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Completeness of Maternal Verbal Autopsy Through the Maternal Death Notification Application

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Abstract: Introduction: Maternal mortality in North Lampung remains high despite the implementation of the Maternal Perinatal Audit (AMP-SR). This study evaluates the completeness of maternal verbal autopsy data in the Maternal Death Notification (MDN) application. Objective: This study aims to evaluate the completeness of the completion of maternal verbal autopsy through the Maternal Death Notification application in the North Lampung district. Methods: A qualitative descriptive study with a single case design was conducted in January–March 2022 at the North Lampung Health Office, Kotabumi Udik, and Kubu Hitu Health Centers. Eight purposively selected informants, including health officials and midwives directly involved in MDN implementation, participated in in-depth interviews. Data were analyzed using Open Code software, complemented by document review. Results: The MDN application has been implemented at both health centers and hospitals, but several input and process components are incomplete. Some facilities rely on personal laptops, and several sections of the maternal verbal autopsy forms remain unfilled. Conclusion: Limited supervision and poor coordination contribute to incomplete data entry.

Keywords: maternal mortality rate, maternal death notification, case studies

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Introduction

One of the indicators that describe the well-being of people in a country is the maternal mortality rate and neonatal mortality rates. A mother's death, as defined by the WHO, is a death during pregnancy or within 42 days after the termination of pregnancies, as a result of all causes related to or caused by pregnancy or treatment, but not due to an accident or injury. (Kementerian Kesehatan, 2018a).

Currently, access to health services for pregnant, birthing, and postpartum are quite good, but the maternal mortality rate (MMR) is still quite high. Indonesia's MMR is still far from the Sustainable Development Goals (SDGs) goal of reducing the maternal mortality rate to less than 70/per 100,000 live births by 2030, while the neonatal mortality rate (NMR) is 12/per 1,000 live births (Willcox et al., 2020).

To achieve this target, hard work is needed, especially when compared to several ASEAN countries, the MMR in Indonesia is still relatively very high. The average MMR in ASEAN countries is 40-60 per 100,000 live births. The MMR in Singapore is 2-3 per 100,000 live births, Malaysia 39/per 100,000 live births, and Vietnam 55/per 100,000 live births (Susiana Sali, 2019). According to the Indonesian Inter-Census Population Survey (SUPAS) in 2015, MMR in Indonesia was 305/100,000 live births (Wijayanti et al., 2020).

The number of maternal deaths in the Province of Lampung is the third (third) of the 10 provinces on the island of Sumatra. The number of maternal deaths based on the most deaths are Aceh Province with 194 cases, North Sumatra Province with 170 cases, and Lampung Province with 169 cases. The highest

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cause of maternal death was COVID-19 as many as 77 cases, as many as 25 cases of bleeding, eclampsia 24 cases, and 43 cases of others. Meanwhile, based on data obtained from the North Lampung District Health Office in 2021, MMR in North Lampung ranks 5th (five) districts with the most deaths out of 15 districts/cities in Lampung Province. MMR in North Lampung was 11 cases with the causes of death being bleeding and hypertension. Meanwhile, there were 46 cases of infant mortality (Profil Kesehatan, 2021).

The coverage of MMR and NMR above has not met the specified targets. Obstacles encountered in increasing the coverage of event discovery are data management, under-reported due to unreported events resulting from the lack of awareness of health workers and the communities involved, as well as communication and information that is not smooth (Tirsa Lengkong et al., 2020).

One of the efforts to accelerate the reduction of MMR and NMR is through increasing the coverage of childbirth assisted by health workers in facilities and handling maternal neonatal emergencies according to standards and promptly which can be assessed through Maternal and Perinatal Audit Surveillance and Response (AMP-SR). AMP-SR is stipulated in the Minister of Health Regulation No. 97/2014 Articles 31, 34, and 35 regarding Maternal and Child Health Surveillance (Kementerian Kesehatan, 2015).

The main barriers identified in the lack of implementation of maternal audits were lack of awareness from policymakers, blame culture, lack of staff and training, poor data collection, poor ongoing follow-up, and lack of financial resources. In addition, a lack of knowledge and skills to conduct a proper review may misclassify the causes of maternal deaths leading to inappropriate recommendations and interventions. To accurately identify the underlying causes of maternal deaths, an adequate AMP-SR instrument is necessary (Cahyanti et al., 2021).

The Ministry of Health has created an integrated application throughout Indonesia, Maternal Death Notification (MDN), which is expected to facilitate maternal and child health surveillance. The MDN application was created to obtain reports of maternal deaths as early as possible with accurate data and accompanied by simple statistical analysis to improve the speed of data-sourced decision-making (Kementerian Kesehatan, 2018b).

Based on the initial survey, the MDN application has been filled since 2019 and has not been filled according to the number of deaths to the Health Office, so there are still under-reported data. Although the implementation of AMP has always been carried out continuously, MMR/NMR still exists and is still categorized as high. A quality Maternal Perinatal Audit with sharp recommendations is expected to be able to overcome the problems that continue to occur until now in each district. Each region certainly has its local problems, so a locally specific approach is needed.

Method

This study used a descriptive qualitative method with a holistic single case study design. The research was conducted at the North Lampung Health Office, Kotabumi Udik Health Center, and Kubu Hitu Health Center. The researcher chose the research site because the two health centers represent urban and rural areas. The urban area is represented by Kotabumi Udik Health Center, while the rural area is represented by Kubu Hitu Health Center.

The selection of informants was carried out using purposive sampling criteria, which is a technique used to select informants according to predetermined criteria. The sample included 8 people: The main informants were those who implemented the AMPR-SR program and completed verbal autopsies at the Health Center/informant providers, consisting of the Midwife of the Kotabumi Udik Health Center and the Midwife of the Kubu Hitu Health Center and the Head of the Midwifery Room of H.M. Ryacudu Hospital. Triangulation informants were those authorized to make policies related to the implementation of AMP-SR, consisting of the Head of the North Lampung District Health Office, Head of the Family Health and Nutrition Section, AMP Secretariat, Head of Kotabumi Udik and Kubu Hitu Health Center.

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The instruments used in this study were in-depth interview guidelines, secondary data collection checklist guides, and a voice recorder. Data sources were taken from primary and secondary data. Data collection was done through primary data using in-depth interviews. Meanwhile, secondary data was obtained from document review in the form of maternal verbal autopsies from Health Centers and Hospitals that were reported in writing as well as data from the North Lampung District Health Office and data review from the MDN application.

This research has been approved by the Medical and Health Research Ethics Committee Faculty (MHREC) of the Faculty of Medicine, Public Health and Nursing, Universitas Gadjah Mada - RSUP Dr. Sardjito, No: KE/FK/1282/EC/2022.

Result and Discussion

Input components in filling out the Maternal Death Notification (MDN) application at Health Centers and Hospitals

Obtained from the results of interviews, with key informants and stakeholders regarding human resources and equipment used in supporting MDN filling activities, experiencing obstacles and shortcomings.

"Ee...for the average staff at the health center, it is the midwife who holds the program... we know ourselves that there are many midwives. However, the doctors are still not optimal because there are only 1 or 2 doctors and they also rarely fill in the cause of death in the AMP form" (ER, 37 years old).

"For laptops, I still use my own, and because now we are using applications, we just want to procure laptops at the health center. For filling in, it's easy to use a laptop, but it's more practical to see notifications via cellphone" (M, 40 years old).

"...Yesterday, we were included in the national health insurance, and the health operational assistance there was also for the procurement of laptops and audits to the place of death" (NS, 48 years old).

"The funding for laptop procurement has been budgeted for the 2023 fiscal year from the health operational assistance fund and is sufficient for the health center" (NF, 45 years).

"The decree was signed by the head of the office, Ndah, it does not follow the provisions that the AMP decree should be issued by the Regent. But we are trying to make it according to the provisions next year" (ES, 40 years old).

Components of the Maternal Death Notification (MDN) application process at Health Centers and Hospitals

MDN application filling and reporting activities have been carried out and involve several parties from across programs at each health center.

"Yes, we always report to the coordinating midwife, after that, we immediately report to the office if there is a death in our area" (D, 56 years old).

"It was done last July 2022, and the resource person was also directly from the provincial office and explained in detail how to fill it in" (M, 40 years old).

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Socialization and training activities have been carried out in the district with the target of coordinating midwives, village midwives, program holders, and local government and private hospitals.

"Usually, we go down to the health center, while evaluating other maternal and child health programs, such as facilitative supervision, and so on. So later, one by one, the program discussed there are how many AMP deaths in the health center, whether the MDN has been filled in or not, and the follow-up to the head of the health center later" (ER, 37 years old).

Monitoring and evaluation carried out at the health center is only limited to checking the data in the MDN application whether it is complete or not.

"So far, we only open MDN if there is a death case, so yesterday the signal constraints were because Kubu Hitu, you know yourself, it's a bit inland sometimes the signal disappears. That's the only problem with filling out the application. For manual verbal autopsies, the obstacle is when asking the family because they are still in a state of grief so we are slow to ask. This obstacle to filling in the application often takes a long time" (NS, 48 years old).

Based on the results of the document study obtained from observations in the MDN application, out of 11 reported maternal death data, only 1 verbal autopsy form in the MDN application was found to be filled in.

The output component of Maternal Death Notification (MDN) filling at Health Centers and Hospitals.

Recommendations from the results of monitoring and evaluation of activities carried out at the health center are in the form of increasing the effectiveness of training on filling in the MDN application. The recommendation is to always check the MDN application notifications and increase cooperation with the community to collect non-medical history for filling in maternal verbal autopsies.

"Usually, we get it directly during the technical guidance meeting, and then we share the problems of filling out the application, which is rather difficult if the community is not willing to cooperate" (NF, 45 years old).

"Usually during the mini-workshop or the monthly branch midwife meeting, we also discuss it when all the midwives are still gathered. Or if you don't have time, it can be conveyed in the midwives' group" (M, 40 years old).

The follow-up of the OVM/RMM filling in the MDN application carried out by the health centers and the hospital is to hold an internal health center meeting by discussing what will be done if there is death through mini-workshops at the health centers level, through monthly Indonesian Midwives Association (IBI) branch meetings and WhatsApp groups.

Input components for filling out the Maternal Death Notification (MDN) application at Health Centers and Hospitals

The implementation of the National Health System (SKN) states that the Health Human Resources (HRH) sub-system as the implementer needs to be sufficient in number, type, and quality, as well as fair and equitable distribution according to the needs of health development (Shofiah et al., 2019). Implementing Maternal Death Notification (MDN) activities requires input components in the form of qualified and sufficient human resources. For AMP-SR program holders filling out the MDN application,

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there are 2 (two) health workers involved, namely midwives and doctors. The midwife fills out the application while the doctor determines the cause of maternal death. The existing human resources for midwives are sufficient, but doctors are still lacking in terms of quantity.

The availability of facilities and equipment is a supporting factor in AMP-SR activities, especially in filling out the MDN application. To meet the needs of service facilities and infrastructure, especially health services at health centers, these facilities include buildings including governance, operational vehicles, health equipment, examination support equipment, medicines, and office equipment to support organizational management in work units such as health centers (Kartini, 2017). Informants stated that equipment such as laptops/computers had not been budgeted for in the procurement of goods and services at a health center in 2021. Thus, each program holder uses a personal laptop to support activities in the workplace. The health center already has laptops/computers given to each section, such as in supporting the Maternal and Child Health (MCH) program. However, the MCH program is so numerous that it cannot accommodate the needs of other activities such as filling in the MDN application.

Based on the results of this study, Kotabumi Udik, Kubu Hitu Health Centers and RSD H.M. Ryacudu have not budgeted for the procurement of equipment to support the AMP-SR program, especially filling in the MDN in their respective areas. Procurement of a new laptop will be budgeted in the new fiscal year, namely in 2023. Funding sources at the health centers come from the Health Operational Assistance and Nasional Health Insurance capitation funds. Funding at the Health Office and Hospital comes from APBD funds. Meanwhile, the APBD is the source of funding for each district/city for preventive and promotive services (Arianto & Nantabah, 2020). These results are in line with previous research, namely the number of health workers, health facilities including facilities and infrastructure, limited operational assistance, and other factors that can result in obstacles/disruptions in the implementation of activities (Yolandia & Hardiana, 2019).

The implemented policy is not yet by the provisions, but the Health Office will strive so that in the new fiscal year, namely in 2023, it can update the decree by applicable regulations. The implementation of AMP-SR in the District/City requires well-managed management. For this reason, it is necessary to have a District / City AMP-SR Team formed through a Decree from the Regent / Mayor (as Patron). The District/City AMP-SR Team comprises the Patron, AMP-SR Management Team, and Internal and External Review Team. In the implementation of AMP-SR, it is necessary to ensure the involvement of the service delivery community in various AMP-SR processes in the District/City, especially in organizing learning sessions (Kemenkes, 2021).

Components of the Maternal Death Notification (MDN) application process at health center and hospital

AMP-SR officers at all health centers and hospitals have been given socialization and training to fill out the Maternal Death Notification (MDN) application. The Health Office organizes training on MDN filling with resource persons from the Provincial Health Office as facilitators. Team strengthening and training have been conducted in filling out the Maternal Verbal Autopsy (OVM), Perinatal Verbal Autopsy (OVP), Maternal Medical Record (RMM), Perinatal Medical Record (RMP) forms to the coordinating midwife, village midwife and District AMP team. Without a structured education and training program, a health program will find it difficult to keep up to date with knowledge and skills (Martin et al., 2020).

Health education in the form of training is expected to change the competence and interprofessional collaboration of health workers in health facilities. The results of the study are supported by the theory put forward by Atkinson and Shiffrin in Risnah (2018), which states that the longer information is retained in short-term memory with the help of repetition, the more likely it is to enter long-term memory so that it becomes relatively more permanent. Knowledge will be stored for a long time in memory if repetition is done by recalling it when needed (Risnah et al., 2018).

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Based on the observation of secondary data in the MDN application, it was found that the data in the application related to death information which includes the mother's identity card number, full name, identity card address, domicile address, current address, marital status, age, pregnancy, gestational age, date of death, period of maternal death, suspected cause of death, type of residence, reporting address and place of death were filled in. However, only 1 (one) case out of 11 maternal death cases had been filled in completely. Before the form in the MDN application is filled in, the manual form must be filled in first to facilitate filling in the MDN application.

Incomplete completion of the maternal verbal autopsy form and a maternal medical record was due to difficulties in collecting data such as the mother's medical history. The data was partly obtained from medical records and asked directly to the mother's family. The obstacles experienced at the Kubu Hitu Health Center in the process of filling out the MDN are due to telecommunications network problems. This is by community-based AMP research where community participation is needed to support activities and as a participatory tool in exploring the causes of death (Bandali et al., 2016). According to WHO, there are 4 components of continuous action in the maternal mortality surveillance and response system, namely identification and notification of deaths, review of maternal deaths, analysis of recommendations, response, and monitoring (Mukinda et al., 2021).

Monitoring and evaluation of the AMP-SR program on MDN filling has not specifically been carried out at health centers. Monitoring is carried out during the implementation period, and evaluation is carried out at the end of the budget period. The results of this study show that the verbal autopsy filling stage has not been properly implemented, due to several causes, namely from officer factors and social factors in the patient's family. Facilitative supervision carried out by the District AMP team is only for the health centers, for hospitals, it has not been carried out regularly. The supervision is to identify obstacles and difficulties encountered in the field such as filling in the MDN application, data collection at the patient's home, and obstacles that support other activities, and provide technical assistance, including advocacy to policymakers.

The output component of Maternal Death Notification (MDN) filling in health centers and hospitals

Based on the results of the output evaluation in this study, there are recommendations given by the Health Office team through monitoring and evaluation activities. Recommendations are given in the form of exposure to midwives or program managers regarding increasing the effectiveness of the training on how to fill in the MDN application that has been carried out. These recommendations include always checking the death notification in the MDN application, as well as recommendations for cooperation with cross-sectoral organizations in the community so that the audit process in filling out verbal autopsies is not hampered or late.

There are recommendations based on the audit of each maternal death case to overcome the problems found, sometimes the determination of the diagnosis is also an obstacle in filling out the MDN application including preventing the occurrence of avoidable causes of death and improving maternal health services. To ensure that these actions are carried out properly, a monitoring process is needed during the implementation period, and an evaluation at the end of the budget period. This is in line with Kouanda's research (2022) which states that maternal audit recommendations are not only limited to clinical recommendations, but these recommendations must bridge the gap between the health information system and the quality improvement process from the local and national levels (Kouanda, 2022).

The follow-up response to the recommendations produced is to implement them immediately within one year as stated in the recommendations. Things that are done by considering influencing factors, namely existing problems, policies implemented, and the surrounding environment. The lack of cross-sectoral cooperation involving village officials and health facilities, as well as the lack of follow-up

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to handle or prevent maternal deaths by the district team, means that guidance needs to be provided to implementing officers at health facilities and there needs to be a commitment from the district government to support activities through cross-sectoral cooperation and increased competence of implementers. As a follow-up to the recommendations generated from the activity, learning and coaching will be carried out aimed at improving the quality of maternal health services (Riyati et al., 2015).

Secondary analysis of country experiences should highlight social and facility-level teams, recommendations to be followed up, health system inputs including funding and health information systems, and coordination and monitoring of implementation of recommendations (Smith et al., 2017).

Conclusion

In the input component, it was found that the availability of human resources for midwives is sufficient, but the number of availability for doctors in determining the diagnosis of the cause of death is still lacking, and the availability of equipment such as laptops is not yet available at the Kotabumi Udik, Kubu Hitu Health Center and RSD. H.M. Ryacudu. The funding budget for the procurement of new laptops will be submitted in 2023 from the APBD, BOK, and JKN capitation. The completeness of the decree on the implementation of AMP-SR is still not by the SOP, which should be signed by the Regional Government, namely the Regent.

In the process component, several obstacles were found in the implementation of the AMP-SR program, namely the filling of manual forms that had not been filled in so that in filling in the OVM and RMM in the MDN application not all cases of maternal death were filled in completely. The MDN application has no obstacles, but indeed the AMP-SR process has not run optimally. Monitoring and evaluation of AMP-SR activities is not specifically carried out at the Health Care. Evaluation is carried out together with other MCH programs, so it does not focus on the problem of filling in the MDN application alone.

On the output component obtained, the recommendation has been given by the district to the health facility. The recommendation is to improve the effectiveness of the MDN application filling training that has been carried out. Like always checking notifications on applications when there is a maternal death and always providing education to the community to be able to cooperate in the process of reporting maternal mortality when it occurs in their territory so that the data collection process is smooth and data is filled in immediately. Further action in the health facility is only on the cross-program coordination that exists in the Health Care or Hospital. Cross-sectoral parties like the village appliances have not been involved in follow-up activities.

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