

Evaluation of perinatal maternal audit program (AMP) in the Langsa City

Fithriany¹, Emilda AS², Cut Mutiah³, Silfia Dewi⁴, Lili Kartika Sari Harahap⁵, Sandy Rahayu⁶
^{1,2,3,4,5,6}Department of Midwifery, Politeknik Kesehatan Aceh, Kementerian Kesehatan, Aceh, 23231, Indonesia

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ABSTRACT

The government has established the Neonatal Maternal Audit (AMP) program to assess the provision of health services to mothers and children, aiming to address obstetric and neonatal emergencies. Despite the implementation of AMP in Langsa City, the rates of maternal and infant mortality remain high. This study aimed to evaluate the AMP program in Langsa City. A cross-sectional survey research design was used, conducted at the Langsa City Health Office. The subjects of the study included the Mother and Child Program Holders at Puskesmas and hospitals, as well as the Maternal Perinatal Audit Program Implementation team at the Health Office. The findings revealed that the implementing team had an average tenure of 5 years, an average age of 38 years, and a D3 Midwifery education. They had received training on AMP and AMP-SR, possessed an AMP implementation manual, and conducted verbal autopsies, but only a few performed medical records. Strengthening materials and training on AMP-SR for program implementers in Langsa City is necessary. The implementation of the AMP program in Langsa City has shown positive aspects in terms of manpower and case selection, but areas requiring attention and improvement were also identified. Increasing the number of concurrent positions and providing comprehensive materials to program implementers will enhance their capabilities and effectiveness.

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Corresponding Author:

Fithriany,
Department of Midwifery,
Politeknik Kesehatan Aceh,
Lorong Kesehatan, Paya Bujuk. Beuramoe, Kec. Langsa Bar., Kota Langsa, Aceh 24375, Indonesia
Email: fithrianydarwis@gmail.com

INTRODUCTION

The high maternal mortality rate (MMR) and infant mortality rate (IMR) in Indonesia continue to be a controversial issue in the field of health (El-Shal et al., 2022; Magrath & Nichter, 2022). Many efforts have been made to improve the skills of midwives and increase community participation. However, this is a complex problem influenced by various factors (Greig et al., 2012). (Ambarwati et al., 2023b) According to the Indonesian Health Profile, the MMR in 2015 was 305 per 100,000 live births, which did not reach the MDGs target of 102 per 100,000 live births. In 2020, the Ministry of Health recorded 4,627 maternal deaths in Indonesia, indicating an increase from 4,221 deaths in

2019. The main causes of maternal death in 2020 were bleeding (1,330 cases), hypertension during pregnancy (1,110 cases), and circulatory system disorders (230 cases) Click or tap here to enter text.. In 2020, out of 28,158 child deaths, 72.0% (20,266 deaths) occurred during the neonatal period. Among the reported neonatal deaths, 72.0% (20,266 deaths) occurred within the 0-28 day age range(Kemenkes, 2021). The main causes of neonatal death include low birth weight, asphyxia, infections, congenital abnormalities, neonatal tetanus, and others. Efforts to accelerate the reduction of MMR focus on ensuring access to quality maternal healthcare for every mother. These services include healthcare for pregnant women, assisted delivery by trained healthcare providers in healthcare facilities, post-delivery care for mothers and infants, specialized care and referrals in cases of complications, as well as family planning services including postpartum family planning(Dol et al., 2023; Mikrajab & Rachmawati, 2016).

The government has implemented a program to assess the provision of healthcare services for mothers and children, with the aim of addressing barriers that arise from obstetric and neonatal emergencies. This program is known as Maternal and Neonatal Audit (MNA). MNA evaluates the implementation of services and improves the quality of maternal and newborn healthcare by reviewing and discussing cases of maternal and newborn deaths from the community to healthcare facilities (McLain et al., 2019). Audit of fetal deaths in the field of obstetrics aims to identify the main and underlying causes of death, as well as suboptimal factors and missed opportunities for improvement. Preventable factors may be related to healthcare providers, such as non-compliance with recommended procedures, or administrative issues, such as the unavailability of necessary medications. Other preventable factors may be related to patients, such as delays in seeking medical help for various reasons (Utomo et al., 2021), (Dol et al., 2023; Kartikasari et al., 2020).

Audit functions as a tool for quality improvement by systematically evaluating clinical practices based on established standards. Maternal death audits have been successful in reducing pregnancy-related deaths in low-income countries. Since the main causes of maternal and perinatal deaths are consistent in low-income countries, there are likely similar preventable factors associated with these deaths, An effective audit system follows a cycle that includes case identification, information collection, analysis of results, formulation of recommendations, implementation of changes, and re-evaluation of practices(Mukuru et al., 2022; Roos & von Xylander, 2016; Varley, 2023). This cycle should be repeated regularly.

The audit panel examines factors related to structure, process, and outcomes before providing its opinion (Utomo et al., 2021). The research results show that the AMP program can identify risk factors and causes of maternal and perinatal deaths, provide recommendations for improvement of clinical practices, increase healthcare providers' awareness of risk factors, enhance appropriate management actions, improve healthcare providers' understanding of the factors contributing to maternal and perinatal deaths, increase knowledge, skills, and attitudes of healthcare providers, and reduce maternal and perinatal mortality rates(Fahmi, 2017; Gondwe et al., 2021; Handayani & Achadi, 2018).

Therefore, the AMP program can be considered an effective strategy in improving the quality of obstetric and neonatal care and reducing maternal and perinatal mortality rates. The implementation of AMP has resulted in policy changes and improvements in the quality of maternal and perinatal healthcare services, even in limited settings(Ambarwati et al., 2023a; Mardiah & Hardiana, 2018). The gaps found in previous research that are analyzed in the current study include the need to assess the effectiveness of the Neonatal Maternal Audit (AMP) program in addressing obstetric and neonatal emergencies, despite high rates of maternal and infant mortality in Langsa City. The study aims to evaluate the AMP program by examining the profile of the implementing team, their training and resources, and the implementation process. The findings highlight areas that require attention and improvement, such as the need to strengthen materials and training on AMP-SR for program implementers. The study emphasizes the importance of

increasing the number of concurrent positions and providing comprehensive materials to enhance the capabilities and effectiveness of the program implementers in Langsa City.

RESEARCH METHOD

This study employs a survey research design with a cross-sectional approach. The unit of analysis for this program evaluation is the recording and reporting stages of the AMP program from 2020 and 2021. The research is conducted at five health centers, the Health Office, and four hospitals in Langsa City. The respondents consist of officials from the Regional General Hospital who are responsible for Maternal Neonatal Death Reporting, acting midwives from Maternity Rooms, Neonatal Intensive Care Units (NICU), and Postnatal Early Newborn Discharge (PONED) Rooms. Additionally, officials from private hospitals, including Acting Maternal Neonatal Death Reporting officers, acting heads of Maternal Program Health Centers, acting heads of Children's Program, coordinator midwives, village midwives, and officials from the Health Office, such as the Maternal Program Coordinator, Child Program Coordinator, and Health and Nutrition staff, are also included as respondents. A structured questionnaire is utilized as the instrument for data collection. The obtained data and information related to inputs, processes, and outputs are assessed and presented descriptively. This assessment involves comparing the achievements of indicators with program standards and accomplishments. Furthermore, the outcome data will be compared with the output aspect on an annual basis and presented in a descriptive manner. The research has undergone an ethical review process with the number: No. 024/KEP-UNISM/IX/2021

RESULTS AND DISCUSSIONS

The research has been carried out in Langsa City, Aceh, the results of the evaluation of the AMP Program are as follows table 1:

Table 1. Situation of human resources (HR) of the AMP Program in Langsa City

Variable	f	%
Age		
≤ 30 Years	3	18.7
31-40 Years	10	62.6
41-50 Years	3	18.7
Length of Duty		
≤ 1 Year	3	8,7
1-5 Years	13	81.3
Education		
D3	11	68.7
S1	4	25
S2	1	6.3
Duplicate	13	81.3
Training	16	100

Table 1 provides an overview of the human resources (HR) situation in the AMP Program in Langsa City. The table presents data on various variables, including age, length of duty, education, duplicate records, and training. In terms of age, the data shows that 18.7% of the HR in the AMP Program are ≤ 30 years old, 62.6% are between 31-40 years old, and another 18.7% are in the 41-50 years age group. Regarding the length of duty, 8.7% of the HR have served for ≤ 1 year,

while the majority (81.3%) have a service length of 1-5 years. The education level of the HR is also indicated in the table. It shows that 68.7% of the HR have a D3 (Diploma) level of education, 25% have an S1 (Bachelor's degree), and 6.3% have an S2 (Master's degree).

The "Duplicate" column suggests that 81.3% of the HR have duplicate records, although it's not clear what exactly this refers to without further context. In terms of training, the table indicates that 100% of the HR have received training. Overall, the table provides an overview of the distribution of HR in the AMP Program based on age, length of duty, education level, duplicate records, and training. This information can be useful for understanding the composition and characteristics of the HR involved in the program.

Table 2. AMP program material situation analysis

Variable	f	%
Public health center		
Form availability		
Death notice	33	100
Death List	33	100
Verbal autopsy	30	90.9
Medical records	6	20
AMP Program Handbook Availability	5	100
Availability of data processing tools and means of transportation		
Operational computer	4	80
Operational vehicle	3	60
Availability of Village Midwives	60	100
Office Health		
Form availability		
Death list		Yes
Medical records		Yes
Assessment Form		Yes
Summary Form		Yes
AMP Program Handbook Availability		Yes
Availability of data processing tools and means of transportation		
Operational computer		Yes
Operational vehicle		No
Hospitals		
Form availability		
Death notice		Yes
Death list		Yes
Medical records		Yes
AMP Program Handbook Availability		Yes
Availability of data processing tools and means of transportation		
Operational computer		Yes
Operational vehicle		No

Based on the findings of the study, it was observed that at the Puskesmas (Community Health Center), there were 33 reported deaths, with 6 individuals having medical records. A total of 30 verbal autopsies had been conducted, and there were 5 available AMP Program manuals. In terms of data processing tools, there were 4 units of such tools, including computers, and a total of 3 transportation facilities. As for the Health Office, the only unavailable item among the forms and data processing tools was transportation facilities. In hospitals, transportation facilities were not necessary since the data could be directly obtained from completed medical records provided by doctors.

Table 3. Situation of AMP program implementation

Variable	f	%
Public health center		
Death Report		
The village midwife notifies the death to the puskesmas 1x24	33	100

Variable	f	%
hours		
The coordinating midwife notifies the health office of the death within 1x24 hours	33	100
Fill out the death notification form every time there is a death	33	100
Sending death notices to health centers	33	100
Verbal autopsy Pelaksanaan		
Carry out a verbal autopsy	30	100
Filling out the verbal autopsy form on death	30	100
Verbal autopsy reported to health office	10	30.3
Implementation of AMP Puskesmas		
Carry out AMP activities at the puskesmas	33	100
AMP during mini workshop	33	100
Processing and presenting death data		
Table	10	30.3
Chart	10	30.3
Narrative	33	100
Mapping	0	0
Death registration		
Filling out medical records for every death at health facilities	4	30.3
Fill out the death list form, if any	4	30.3
Death notice		
Dissemination across sectors/cross programs	33	100
Public Health Office		
Death Report		
Receive death reports from puskesmas and hospitals		Yes
Receive a verbal autopsy death report		Yes
Receive death report death list		Yes
Implementation of district AMP		Yes
Processing and presenting death data		
Table		Yes
Chart		Yes
Narrative		Yes
Mapping		Yes
Death registration		
Fill out the death register form		Yes
Medical record form filling		Yes
Reviewer Form Filling		Yes
Summary Form Filling		Yes
Dissemination across sectors/cross programs		Yes
public health Office		
Hospital		
Death Report		
Reporting the death to the health office		Yes
Fill out the death notification form every time there is a death		Yes
Sending death notices to the health office		Yes
Implementation of hospital AMP		Yes
Processing and presentation of death data		
Table		Yes
Chart		No
Narrative		Yes
Mapping		No
Death registration		
Recording death on the death register		Yes
Recording the death in the medical record		Yes
Dissemination across sectors/cross programs		Yes

Based on the situational analysis survey of the AMP Program implementation, several key findings emerged. At the Puskesmas, 33 death cases were reported within 24 hours, and the coordinating midwife or program personnel promptly notified the health office, filling out the necessary forms. However, only 30 autopsies were conducted, and there were partial fillings in

death medical records and forms. Data processing involved tables, graphs, and narratives. The Health Office received death reports from both the Puskesmas and hospitals, including verbal autopsy reports, death lists, and information on AMP implementation. They processed the data using tables, graphs, narratives, and mapping. Hospitals reported deaths, completed death forms, implemented AMP, and processed data using tables and narratives. Death registration involved recording deaths in the death register, medical records, and cross-sectoral dissemination. These findings shed light on the current state of the AMP Program and highlight areas for improvement and further coordination.

Table 4. AMP program monitoring situation

Variable	f	%
There is supervision from the Head of the Agency	9	100
There is an evaluation from the Head of the Agency	9	100

Based on the situation of monitoring the AMP program for Puskesmas, Hospital Hospitals and the Health Office, there has been supervision and evaluation of AMP program activities from the head of the agency.

The following are the results of in-depth interviews from informants

The statement below states that AMP Program holders in the East Aceh District Work Area have received AMP Training in October.

“...The AMP training has been obtained, the latest AMP-RS training has also been obtained, the training was carried out 2 or 3 weeks ago, around the beginning of October, the training is only for doctors and mother and child program holders. For village midwives only training on cohorts”

The statement below states that AMP Program holders in the East Aceh District Work Area have received AMP Training in October.

Langsa City, the planning and implementation of the AMP (Audit Maternal Neonatal) program have been carried out optimally. This can be seen from the findings during the preparation stage, where it was observed that the AMP team members have been carefully selected and formed. Furthermore, it is worth noting that the team members have already received the official decree from the Langsa City AMP Team, indicating the formal establishment and recognition of their roles and responsibilities within the program. The formation of the AMP team is a crucial step in ensuring the smooth execution of the program. By assembling a dedicated team of professionals, including healthcare providers, administrators, and experts in the field, Langsa City has taken a proactive approach to addressing maternal and neonatal health concerns. This team is likely to play a vital role in coordinating and overseeing the various activities and initiatives that constitute the AMP program. Receiving the Langsa City AMP Team Decree signifies the official endorsement and support of the local authorities for the AMP program. This demonstrates the commitment of the city administration to prioritize maternal and neonatal health, acknowledging the significance of reducing maternal and perinatal mortality rates. The decree serves as a formal recognition of the AMP team's authority and positions them to act as key decision-makers and facilitators in driving the program's success. With an established and authorized AMP team in place, Langsa City is well-positioned to effectively plan and implement the program. The team members' expertise, knowledge, and collaborative efforts will likely contribute to the identification of critical areas for improvement in maternal and neonatal care, the development of targeted interventions, and the monitoring of progress towards reducing mortality rates. "For planning and implementation, it is already in the Puskesmas" "for hospitals, the implementation and planning already exists and is written"

“...planning and implementation at the Health Office already exists in the form of OPM (for Puskesmas) and RMM (for Hospitals) then there will be an assessment at the city level. Planning is made based on findings which will then be carried out according to the plan.”

This statement stated that the obstacles that occurred when the AMP Team carried out data collection on maternal and perinatal deaths at the location. "...Well.. We are the program holders at the Puskesmas where there are obstacles where data has to be entered 1 x 24 hours, but on the basis of data assessment in the village it is often hampered because families cannot be found directly because they are still in a state of grief, so reporting is later than what has been determined. ""Getting old data from the patient's family, because it's still in a state of bereavement, so the family wants to be seen if it's been 3 days after the bereavement" "For hospitals, the obstacle is because they have to wait for a diagnosis from the doctor"

The statement below states that there is an allocation of funds for the AMP program. "For the Health Office and Puskesmas there is already an allocation of funds for AMP activities, although it is not much and not enough with many activities, but the implementation of AMP still has to run. For hospitals, there is no allocation of funds because there is no direct audit at the patient's home for data collection."

The number of maternal deaths in 2021 is 10 cases, this figure is lower than the number of maternal deaths in 2020 which were 4 cases. However, in October 2022, there was a decrease in maternal mortality by 2 cases.

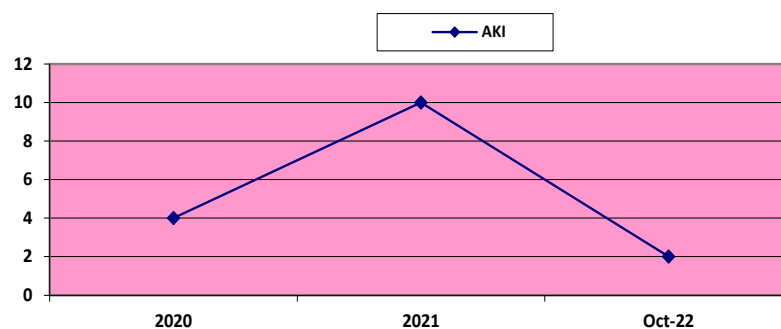


Figure 1. Maternal mortality rate

In 2020 there was one public health center that did not contribute to maternal deaths. In 2021 the Langsa Baro and Langsa Timur Health Centers contributed the most to 3 cases of maternal death. for 2022 2 cases of death of donors from Langsa Baro Health Center.

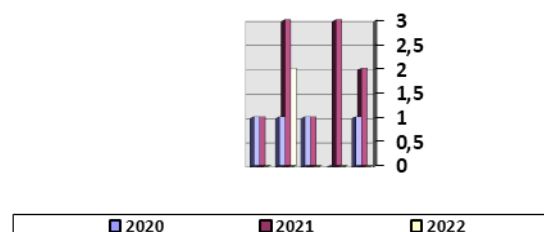


Figure 2. Number of maternal mortality in each health center

The number of infant deaths in 2020 was 16 cases, this figure was lower than the number of infant deaths in 2021, which was 30 cases. for 2022 the number of infant mortality cases until October is 27 cases.

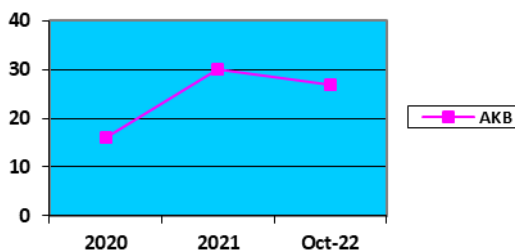


Figure 3. Number of infant mortality

The implementation of the AMP program in Langsa City has been in accordance with the established regulations. The educational level of the program implementation team members varies from Diploma Three to postgraduate degrees. The team members have an average work experience of 5 years with an average age of 38, indicating a good level of experience among the respondents. This suggests that the respondents continue to learn from their professional journeys, resulting in fewer technical errors and high-quality work outcomes. All members of the AMP program implementation team have received the necessary materials and training. This is crucial as program implementers need to be equipped with relevant knowledge before conducting verbal autopsies. However, most implementers also have additional duties in providing services to clients at the primary health center. Funding for the implementation of the AMP program is allocated in each primary health center and the Health Department, as it is included in the budget plan. However, hospitals do not have a specific budget for the AMP program because the program team at hospitals does not directly conduct verbal autopsies with clients at their residence. In general, the material aspects of the AMP program in Langsa City are adequate.

However, there are some materials that still need to be fulfilled, such as medical records at the primary health center. Medical record forms should be filled out for every maternal or infant death that occurs in the health facility. Ideally, these forms should be completed after a meeting with the patient's family and the involved staff to discuss the details surrounding the death. Additionally, transportation facilities should be provided to the AMP implementation team by the primary health center to ensure smooth execution of verbal autopsies with the patient's family. Data processing in Langsa City is well-organized, utilizing tables, narrative graphs, and mapping. Mapping is crucial as it helps identify areas with reported cases of maternal and child deaths. Regarding maternal deaths, there were 10 cases in 2021, which is lower than the 16 cases reported in 2020. However, in October 2022, the number of maternal deaths increased by 2 cases. Although there was a slight increase, the overall trend indicates a decrease in maternal mortality incidence. In terms of infant deaths, there were 16 cases in 2020, which then increased to 30 cases.

The study Apriani, (2019) shows that the implementation of verbal autopsy programs in provides significant benefits in improving the understanding of causes of death and supporting the development of public health policies.

Research by Gouda et al., (2017) demonstrates that verbal autopsy can be an effective tool in collecting data on causes of death, especially in countries with limited access to conventional autopsies. The study by de Savigny highlights the importance of verbal autopsy as an information source for public health policies and appropriate interventions in various countries in Africa (de Savigny et al., 2017). Additionally, the study by Kinney et al., (2019) emphasizes the importance of adequate training for healthcare workers involved in collecting verbal autopsy data to enhance the accuracy and quality of mortality data. Furthermore, comprehensive training and ongoing support for AMP program implementers are necessary to enhance their understanding and knowledge. Collaboration and coordination among the implementation team, as well as effective communication with grieving families, should also be improved (Visaria, 2022).

Regular monitoring and evaluation of the AMP program need to be conducted to identify successes, challenges, and improvement opportunities. By implementing these measures, it is

hoped that barriers in the implementation of the AMP program can be overcome, and the overall program quality can be enhanced. Based on the research conducted by Montagu et al., (2017) on the use of verbal autopsy in various countries, it can be concluded that verbal autopsy has the potential to improve the accuracy of mortality data, particularly in countries with limited resources. Similar findings are also supported by other studies such as those conducted by Biswas et al., (2016), Moyer et al (2017), which demonstrate the important benefits of implementing verbal autopsy programs in improving understanding of causes of death, development of effective interventions, identification of preventable causes of death, and improvement of accuracy and quality of mortality data (Biswas et al., 2014, 2016; Moyer et al., 2017). Overall, the implementation of the AMP program in Langsa City has followed the established regulations. However, there are some barriers and areas that need improvement. By allocating adequate funding, providing reasonable reporting time, delivering comprehensive training, and strengthening coordination and communication among the implementation team, program owners, and patient families, these measures will help overcome barriers and enhance the implementation of the AMP program in Langsa City.

CONCLUSION

In conclusion, while the implementation of the Autopsy Medical Certificate Program (AMP) in Kota Langsa has demonstrated positive aspects in terms of manpower and case selection, there are areas that require attention and improvement. Strengthening the number of concurrent positions and providing comprehensive materials to program implementers will enhance their capabilities and effectiveness. The establishment of a recommendation system and regular monitoring of its implementation will contribute to evidence-based public health policies and interventions. Timely reporting and accurate data recording should be maintained through continuous training and supervision. Lastly, the regular monitoring and evaluation of the AMP program at Puskesmas is commendable, but efforts should be made to ensure consistency and provide necessary support for further program enhancement. By addressing these aspects, the AMP program in Langsa city can continue to improve and contribute to the accurate documentation of causes of death, ultimately supporting public health efforts and interventions. The implications and contributions of this research are significant in several ways. Firstly, the findings of this study can have practical implications for the improvement of the AMP program. By evaluating the effectiveness of the program in the specific context of Langsa city, valuable insights can be gained regarding its strengths, weaknesses, and areas for improvement. This information can inform future program adjustments, policy revisions, and resource allocation to enhance the overall performance and impact of the AMP program.

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