

Implementation of comprehensive emergency obstetric neonatal care (*ponek*) in Indonesia Hospitals: a literature review

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Accepted: 26 September 2023; revision: 10 December 2023; published: 30 December 2023

Abstract

Background: MMR and IMR in Indonesia are still high compared to the targets set by the government and SDGs. One way to address this is through the implementation of 24-hour *PONEK*. The implementation of *PONEK* is important to note because quality *PONEK* implementation can reduce MMR and IMR. This study purpose was to provide a more comprehensive understanding of the implementation of *PONEK* in hospitals

Method: This type of research is a literature review using Google Scholar, PubMed, and Scopus databases with keywords *implementasi* OR *pelaksanaan* OR *penerapan* AND *PONEK* OR *EmONC* OR *CEmONC*. The inclusion criteria were the implementation of *PONEK* in Indonesia in all types of hospitals, using Indonesian and English, publication year range 2012-2022, original research.

Results: The lack of health worker training was the main problem with *PONEK* program inputs. As for the *PONEK* program process, communication within the team was good and the implementation of monitoring and evaluation has gone well. As for the output of the *PONEK* program, there are no studies detailing the achievement of targets.

Conclusion: The implementation of the *PONEK* program has been running, but there are still some things that have not been implemented properly. Further research is needed to evaluate the output of *PONEK* implementation.

Keywords: EmONC, CEmONC, Implementation, *PONEK*

INTRODUCTION

The maternal mortality rate (MMR) is the number of maternal deaths during pregnancy, childbirth, and postpartum or their treatment and not due to other causes such as accidents or falls, for every 100,000 live births. In the 2024 *RPJMN*, the government targets MMR at 183 cases per 100,000 live births (1). In addition, MMR is also the third goal in the 2030 Sustainable Development Goals (SDGs) indicator of 70 per 100,000 live births (2). However, based on the 2015 Inter-Census Population Survey (*SUPAS*) data, the MMR in Indonesia is still 305 cases per 100,000 live births (3). Meanwhile, in 2017 it was known that the MMR in the world was 211 cases per 100,000 live births according to WHO 2019 (4). The most common causes of maternal death in developing countries include bleeding, sepsis, eclampsia, unsafe abortion, and birth obstruction (5)

Infant mortality rate (IMR) is the number of infants who die before reaching the exact age of 1 year expressed per 1000 live births. Based on data from The World Bank 2020, IMR in the world in 2019 reached 28.2 per 1000 live births (6). Then based on the 2017 Indonesian Demographic and Health Survey (*SDKI*), IMR reached 24 per 1000 live births (7). Meanwhile, the *RPJMN* target in 2024 is 16 per 1000 live births and the SDGs target in 2030 is 12 per 1000 live births (1,2). Newborn mortality is closely associated with obstetric complications and poor maternal health status during pregnancy and childbirth (8). The main causes of newborn deaths in Indonesia include premature babies 29%, sepsis and pneumonia 25%, and newborn with asphyxia and trauma 23% (9)

The impact of high MMR and IMR is a decrease in the quality of life of mothers and children. In addition, due to the high MMR and

IMR data, Indonesia is ranked 2nd with the highest MMR and in the top 5 highest IMR in Southeast Asia (10). One of the government's efforts to reduce MMR and IMR is the provision of Comprehensive Emergency Obstetric and Neonatal Care (*PONEK*) in hospitals.

The government issued Minister of Health Decree No. 1051/Menkes/SK/IX/2008 as Guidelines for the Implementation of 24-Hour *PONEK* in Hospitals. Then in 2012 the government issued Management Guidelines for the Implementation of 24-hour *PONEK* in Hospitals. *PONEK* services include stabilization in the Emergency Room (ER) and preparation for definitive treatment, handling of emergency cases by the hospital *PONEK* team in the action room, rapid and appropriate operative treatment including laparotomy and cesarean section, intermediate and intensive care of mother and baby, and high-risk antenatal care services. The minimum scope of maternal and neonatal health services in *PONEK* is physiological and high-risk maternal health services and level II-B physiological and high-risk neonatal health services (in class A level III-A hospitals) (11).

Implementation of *PONEK* is important because a good quality *PONEK* implementation can reduce MMR and IMR. The previous research by Dumont et al (2013) and Tembo et al (2017) found that good-quality *PONEK* implementation can reduce MMR and poor *PONEK* implementation is associated with high maternal complications and mortality (12,13). In addition, good-quality implementation of *PONEK* also significantly reduces newborn mortality (14,15). One of the main obstacles to reducing MMR and IMR in Indonesia is the lack of obstetric and neonatal emergency services implementation (16). Given the influence of *PONEK* implementation on MMR and IMR, it is necessary to conduct research on *PONEK* implementation. However, there is no literature review research on the implementation of *PONEK* in Indonesia. Therefore, the purpose of this study was to describe the implementation of *PONEK* in Indonesian hospitals.

METHODS

The type of research used is a literature review by reviewing relevant literature to a particular field or topic. This literature review aims to provide a more comprehensive understanding of the implementation of *PONEK* in hospitals. The stages of this study include problem identification, literature searching, processing, and presentation.

The literature searching in this study used Google Scholar, PubMed, and Scopus databases using keywords *implementasi OR pelaksanaan OR penerapan AND PONEK OR EmONC OR CEmONC*. The inclusion criteria of the retrieved publication articles were implementation of *PONEK* in Indonesia hospitals, implementation of *PONEK* in all types of hospitals, articles using Indonesian and English, articles published in the range of 2012-2022, and the article is original research. The exclusion criteria were paid articles or articles that could not be accessed in full text. The flow of this research journal review is as follows:

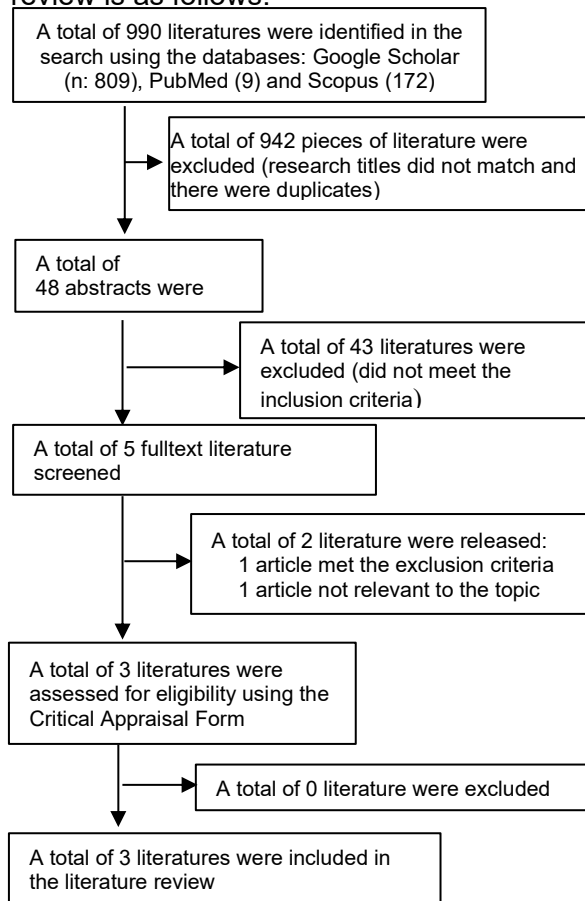


Figure 1. Journal Review Flow

RESULTS

Based on the results of searching and collecting literature data with the Google Scholar, Pubmed, and Scopus databases,

there are 990 literatures found. Then the data was screened until the final result was 3 literatures that met the assessment and criteria in accordance with this study.

Table 1. Summary of Study Characteristics

Researcher (Name, Year, Source)	Title	Objectives	Model	Sample	Conclusion
Pratama A, Ekasari F, Yanti D 2022 <i>Media Informasi</i>	Analisis Program Pelayanan Obstetri Neonatal Emergency Komprehensif (<i>PONEK</i>)	Analyzing the <i>PONEK</i> program at Dr. H. Abdul Moeloek Hospital in 2022	Qualitative	<i>PONEK</i> Management Team, <i>PONEK</i> Implementation Team, Chief Patient Service Manager, Director Service, Emergency Physician, <i>PONEK</i> Coordinator	Training for health workers is still not comprehensive enough. The available facilities and infrastructure are inadequate and there are tools that need to be updated
Irma, Gustina E 2018 <i>International Journal Of Healthcare Research</i>	Evaluation of Implementation of Comprehensive Emergency Neonatal Obstetrics Services Program (<i>PONEK</i>)	Evaluating the <i>PONEK</i> program at PKU Muhammadiyah Hospital Yogyakarta	Qualitative	<i>PONEK</i> team and patient	The <i>PONEK</i> input program is good in terms of quantity. However, <i>PONEK</i> support activities (education and training) have not been fully implemented.
Herdarwan H, Lukman W, Tri S 2017 <i>Jurnal Penelitian dan Pengembangan Pelayanan Kesehatan</i>	Implementasi Pelayanan Neonatal Emergensi Komprehensif di Rumah Sakit <i>PONEK</i> di Indonesia	Knowing the implementation of emergency neonatal care in 24-hour <i>PONEK</i> hospitals in Indonesia	Mix-method	Hospitals in Indonesia with 24-hour <i>PONEK</i> hospital criteria and have received socialization on <i>PONEK</i> .	Most hospitals have implemented 24-hour emergency neonatal services, KMC and adequate blood accessibility. However, there is still a need for attention in terms of training and the number of personnel, costs, facilities and infrastructure and adequate space.

Based on table 1, it can be seen that 2 articles were obtained using qualitative studies and 1 article using mix-methods. Then of the 3 articles, there is one article that involves informants from the patient side as service users. While the other 2 articles only involve informants from the hospital side. In addition, there is only one article that explains

the type of hospital studied. From the three articles obtained, it is known that *PONEK* is already running but the training of health workers as an effort to improve skills is still not going well. There are 2 articles that explain that the needs in terms of facilities and infrastructure have not been fulfilled.

DISCUSSION

Input

Table 2. Hospital *PONEK* Input Characteristics

Author and Year of Research	Human Resources	Funding	Facilities and Infrastructure	Service Standard	Information System
Pratama A, Ekasari F, Yanti D 2022	<ul style="list-style-type: none"> Consists of health workers with diploma 3 and diploma 4 educational backgrounds with nursing and midwifery vocations. There are still health workers who have not received training Placement and number of existing personnel considered insufficient There are several doctors and specialists who are on call 24 hours a day. 	<p><i>BLUD</i> and patient funding (general and jamkes)</p>	<ul style="list-style-type: none"> Existing facilities and infrastructure are inadequate with poor condition, insufficient number, and some are incomplete. Calibration is carried out every 6 months from the ministry of health Has a 24-hour active delivery room, operating room, and neonatal ward Support services such as laboratory and radiology are available 24 hours. 	<p>There are SOPs but a small number of health workers still do not understand the contents of the SOPs.</p>	<ul style="list-style-type: none"> 24-hour call center Social media SISRUTE for referral cases Hospital SIM for recording and reporting
Irma, Gustina E 2018	<ul style="list-style-type: none"> Health workers are sufficient and follow hospital standards Health worker training is still not implemented 	<p>Funding comes from the hospital, health department, and self-funding</p>	<ul style="list-style-type: none"> Sufficient facilities and infrastructure Some unavailable facilities are still in the process of being applied for 	<ul style="list-style-type: none"> There is an SOP 	<p>There is a hospital SIM for data processing</p>
Herdarwan H, Lukman W, Tri S 2017	<ul style="list-style-type: none"> Types of personnel available: pediatricians, obstetricians, anesthesiologist, general practitioners, midwives, and nurses There are still untrained health workers 	<p>Several funding sources: <i>APBN</i> (25%), <i>APBD I</i> (3%) and <i>APBD II</i> (36%), and <i>BLUD</i> (36%).</p>	<ul style="list-style-type: none"> 29% of hospitals do not have <i>PONEK</i> rooms 28% of hospitals have <i>PONEK</i> rooms that are attached to the ED. 43% of hospitals have a separate <i>PONEK</i> room 	<ul style="list-style-type: none"> Some hospitals have SOPs 64% of hospitals are supported by <i>PONEK</i> teams that are established by decree Implement clinical service standards 	<p>Not explained</p>

The number and type of health workers on the *PONEK* team have been regulated in the *PONEK* guidelines. Based on the literature obtained, it is known that the

availability of human resources (HR) is in accordance with their educational background. However, one article found that the number of available human resources was

still insufficient (17). The number of human resources determines the capacity and performance in implementing a policy so that it affects efforts to achieve organizational goals (18,19). In addition, based on Edward's theory, even though the policy content has been well socialized but lacks the resources to implement, the implementation will not run effectively (20). If resources are inadequate both in terms of quantity and ability, the program cannot be implemented properly to achieve the predetermined success targets (21). This is in line with Simbolon's research which found that hospitals with incomplete *PONEK* Team human resources had less than optimal performance (22). Therefore, the fulfillment of the number of health workers in accordance with the needs must be done in order to perform *PONEK* services properly.

The success of *PONEK* cannot be separated from the competence of health workers. The potential abilities and skills of human resources are very influential in achieving organizational goals (23). Competent employees in their respective fields are one of the success factors for optimal service (24). The three articles all state that there are still health workers who have not received training. Whereas in the *PONEK* guidelines enacted by the Indonesian Ministry of Health 2012, training of health workers needs to be carried out as an effort to improve the results of achieving *PONEK* hospital performance (25).

Based on Mwansisya's research revealed that training and clinical mentoring had significant positive changes in performance in various MCH Reproductive Health services, especially in intra-operative care, leadership skills and *PONEK* (26). Hospitals that have adequate facilities including in terms of competent staff can reduce maternal and neonatal mortality (27). Therefore, health workers must undergo continuous training in order to be able to carry out their duties in accordance with developments.

Another resources needed in implementing policies are financial resources (sources of funds). Funds are a support for the successful implementation of programs to

improve service quality (21). Based on the articles obtained, it is known that the majority of *PONEK* funding comes from *Badan Layanan Umum Daerah (BLUD)*. However, there are also other sources of funding such as patient funding, self-funding and *Anggaran Pendapatan dan Belanja Negara (APBN)* and *Anggaran Pendapatan dan Belanja Daerah (APBD)*. The availability of sufficient funding sources will ensure the implementation of optimal health services (24).

The implementation of *PONEK* services is inseparable from the support of facilities and infrastructure that are suitable for use. The availability of complete and adequate facilities and infrastructure will facilitate the implementation and support the success of a *PONEK* service program (25). In terms of facilities and infrastructure, there were mixed results. In Irma and Gustina's research, it was found that the facilities and infrastructure owned were quite good (28). As well as in the research of Herdarwan et al further explained that there are 2 types of *PONEK* room separate *PONEK* rooms. First it is separated from the ER room and second one is still integrated with the ER (29). Then in the research of Pratama et al it is known that there are delivery rooms, operating rooms, and neonatal rooms and supporting facilities are available, but facilities and infrastructure are still considered insufficient both in terms of quantity and condition (17).

Facilities and infrastructure are one of the standards that must be met in the implementation of *PONEK*. This is stated in the hospital-specific criteria in the 2012 *PONEK* guidelines. Lindtjorn et al explained that every health facility must have adequate infrastructure and serve obstetric emergency cases available 24 hours (30). This is in accordance with the research of Elmusharaf et al which states that hospitals that have adequate infrastructure so that patients are not referred back to other hospitals in order to reduce maternal and neonatal mortality (27).

In the *PONEK* implementation guidelines issued by the Indonesian Ministry of Health, one of the general criteria for *PONEK* hospitals is the availability of standard operating procedures (SOPs).

SOPs guide each implementer in their actions, including any nursing personnel to carry out their practice (31). By using SOPs, implementers can homogenize their actions. In this literature review, it was found that all three articles described hospitals as having SOPs. However, in the research of Pratama et al there are still obstacles, namely that there are some health workers who do not fully understand the existing SOPs (17). The SOP must be understood by every implementation actor in line with the theory of Van Meter and Van Horn in Permatasari et al which states that policy implementers must know the policy standards, because it will affect service performance in implementing program policies (16). Thus, the more clearly an SOP is understood by the implementer, the

more it will help the implementer work properly and will have an impact on achieving optimal performance (32).

In the *PONEK* guidelines, information systems are a specific criteria for *PONEK* hospitals. In the information system indicator, two articles explained that hospitals use the hospital SIM for data processing. *PONEK* is a service program where each team element in it performs different functions, requiring integration, speed and accuracy of information aimed at improving the quality, scope and effectiveness of services to the community. The existence of information systems is intended to support the process of implementing service activities in hospitals in order to achieve the established mission (11).

Process

Table 3. Characteristics of the *PONEK* Process in Hospitals

Author and Year of Research	Planning	Communication	Surveillance
Pratama A, Ekasari F, Yanti D 2022	Not explained	The consultant is communicative	Monitoring and evaluation every morning for the team and every 6 months for interns There was an OPPE conducted with the hospital management
Irma, Gustina E 2018	Conducted once at the end of each year	<i>PONEK</i> team communication is good	Conducted by the director directly on the report made by the person in charge of <i>PONEK</i>
Herdarwan H, Lukman W, Tri S 2017	Not explained	Communication with the referral facility of origin is still poor	Monitoring and evaluation activities every 3 months

There was one article that described the planning of the *PONEK* program in the hospitals studied. Good planning in the establishment of a *PONEK* program goes through several stages, including internal socialization, appointment of officers, team formation, formal training of officers, and determination of the types of activities and services and targets. Another effort to make planning work well is to identify and map the relevant sectors involved in providing patient

health services and by establishing a referral system with other agencies (21).

In Jaya et al (2019) communication between initial facilities and referral facilities has a significant relationship with referral requirements and preparation (33). In the communication indicator, there are two articles that explain that communication has gone well. However, there is one article that states that communication with the referral originating health facility is still not good. Effective referral requires communication

between facilities. Communication can avoid patient rejection to the destination hospital and speed up the patient handling process at the destination hospital. Good communication can increase the speed of service and the availability of more competent health workers at the destination so that patients with maternal and neonatal emergencies can be treated quickly (33).

Furthermore, on the indicator of supervision, all three articles explained that there was monitoring and evaluation of *PONEK* implementation. Monitoring and evaluation are included in the efforts to improve the quality of *PONEK* according to

the 2012 *PONEK* guidelines. Monitoring and evaluation is carried out as an effort to determine what is being implemented by monitoring outcomes and if there are deviations from predetermined standards, improvements are immediately made, so that all outcomes can be in accordance with the planning (24). Regular monitoring of *PONEK* performance helps support the *PONEK* team's performance. In Sastradinata's (2021) research, officers stated that good supervision supports the performance of *PONEK* teams (34). So, a good supervision of *PONEK* performance is important.

Output

Table 4. Output Characteristics of *PONEK* in Hospitals

Author and Year of Research	Target Achievement
Pratama A, Ekasari F, Yanti D 2022	Not explained
Irma, Gustina E 2018	Patients are satisfied with the cleanliness and comfort of facilities and services
Herdarwan H, Lukman W, Tri S 2017	Not explained

Of the articles obtained, only one article described the achievement of *PONEK* implementation targets. This was seen in terms of patient satisfaction with *PONEK* services. The other two articles did not explain the achievement of *PONEK* implementation targets. In fact, assessing the output of a program needs to be done to determine the performance and success of a program. So that it can decide whether a program will be continued, improved, or even stopped (35,36).

Performance can be known only if the individual or organization has predetermined success criteria. These success criteria can be specific goals or targets to be achieved. Without these goals or targets, it is impossible to measure the performance of a person or organization because there are no parameters that can be used (37). *PONEK* is a program that aims to reduce MMR and IMR. To see the success of this program, it is necessary to see the achievement of targets that have been made. Some of the achievements of the *PONEK* program can be

seen from the MMR and IMR in the hospital, the scope of services provided and the service response time.

***PONEK* Implementation Barriers**

There are two articles that explain the barriers that exist in the implementation of *PONEK*. In Irma and Gustina's research (2018) mentioned training that has not been running due to constraints on resource persons who become filler education and training activities, as well as communication constraints due to decreased motivation of health workers are obstacles to the implementation of *PONEK* (28). Efforts that can be made to overcome communication barriers due to decreased motivation of health workers are to increase their motivation. Increasing health worker motivation can be done by strengthening management capacity in health services such as management competence, social support in the workplace, treating employees fairly, as well as monitoring and evaluating performance. (38)

Then in the research of Herdarwan et al (2017) mentioned that the existing obstacles are the lack of funding sources, the number and competence of trained personnel is still lacking, the facilities and infrastructure are not adequate, the incubator room is still lacking based on the number of needs, the specifications of the equipment are not in accordance with the needs, limited drugs, cross-sector cooperation is not optimal, there is still a lack of communication with health care facilities from the origin of referrals, specialists cannot be *on site* 24 hours, and the cooperation mechanism between the health department and the hospital with the Integrated Emergency Management System (*SPGDT*) has not run optimally (29). These barriers can be overcome by the availability of adequate funding and its optimal absorption. Hospitals are expected to pay more attention to the barriers that exist in the implementation of *PONEK* and make policies to overcome these barriers so that the implementation of *PONEK* can run better.

CONCLUSION

The implementation of the *PONEK* program has been ongoing, but there are still several things that have not been implemented properly. The lack of *PONEK* team training is the majority of the problems. Other problems include insufficient staffing, inadequate infrastructure, and communication problems with referral facilities. These issues need to be addressed in order to better implement the *PONEK* program in accordance with the guidelines issued by the Indonesian Ministry of Health. Despite the shortcomings in the implementation of *PONEK*, monitoring and evaluation activities have been carried out well. Further research is needed on the output evaluation of *PONEK* implementation to determine the success and target achievement of this program.

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