on a demographic survey conducted, in 2015 the maternal mortality rate reached per 100,000 births¹⁰. Audit is very important to make effective prevention of maternal death¹¹.

The implementation of audit policies in districts/cities in Indonesia still found obstacles including sharp downwards blunt upwards, inadequate costs and infrastructure, unavailability of death forms, unavailable SOPs, attitude of executors who ignore orders, and the difficulty of maintaining the confidentiality of AMP^{12,13,14,15,16}. Based on the preliminary study it was found that the Implementation of the Maternal Perinatal Surveillance and Response (AMP-SR) Audit in Semarang City had been carried out. However, not all these implementations have been implemented following the guidelines, such as the limited budget for implementation, incomplete form filling, data delays, not all health facilities have carried out audits, limited role of the health office in hospitals, and recommendations for new studies have been partially followed up. The establishment of an audit committee team that has been approved by the Mayor of Semarang does not guarantee that all cases of maternal and child deaths will be reviewed. The implementation of the study in Semarang City in 2019 was 76%¹⁶.

This study only focuses on maternal death audits, using the triangular concept of

policy analysis by Walt and Gilson¹⁷. The health policy triangle is useful for analyzing health policy implementation and decision-making at local and regional levels¹⁸. In this study the actors involved were identified, their roles, attitudes and responsibilities. The content in this research is the basis of the policy, goals, objectives, and understanding of the contents of the policy. Context is an influencing factor in terms of situational, structural, and cultural elements. The process is reviewed from human resources, budgetary resources, infrastructure resources as well as supporting and inhibiting factors. The purpose of this study is to analyze the role of policy actors in the implementation of Maternal Perinatal Surveillance and Response Audit in the City of Semarang through the framework of a triangular analysis of health policy actors, content, context, and process. The importance of this research being conducted so that it becomes a source of study for policymakers in determining the policy products and rules they will make.

METHOD

This research was conducted using a qualitative design with case studies conducted in Semarang City from October 2022-January 2023. This research involved 6 main informants from the Semarang City health office and 9 triangulation informants from the health centre, Hospitals, and the Indonesian Midwives Association Professional Organization. The main informants consisted of the Head of the health office, the Head of the Community Health Sector, the Sub Coordinator of the Maternal and Child Health Section, and 3 AMP-SR Activity Holders. The triangulation informants consisted of: Obstetrics and gynaecology specialists, the Head of the Velos Kamer (VK) Room, VK Staff, Indonesian Midwives Association Semarang City representatives, Community Health Center coordinating midwife, and 2 Community Health Center Senior Midwives. Selection of informants by purposive sampling. The inclusion criteria were health workers with work experience of more than 3 years, willing to be interviewed, and having been directly involved in handling maternal death cases.

Data collection was carried out by in-depth interviews using a voice recorder, document review and observation using a cellphone camera. Data analysis with thematic

content analysis. Presentation of data with data analysis frameworks, and tables. Ethical approval was obtained from the Research Ethics Committee of the Faculty of Public Health, Diponegoro University, Semarang, Central Java with No. 375/EA/KEPK-FKM/2022. Before the

interview, the researcher explained the research objectives and the topics discussed, explained the confidentiality of information, signed informed consent, and then gave permission to record the interview.

RESULTS

There were 15 informants involved in this study consisting of 6 main informants and

9 triangulation informants. The characteristics of the informants are in Table 1.

Table 1. Characteristics of Research Informants.

Characteristics	N=15	%
Age		
20-30	1	6,67
30-40	2	13,33
40-50	6	40
60	5	33,33
> 60	1	6,67
Sex		
Male	2	13,33
Female	13	86,67
Education		
Doctor of health law	1	6,67
Obstetrics and Gynecology Specialist Doctor	1	6,67
Internal Medicine Specialist	1	6,67
Master of Public Health	2	13,33
Bachelor of Public Health	3	20
Diploma 4 Midwifery	5	33,33
Diploma 3 Midwifery	2	13,33
Experience handling cases of maternal death		
3 Years	0	0
> 3 Years	15	100
Audit Committee and Service implementing community		
Management Team	6	40
Internal Reviewer	3	20
Executor at Health Center	4	26,7
Executive at the Hospital	2	13,13

Most of the informants are aged 40-50 years by 40%. Informant education Most diploma 4 midwifery 33.3%. All informants have experience of more than 3 years by 100%. The results of the study show that there are 4 factors that can influence the implementation

of AMP-SR in Semarang City, namely actors who play a role in policy, content, context and process. An example of the coding process in the data analysis framework is presented in Table 2.

Table 2. Data analysis framework.

Theme	Category	Sub categories	Code
• Actor	• Policy maker	<ul style="list-style-type: none"> • Mayor • Health Service Team 	<ul style="list-style-type: none"> • Factor Identifications • Person in charge of AMP-SR implementation and decision maker, ensures budget. • The role of the Dinas for hospitals is not yet optimal • Manage the implementation of AMP-SR • Ensuring data completeness. • Schedule operational AMP-SR activities
	• Implementing policies	<ul style="list-style-type: none"> • Internal Review Team (Professional Organization) • Hospital midwife 	<ul style="list-style-type: none"> • Analyzing death cases, classifying causes of death, preparing recommendations. • Minimizing maternal mortality by implementing substandard care.
		<ul style="list-style-type: none"> • Health center midwife 	<ul style="list-style-type: none"> • Recording and reporting through the maternal medical record • Delay in reporting, incomplete data. • Identifying and tracking death cases. • Recording and reporting using the Maternal Verbal Autopsy • The midwife was late in reporting, forgot to fill out the MPDN application.
• Content	• Basic policy	<ul style="list-style-type: none"> • AMP-SR Guidelines from the Indonesian Ministry of Health Number 21 of 2021 	<ul style="list-style-type: none"> • Policy base is always changing, must keep up with developments. • Surveillance, case tracking and reporting.
	• Policy objectives	<ul style="list-style-type: none"> • As a guide in implementing AMP-SR 	<ul style="list-style-type: none"> • Determination of response efforts based on findings of factors that can cause death that can be prevented from the results of the assessment. • Providing outreach in the implementation of AMP-SR has only been carried out by a number of hospitals and health centers
	• Policy Goals	<ul style="list-style-type: none"> • Public health office • FKTP, FKRTL • Cross sector • Professional Organizations • Health workers 	<ul style="list-style-type: none"> • Policy actors as intermediaries in indicators of reducing maternal mortality • New guideline socialization was carried out only once
	• Understanding of policy content	<ul style="list-style-type: none"> • Concept AMP-SR 	<ul style="list-style-type: none"> • Not all policy implementers understand the processes of identification, reporting, assessment, and response.
• Context	• Situational	<ul style="list-style-type: none"> • Policy changes for epidemic control 	<ul style="list-style-type: none"> • Implementation of AMP-SR does not match the number of death cases • Low socioeconomic level
	• Structural	<ul style="list-style-type: none"> • Determination of policy makers in achieving targets in SAKIP, Strategic Plan and RPJMD 	<ul style="list-style-type: none"> • Pressure from outsiders • Political commitment in achieving the target for maternal mortality

	<ul style="list-style-type: none"> • Culture 	<ul style="list-style-type: none"> • Implementing the culture of implementing AMP-SR according to the guidelines 	<ul style="list-style-type: none"> • Have not implemented no blame yet. Midwives at health Centre and hospitals are sometimes still afraid that if there is a death case, there has been blaming each other
<ul style="list-style-type: none"> • Process 	<ul style="list-style-type: none"> • Implementation 	<ul style="list-style-type: none"> • Human Resources • Budget Resources • Infrastructure 	<ul style="list-style-type: none"> • Limited number of staff • Not all budget proposals were approved
	<ul style="list-style-type: none"> • Evaluation 	<ul style="list-style-type: none"> • Monitoring the results of assessment recommendations • Leadership support 	<ul style="list-style-type: none"> • Medical devices are not routinely calibrated • Not all midwives report deaths using the MPDN application. • AMP-SR follow-up evaluation at the hospital only once a year.
	<ul style="list-style-type: none"> • Supporting factors 	<ul style="list-style-type: none"> • Communication • Coordination dan Internalization 	<ul style="list-style-type: none"> • Training and education of health workers • Monitoring of health center performance reports per month • Monitoring area map based on death cases
	<ul style="list-style-type: none"> • Obstacle factor 	<ul style="list-style-type: none"> • Staffing 	<ul style="list-style-type: none"> • Not yet built good communication • Collection of supporting data for old assessments • Not all AMP-SR results have been followed up • Adjusting the schedule with the team is not easy • Movement of structural officials is very fast • Employee rotation is uneven • Termination of non ASN employee contracts

Policies will be easy to implement if the implementation takes into account the aspects of actors, content, context and process¹⁹. Health policy can be carried out through the public and private sectors. Walt and Gilson's policy triangle analysis framework has 4 domains namely actor, content, context and process²⁰.

Actor

The implementation of the AMP-SR in Semarang City involved the AMP-SR committee which was formed through the Decree of the Mayor of Semarang Number 4418/796 of 2022 concerning the Establishment of the Maternal Perinatal Surveillance and Response Audit Team for the City of Semarang. Identification of actors and the role of actors in the implementation of AMP-SR in Semarang City is shown in the following interviews:

“The actors involved in the implementation of AMP-SR in Semarang City are the mayor, head of health service, head of public health, sub-coordinator of kia and staff, head of health services, review team from POGI, IDAI, and Indonesian Midwives Association Professional organizations, health center midwives and hospital midwives who have a role to play.” (IU1).

“The Head of the health service as the person in charge plays a role in forming the AMP-SR committee team, preparing the budget, facilitating implementation, maintaining the confidentiality of information, and following up on recommendations at the health service, hospitals, and health centers. We support and carry out the duties of the head of service.” (IU 3).

The role of the health office for Hospitals related to the implementation of AMP-SR shows that the health office has not played a role in carrying out medical identification, reporting and audits in the Hospital environment. The health office is only limited to monitoring the recommendations on the results of the assessment and carrying out mortality studies at the city level with the AMP-SR Committee Team. The role of the health office for the health Centre shows that the health office is not involved in the identification and surveillance process, but the health office has a role in monitoring reporting, assessing at the city level, and monitoring the follow-up of recommendations. Such as the following statement:

“The health service has not played a role in identifying death cases, reporting and medical audits, because they are carried out by the hospital itself without the presence of the health service, but the health office has played a role in facilitating the study of deaths at the city level and monitoring the results of recommendations”. (IT1, IT4)

“The health office has not played a role in the surveillance and identification of deaths at the health Centre, we do it ourselves. After the identification was complete, we reported it through OVM and sent it to the health office. An assessment at the health Centre level should have been carried out, but we have not done it due to limited knowledge, and we are waiting for an assessment to be carried out by professionals at the city level. The health office has a role in reporting through monthly evaluations, city-level reviews and monitoring and evaluation of the follow-up of recommendations usually requested to improve the quality of ANC.” (IT 6).

Solutions that can be made from the health office for the continuity of AMP-SR implementation by increasing the role of the health office through monitoring, evaluating reporting, optimizing the role of the review team and developing a more targeted planning strategy. Such as the following statement:

“We prioritize the implementation of assessments at the health service with a team that has been decreed by the mayor. Our role in hospitals is limited, because medical audits in

hospitals are more complex and they usually have a team. We cannot yet require hospitals to carry out medical audits independently, even though this must be done when there is a maternal death. In the future we are trying to optimize our role for hospitals with a review team and improve reporting monitoring .“ IU 3.

Actor is a term to refer to the role of policy actors both individually, groups and organizations who can formally or informally influence policy²¹. Based on the results of the study, it shows that the role of the head of the health service as an actor in the organization is responsible for implementing AMP-SR. The Head of the health office forms an audit committee team to analyze the causes of death, assist in supervision at health facilities, and prepare appropriate recommendations to prevent similar deaths from occurring. If an audit committee is not formed, there will be no team to review when a death occurs, so that the implementation of the AMP-SR is not in accordance with the guidelines and there is a chance of a maternal death with the same cause recurring.

For the continuity of AMP-SR activities, the Head of Service must plan a budget from both APBD and APBN sources a year prior to implementation. The Budget Plan (RAB) can be used as a guide in operational activities. If the budget is not planned every year, it will have an impact on overlapping interests, cannot be physically evaluated how many times it has been implemented, work is not in accordance with the terms of reference, and there are no detailed job descriptions. The head of the health service must also maintain the confidentiality of patient information in carrying out audits, to maintain a code of ethics and as a guarantee of patient health confidentiality. The head of the health office also plays a role in ensuring that the results of the assessment must be followed up, although not all facilities have followed up on the recommendations.

The role of the leader in implementing audit results has great leverage that will bring about organizational change by involving the roles of all stakeholders in health planning, because strong and effective leaders can improve service performance²². The results of other studies show that staff internalization is also used by stakeholders to show acceptance, approval and ownership in carrying out

program implementation to achieve success²⁰. Health professionals, managers and policy actors must also play a critical role more effectively in various health contexts to make better strategies and decisions^{23, 24}.

Content

The content in this study consists of the basic policies used for the implementation of AMP-SR, goals, objectives and understanding of the contents of the policy. The basic policy for implementing AMP-SR is the AMP-SR Guidelines for 2021 which are contained in Permenkes Number 21 of 2021, these guidelines refer to global guidelines from WHO. In Indonesia, these guidelines have been revised several times. Following are the results of interviews with informants:

“The basis for the AMP-SR guidelines refers to the Ministry of Health which adopted global guidelines from WHO, but guidelines in Indonesia have been revised approximately 4x. ...” (IU 3, IU 4).

The purpose of this AMP-SR implementation guideline is to serve as a reference in carrying out maternal and perinatal death audits to formulating recommendations in the form of responses to prevent future deaths due to avoidable causative factors. Like the following statement:

“The purpose of this AMP-SR guideline as a reference in the implementation of AMP-SR includes identification and reporting, assessment, surveillance, and finding response efforts based on preventable causes of death, so that no deaths from the same cause occur. The results of the AMP-SR in Semarang City have an impact on reducing cases of maternal mortality from 21 cases to 15 cases in 2022.” (IU 2, IU 3).

The targets of the AMP-SR policy actors in Semarang City are Mayors, heads of health Services, program managers for maternal and child health, leaders and implementers at first-level health facilities, advanced health facilities and hospitals, professional organizations, individual and group health workers. Like the following statement:

“Submission of socialization of the implementation of AMP-SR has been for all targets, through participatory learning in the dissemination of results both from health facilities, professional organizations and across sectors.” (IU3).

Understanding of the contents of the AMP-SR policy shows that most of the health office team already understand the AMP-SR concept, but policy implementers at the health centre and Hospital levels do not yet understand the AMP-SR concept.

“The health office has received 3 outreach and training from the Ministry of Health regarding the implementation of AMP-SR, especially the AMP-SR concept which consists of 4 cycles. For the AMP we are used to doing it, for surveillance and response this has been running, we are trying to compile recommendations on the results of the assessment which must be followed up by the hospital and health center, then we issue a circular letter. For socialization to health Centre and Hospital only once, and MPDN training 2 times.” (IU 3, IU 4).

“I was invited to outreach once. MPDN training twice, so I don't really understand the 4 AMP-SR cycles. I understand that identification of death cases and notifications are trying to be timely, for OVM reporting it is sometimes late. Our difficulties in filling in OVM sometimes still have different perceptions among midwives in writing down the causes of death.” IT 6, IT 8

“I was only invited to the hospital once, for 4 cycles I didn't really understand. Identification and death notifications were timely, our RMM reports were often late, and we were usually asked for confirmation by the review team if we wrote reports that were incomplete and had different perceptions. For our study there was a medical audit team, and for the response to the results of the study from the health office there was no feedback.” IT 4.

Most of the informants only attended the socialization once so they did not understand the 4 concept cycles in AMP-SR. The health office needs to provide training in filling out OVM and RMM for community health center midwives and hospital midwives.

The Indonesian government has published guidelines for Maternal Perinatal Audit since 1994, these guidelines were updated in 2010 with the main objective of auditing maternal deaths as part of district and city government performance accountability. In 2016 the Government of Indonesia issued guidelines for surveillance of maternal deaths with a focus on strengthening the surveillance and case tracking components. In 2021 the Government of Indonesia issued guidelines on maternal surveillance and response audits with a focus on strengthening the response and following up on the results of the assessment by involving the role of policy actors at the national, provincial, district/city and community health service levels. In 2022 the guidelines will be revised again to improve the latest forms⁸.

The AMP-SR guidelines adopted by the Government of Indonesia are global guidelines from WHO. Several countries have implemented Maternal Perinatal Surveillance Audit and Response as a benchmark for reducing preventable deaths^{25,26,27}. Surveillance and response to maternal deaths is a strategy in various countries to collect accurate data and what can be done to prevent similar deaths in the future²⁸.

AMP-SR learning is on target, involving people from various sectors. The results of the delivery of socialization learning this assessment can provide motivation for health workers²⁹, while the lack of feedback from management can hinder the sustainability of the follow-up implementation of the recommendations³⁰.

Context

The context of AMP-SR policy implementation can be influenced by situational, structural factors including social, political, and cultural factors. Following are the results of interviews with informants:

“The study was not carried out due to changes in the refocusing budget and almost 70% of the budget was to focus on handling the global outbreak so there were only a few studies” (IU2,IU3).

Structural factors that can influence the implementation of AMP-SR socially, namely when the midwife at the health center asked

about the chronology of death, some people considered it unethical, so the Midwife needed to take an approach to obtain information on death. Like the following statement:

“There is social stigma, most of the families are sad and reluctant to answer, so the information obtained is incomplete, we approach first.” (IT 8, IT 9).

Political factors that can affect the implementation of AMP-SR are the commitment of regional heads to achieve the target for the Maternal Mortality Rate set out in the stipulated RPJMD. Like the following statement:

“Regarding politics, we are sometimes worried that if we don't achieve the maternal mortality rate, there is a kind of pressure because it has become a political commitment that we must be able to achieve the targets in the Strategic Plan, SAKIP, and RPJMD.” (IU1, IU2, IU3).

The cultural factors applied in the implementation of AMP-SR are no name, no blame, no shame, and no projusticia. However, the no blame culture has not been successfully implemented. Like the following statement:

“We still find midwives who feel afraid when a case of maternal death is confirmed, we do not present the midwife in the study”. (IU3,IU4).

“Every time a pregnant woman dies, we are afraid of being scolded, judged, sometimes blaming each other between the health Centre and hospital midwives.” (IT 6).

The application of the No blame culture has not been successfully implemented because there are still midwives who are afraid if there is a case of maternal death in the health facility where she works. The results of the study show that the study of maternal mortality in the city of Semarang from year to year is not carried out 100% due to budget availability, besides that due to situational refocusing of the budget to focus on handling outbreaks. This is not in accordance with the guidelines from the Ministry of Health which require that all maternal deaths be assessed. Several studies show the same thing, in several countries not all cases of maternal death are reviewed due to budgetary constraints^{31,32,33,34}. Midwives' efforts

to overcome social factors through a family approach to obtain chronological information on death. Tracing cases in the community is important, because it includes social autopsies in the form of case intervention.³⁵ The political factor in the implementation of the AMP-SR shows that there is political pressure in achieving the target of reducing the Maternal Mortality Rate. Several studies state that to achieve success in MPDSR there must be political pressure in the form of political commitment and political priorities in implementing it^{25,29,36}.

The culture of no name, no shame, and no projusticia in the implementation of AMP-SR in Semarang City has been successfully applied, but no blame has not been successfully implemented because there are still midwives who are afraid if there is a death case. Health workers are afraid that if a maternal death occurs, when the leadership calls it a homicide, the midwife cannot speak openly about the causes and circumstances of the maternal death.³⁷ The same thing is also found in other Regencies and Cities in Indonesia which have implemented culture in the implementation of AMP-SR^{12,38}.

Processes

The implementation of AMP-SR is viewed from the perspective of human resources, budgetary resources, infrastructure, activity evaluation, supporting factors and inhibiting factors. The study of maternal death cases in the city of Semarang has complied with the guidelines from the Ministry of Health, but not all maternal death cases have been studied. Like the following statement:

“For implementation, we always follow the guidelines for fulfilling the 4 cycles in the AMP-SR, but due to considerations such as budget and time availability for the review team, it has not been implemented 100%. For infrastructure facilities in reporting deaths already using the MPDN application” (IU 2, IU 3, IU4).

The health office has carried out an evaluation related to the recommendations of the assessment results. However, not all hospitals are willing to follow up on the recommendations. Evaluation for *health Centre* is more routine, while in hospitals it is done less frequently. Like the following statement:

“The health office has sent the results of the assessment recommendations to be followed up by hospitals and health centers. For hospitals so far not all the recommendations have been followed up, those that have been followed up are usually related to administration such as SOPs and work procedures. In terms of training, certified doctors on duty, completeness of medical equipment and buildings for blood banks have not been followed up by all hospitals. (IU3, IU4)

“Evaluations at the health centre are carried out more often than evaluations at the hospital, the hospital is only once a year, the monthly one is the health centre.” (IT4, IT5).

Factors supporting and inhibiting the implementation of AMP-SR in Semarang City, as in the following statement:

“Supporting factors are the political commitment of the regional head as contained in the RPJMD indicators and training support for AMP-SR.” (IU2).

“The inhibiting factors in terms of health personnel are the rotation of officials and staff, and not all budgets are approved. For infrastructure related to medical devices, they are rarely calibrated, so they are not valid.” (IU 3, IU 4).

The results showed that in 2019 there were 18 cases of maternal mortality, only 13 cases (72%) were reviewed. In 2020 with a total of 17 maternal deaths, only 12 cases (70%) were studied, in 2021 the number of maternal deaths was 21, only 4 cases (19%) were studied. In 2022 the number of deaths is 15, only 9 cases (60%) are studied.

Budget limitations focused on allocations for handling outbreaks in 2020 and 2021 have resulted in the review not being 100%, whereas in 2022 it has proposed 14 times, but only agreed 8 times and even then, it must be shared with perinatal. The budget used by the health service, hospitals and community health centers comes from the regional budget. Support from budget sources is very important for facilitation in supporting MPDSR activities³⁹, conversely, budget shortages can hamper the implementation of MPDSR⁴⁰.

Death reporting data from OVM and RMM is very important because it can

determine the quality of the assessment, the case studies show that data collection, analysis, and synthesis is the first step in using data for decision making and taking action⁴¹.

CONCLUSION

The findings of this study indicate that the role of policymakers in implementing Maternal Perinatal Surveillance and Response Audit in hospitals is still limited because it does not require hospitals to conduct medical audits with the consideration that each hospital has different resource conditions. Maternal Verbal Autopsy, Maternal Medical Record reporting filled out by midwives still found differences in perceptions. This difference in perceptions should be followed up by policymakers as soon as possible and formulate appropriate steps to fill the gaps in these differences. Delays in submitting and filling out incomplete Maternal Verbal Autopsy and Maternal Medical Record reports can affect the quality of the assessment. It is recommended that policymakers make an audit design that is disseminated to all health workers to avoid differences in perceptions among health workers.

ACKNOWLEDGMENT

Authors thank the Semarang city health office and the Tugurejo Regional General Hospital

CONFLICTS OF INTEREST:

The authors declare no conflict of interest.

REFERENCE

1. WHO. Trends in maternal mortality 2000 to 2020. World Health Organization. 2023.
2. Kementerian Kesehatan Republik Indonesia. Profil Kesehatan Indonesia. Kementerian Kesehatan Republik Indonesia. 2021.
3. Dinas Kesehatan Provinsi Jawa Tengah. Laporan Kinerja Instansi Pemerintah Tahun 2021. Dinas Kesehatan Provinsi Jawa. 2021.
4. Dinas Kesehatan Kota Semarang. Profil Kesehatan. Dinas Kesehatan Kota Semarang. 2021.
5. Kodan LR. Maternal mortality audit in Suriname between 2010 and 2014, a reproductive age mortality survey. BMC Pregnancy Childbirth. 2017;17(1).
6. Smith H. Implementing maternal death surveillance and response in Kenya: Incremental progress and lessons learned. Glob Heal Sci Pract. 2017;5(3):345–54.
7. Koblinsky M. Maternal Death Surveillance and Response: A Tall Order for Effectiveness in Resource-Poor Settings. 2017 Sep.
8. Kementerian Kesehatan Republik Indonesia. Audit Maternal Perinatal Surveilans dan Respons. In 2022.
9. Srivastava A, Singh D, Montagu D, Bhattacharyya S. Putting women at the center: A review of Indian policy to address person-centered care in maternal and newborn health, family planning and abortion. BMC Public Health. 2017;18(1):1–10.
10. Adisasmita A, Smith C V., El-Mohandes AAE, Deviany PE, Ryon JJ, Kiely M, et al. Maternal Characteristics and Clinical Diagnoses Influence Obstetrical Outcomes in Indonesia. Matern Child Health J. 2015;19(7):1624–33.
11. Mathur A, Awin N, Adisasmita A, Jayaratne K, Francis S, Sharma S, et al. Maternal death review in selected countries of South East Asia Region. BJOG. 2014;121(May):67–70.
12. Cahyanti RD, Widayawati W, Hakimi M. “Sharp downward, blunt upward”: district maternal death audits’ challenges to formulate evidence-based recommendations in Indonesia - a qualitative study. BMC Pregnancy Childbirth. 2021 Dec;21(1).
13. Atiyah FU, Sundari S, Rosa EM. Analyzing of implementation maternal audit program in community health center: a qualitative study. Int J Community Med Public Heal. 2021 Sep;8(10):4767.
14. Fahmi MA. Evaluasi Program Audit Maternal Perinatal (AMP) Di Kabupaten Temanggung Jawa Tengah. J Penelit Kesehat Suara Forikes . 2017 Apr;VIII(3):109–15.
15. Maryati S, Sutopo, Jati P, Ratna L, Wulan K. Analisis Program Audit Maternal-Perinatal (AMP) di Kabupaten Cianjur Tahun 2012. 2019

- Jul.
16. Mahudin R, Jati SP, Sariatmi A. Faktor Pendukung dan Penghambat Implementasi Kegiatan Audit Maternal Perinatal (AMP) di Kota Semarang (Study kasus pada Puskesmas Kedungmundu, Rumah Sakit Tugurejo dan Dinas Kesehatan Kota Semarang. 2020 Mar;3:323–7.
 17. El-Jardali F, Bou-Karroum L, Ataya N, El-Ghali HA, Hammoud R. A retrospective health policy analysis of the development and implementation of the voluntary health insurance system in Lebanon: Learning from failure. *Soc Sci Med.* 2014;123(2014):45–54.
 18. O'Brien GL, Sinnott SJ, Walshe V, Mulcahy M, Byrne S. Health policy triangle framework: Narrative review of the recent literature. *Heal Policy OPEN.* 2020;1(2020):100016.
 19. van de Goor I, Hämäläinen RM, Syed A, Juel Lau C, Sandu P, Spitters H, et al. Determinants of evidence use in public health policy making: Results from a study across six EU countries. *Health Policy (New York).* 2017;121(3):273–81.
 20. Speakman EM, Shafi A, Sondorp E, Atta N, Howard N. Development of the Community Midwifery Education initiative and its influence on women's health and empowerment in Afghanistan: A case study. *BMC Womens Health.* 2014;14(1):1–12.
 21. Buse K, Mays N, Walt G. Making health policy. McGraw-hill education (UK); 2012.
 22. Mathole T, Lembani M, Jackson D, Zarowsky C, Bijlmakers L, Sanders D. Leadership and the functioning of maternal health services in two rural district hospitals in South Africa. *Health Policy Plan.* 2018;33:ii5–15.
 23. D'Andreamatteo A, Ianni L, Lega F, Sargiacomo M. Lean in healthcare: A comprehensive review. *Health Policy (New York).* 2015;119(9):1197–209.
 24. Etiaba E, Uguru N, Ebenso B, Russo G, Ezumah N, Uzochukwu B. Development of oral health policy in Nigeria: an analysis of the role of context, actors and policy process. 2015;1–10.
 25. Bandali S, Thomas C, Hukin E, Matthews Z, Mathai M, Ramachandran Dilip T, et al. Maternal Death Surveillance and Response Systems in driving accountability and influencing change. *Int J Gynecol Obstet.* 2016 Dec;135(3):365–71.
 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;17(12):1–11.
 27. Willcox ML, Okello IA, Maidwell-Smith A, Tura AK, van den Akker T, Knight M. Maternal and perinatal death surveillance and response: a systematic review of qualitative studies. *Bull World Health Organ.* 2023;101(1):62–75G.
 28. Kerber KJ. Counting every stillbirth and neonatal death through mortality audit to improve quality of care for every pregnant woman and her baby. *BMC Pregnancy Childbirth.* 2015;15.
 29. Abebe B, Busza J, Hadush A, Usmael A, Zeleke AB, Sita S, et al. 'We identify, discuss, act and promise to prevent similar deaths': A qualitative study of Ethiopia's Maternal Death Surveillance and Response system. Vol. 2, *BMJ Global Health.* BMJ Publishing Group; 2017.
 30. Stokes T. Barriers and enablers to guideline implementation strategies to improve obstetric care practice in low- and middle-income countries: A systematic review of qualitative evidence. *Implement Sci.* 2016;11(1).
 31. Agaro C, Beyeza-kashesya J, Waiswa P, Sekandi JN, Tusiime S, Anguzu R, et al. The conduct of maternal and perinatal death reviews in Oyam District, Uganda: a descriptive cross-sectional study. *BMC Womens Health.* 2016;1–13.
 32. Armstrong CE. Strengths and weaknesses in the implementation of maternal and perinatal death reviews in Tanzania: Perceptions, processes and practice. *Trop Med Int Heal.* 2014;19(9):1087–95.
 33. Rhoda NR. Experiences with perinatal death reviews in South Africa--the Perinatal Problem Identification Programme: scaling up from

- programme to province to country. *BJOG*. 2014;121:160–6.
34. Access O. Evaluation of the maternal mortality surveillance system in Mutare district, Zimbabwe, 2014-2015: a cross sectional study. 2017;8688:2014–5.
 35. Biswas A, Rahman F, Eriksson C, Halim A, Dalal K. Social Autopsy of maternal , neonatal deaths and stillbirths in rural Bangladesh : qualitative exploration of its effect and community acceptance. 2016;1–9.
 36. Melberg A, Mirkuzie AH, Sisay TA, Sisay MM, Moland KM. ‘ Maternal deaths should simply be 0 ’: politicization of maternal death reporting and review processes in Ethiopia. 2019;(July):492–8.
 37. Abouchadi S, Godin I, Zhang WH, De Brouwere V. Eight-year experience of maternal death surveillance in Morocco: qualitative study of stakeholders’ views at a subnational level. *BMC Public Health*. 2022;22(1):1–15.
 38. D’Ambruoso L. Maternal mortality and severe morbidity in rural Indonesia Part 1: The community perspective. *Soc Med*. 2013;7(2):47–67.
 39. Magoma M, Massinde A, Majinge C, Rumanyika R, Kihunrwa A, Gomodoka B. Maternal death reviews at Bugando hospital north-western Tanzania: A 2008-2012 retrospective analysis. *BMC Pregnancy Childbirth*. 2015;15(1):1–7.
 40. Hofman J. Experiences with facility-based maternal death reviews in northern Nigeria. *Int J Gynecol Obstet*. 2014;126(2):111–4.
 41. Moucheraud C, Owen H, Singh NS, Ng CK, Requejo J, Lawn JE, et al. Countdown to 2015 country case studies: What have we learned about processes and progress towards MDGs 4 and 5? *BMC Public Health*. 2016;16(Suppl 2).