

Design and Implementation of Standard Operating Procedures (SOP) for Registration Services

Elvira Khaerul Nissa¹, Selvi Mayang Sari^{2*}, Sri Wahyuni³

^{1,2,3} Baubau Polytechnic, Indonesia

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CORRESPONDING AUTHOR

Nama : Selvi Mayang Sari
Address: Jl. Drs.H. La Ode Manarfa Kel. Baadia,
Kec. Murhum Baubau City
E-mail : Selvimayang@gmail.com

A B S T R A C T

Standard Operating Procedures (SOP) are work guidelines used to regulate the implementation of services so that they run effectively, efficiently, and standardized. This research aims to design and implement SOPs for registration services and handling disruptions of the E-Puskesmas system at the Waborobo Health Center in 2026. This research was conducted at the Waborobo Health Center in 2026. The research method used is qualitative research with a phenomenological research design. Data collection techniques are carried out through interviews, observations, and documentation. The research instruments used included interview guidelines, observation checklists, recording tools, laptops, Microsoft Word, Microsoft Visio, and stationery. The research process is carried out through the stages of needs analysis, SOP design design, and implementation in the form of trial and evaluation of SOP for registration services. The results of the study show that the SOP for new patient registration services, old patients, and handling disruptions of the E-Puskesmas system has been successfully designed and implemented well in registration services at the Waborobo Health Center. The results of the trial show that the SOP is able to assist officers in carrying out services more quickly, regularly, and in accordance with the service procedures that have been designed. The conclusion of this study is that the SOP for registration services can be used as a work guideline to support more effective, efficient, and standardized services at the Waborobo Health Center.

INTRODUCTION

Puskesmas is a first-level health service facility that provides promotive, preventive, curative, rehabilitative, and/or palliative services in its work area. In carrying out its role as a first-level health service facility, Puskesmas are required to provide effective, efficient, quality, and sustainable services in accordance with the needs of the community (Permenkes RI No.19, 2024). The development of information technology in the health sector has encouraged digital transformation in the implementation of health services. According to Hapsari et al. (2023), the development of information technology provides opportunities to improve the quality and efficiency of health services through the use of information systems. The implementation of Electronic Medical Records (RME) is a form of digital transformation used to support the implementation of electronic health services. Based on the Regulation of the Minister of Health of the Republic of Indonesia Number 24 of 2022 concerning Medical Records, Electronic Medical Records are medical records made using an electronic system intended for the implementation of medical records (Permenkes RI No. 24, 2022). The implementation of RME aims to improve the quality of health services, provide legal certainty, and ensure the security, confidentiality, integrity, and availability of medical record data. Ayuni et al. (2025), explained that the use of RME can provide benefits in improving patient safety, reducing duplication of examinations, supporting service continuity, and improving the efficiency of health services. In line with these developments, Puskesmas also have an obligation to manage accurate and effective information systems to support decision-making and evaluation of health service performance as stipulated in the Regulation of the Minister of Health of the Republic of Indonesia Number 19 of 2024 concerning Puskesmas (Permenkes RI No.19, 2024).

One form of use of information technology in supporting the implementation of services at Puskesmas is the use of E-Puskesmas. Wahyuni (2023), explained that E-Puskesmas is a web-based Puskesmas management application that is used to support the implementation of services ranging

from patient registration, services in poly units, to online and integrated reporting. The use of this system can help Puskesmas in recording and managing service data in a more structured manner. According to Putri et al. (2025), the use of E-Puskesmas can encourage health services to be easier, more accurate, effective, and more efficient through the use of a digital data recording system. Nabila et al. (2023), also explained that E-Puskesmas can improve the efficiency and effectiveness of health service management, starting from the registration process, medical records, prescribing, making referral letters, to reporting the Puskesmas. In the implementation of these services, patient registration is an initial part that has an important role because it is the entrance for patients to obtain health services. Desfa Anisa et al. (2023), explained that patient registration is the initial process in the implementation of medical records because at that stage the patient's identity and administrative information are recorded. Nabila et al. (2023), stated that the place of registration service is an important part of health services because it is the first place for patients to obtain services and information before receiving services in the next unit. Therefore, the registration process must be carried out quickly, precisely, and in accordance with established procedures. The speed of providing medical record files to the polyclinic is one of the indicators of service quality in medical records. The faster the medical record arrives at the polyclinic, the faster the service will be provided to the patient. (Sari and Muzuh, 2023). Standard Operating Procedures (SOPs) are guidelines that contain standard operational procedures used by an organization to ensure that every choice made, action taken, and processing facilities used by individuals within the organization have been implemented efficiently, reliably, according to standards, and systematically (Saffanah et al. , 2025) .

The implementation of registration services that use electronic systems requires clear work guidelines so that each officer can carry out the service stages uniformly. Standard Operating Procedures (SOP) is a written document that contains the stages of work, instructions, and the mechanism for implementing an activity that is used as a guideline in carrying out work systematically. Subandi et al. (2024), explained that SOPs are work references that contain a series of instructions regarding routine and repetitive activities so that work can be carried out regularly and consistently. Wulandari (2024), stated that SOPs can be used as instruments that guide the implementation of work systematically so as to help organizations achieve goals effectively and efficiently. In addition, Karisma et al. (2024), explained that SOPs function as standards in the implementation of work so that each officer has the same reference in carrying out their duties and responsibilities. In patient registration services, SOPs are needed to regulate the stages of patient admission, data input, creation or search of medical record numbers, and other administrative processes. Ayuningtyas et al. (2025), explained that patient registration SOPs are needed as a reference for officer work so that the registration process can be carried out in a standardized manner and be able to reduce administrative errors. Thus, the existence of SOPs in E-Puskesmas-based registration services is important to ensure that changes from manual procedures to electronic procedures can be carried out uniformly by all officers.

In addition to being a guideline in normal service conditions, SOPs are also needed to regulate the implementation of work when there are problems in the use of information systems. Huda et al. (2026), explained that the management of well-documented work procedures can support work effectiveness, ease of monitoring, and data security in the implementation of digital-based information systems. In the use of electronic systems, technical disturbances such as slow internet networks, applications experiencing errors, and power outages can occur at any time and have the potential to hinder the service process. Subandi et al. (2024), explained that SOPs can be used to reduce errors in the implementation of activities and provide clear work stages to officers. SOP design also needs to pay attention to real conditions in the field so that the resulting procedures can be implemented effectively. Cahyadi (2023), explained that design is an initial framework used to describe the direction, objectives, process structure, and workflow that will be developed so that it can be realized in a concrete and operational form. Meanwhile, implementation is the stage of implementing a design

that has been made into real practice by considering the readiness of human resources, facilities, infrastructure, and field conditions (Cahyadi, 2023). Research by Antameng et al. (2022), shows that the implementation of SOPs in medical record services at health centers can still experience obstacles, so supervision and evaluation are needed so that their implementation is optimal. Taufiq (2019), also shows that SOPs have an important role as a work guideline in improving the performance and accountability of services in health facilities. The results of Nindy et al. (2022), shows that the preparation of SOPs can help regulate the registration process and prevent double registers through identity verification procedures and patient data search. Zarul (2025), also shows that the design and implementation of SOPs in electronic medical record services needs to be accompanied by understanding and training for officers so that SOPs can be applied consistently. This shows that the design of SOP for registration services needs to be adjusted to the use of electronic systems and not only refers to manual service procedures.

Based on a preliminary study conducted at the Waborobo Health Center on February 10, 2026, it is known that the patient registration service has used the E-Puskesmas system as a means of recording and managing patient data. However, until now there is no SOP that specifically regulates outpatient registration services for new patients, old patients, or procedures for handling system disturbances in the use of E-Puskesmas. The SOP used still refers to the SOP for manual registration services that were prepared before the implementation of the E-Puskesmas system so that it has not accommodated changes in the workflow of electronic-based services that are currently implemented. Based on the results of the preliminary study, it is also known that there is no special SOP that regulates the handling of system disturbances, such as slow internet networks, applications experiencing errors, and power outages that can occur during the service process. This condition causes officers to make situational decisions based on their experience and understanding when there are obstacles in the use of E-Puskesmas. This situation has the potential to cause differences in procedures between officers, inconsistencies in the implementation of services, delays in the registration process, and reduce the effectiveness of services to patients. Therefore, the design and implementation of SOPs that specifically regulate the registration of new and old patient registration services, as well as the handling of disruptions to the E-Puskesmas system are needed as a guideline for officers in carrying out services in a uniform, directed, and in accordance with service conditions at the Waborobo Health Center. Based on this description, the author is interested in conducting research with the title "Design and Implementation of Standard Operating Procedures (SOP) for Registration Services at Waborobo Health Center.

METHODS

This research uses a qualitative method with a phenomenological design to understand the conditions and experiences of officers in the implementation of patient registration services using the E-Puskesmas and the handling of system disturbances at the Waborobo Health Center. The research was carried out in March-May 2026 at the Waborobo Health Center, Baubau City. The research subjects consisted of 3 people, consisting of 1 registration officer, 1 medical record officer, and 1 head of the medical record unit, while the object of the research was the E-Puskesmas system and the work environment in the registration and medical record unit. The design process was carried out through the stages of needs analysis, SOP design design, as well as trial and evaluation. Needs analysis was carried out to identify service conditions and SOP needs, then the results were used as the basis for the preparation of SOPs for new patient registration services, old patients, and handling disruptions of the E-Puskesmas system. Data was collected through interviews, observations, and documentation studies, with instruments in the form of interview guidelines, observation checklists, stationery, and recording tools. The design of SOPs and flowcharts was carried out using Microsoft Word and Microsoft Visio, while trials were carried out to determine the suitability of SOPs with the needs and conditions of services at the Waborobo Health Center.

RESULTS & DISCUSSION

Needs Analysis

Based on the results of research at the Waborobo Health Center, it is known that the registration service has used the E-Puskesmas system in the patient service process. However, there is no written SOP that specifically regulates patient registration services and the handling of E-Puskesmas system disorders. In addition, there are still several obstacles such as internet network disruptions, bridging errors with P-Care, and the absence of standard guidelines in handling system disturbances so that services are still carried out based on the habits of each officer. These conditions show that functional and non-functional needs in registration services have not been fully met

According to Fatta (2007) in Dedi Saputra et al. (2023), System needs analysis is the activity of finding user needs for information systems, system needs can be classified into two types, namely functional needs and non-functional needs. Functional needs contain information and what processes must be carried out by the system, while non-functional needs concern system behavior related to performance, operations, system platforms, laws, including politics and culture (Putri, 2022).

The results of this study are in line with the research of Antameng et al. (2022), which stated that the implementation of SOPs in health services has been running but is not optimal because there are still obstacles in the implementation of service procedures. This research is also supported by Taufiq (2019)'s research, which explains that SOPs have an important role as work guidelines in improving the quality and accountability of health services.

Design Design

Based on the results of the needs analysis, the system was then designed to produce a clearer, more systematic flow and SOP for registration services in accordance with the needs of officers at the Waborobo Health Center. The framework and drawings of the design can be seen as follows:

Flowchart of New, Old Patient Services and E-Puskesmas System Disruptions

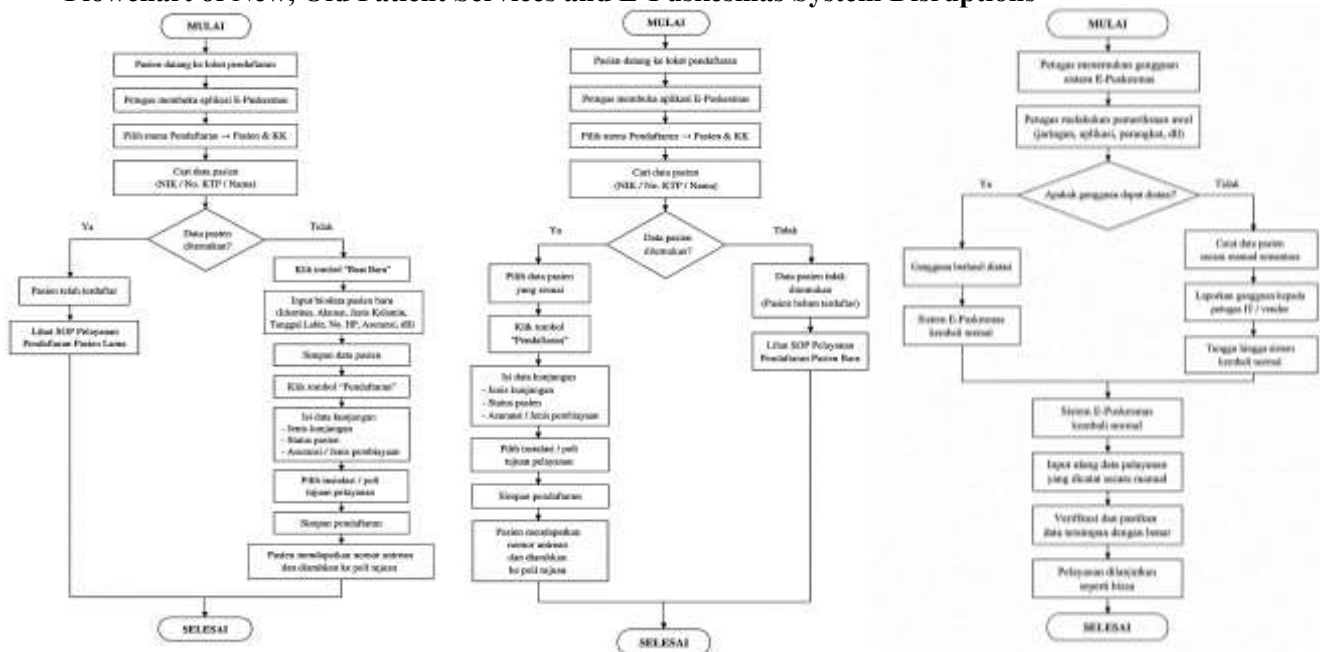


Figure 1. Flowchart of New, Old Patient Services and E-Puskesmas System Disruptions

In Figure 1. above, the flowchart describes the service flow for registering new patients, old patients, and handling disruptions to the E-Puskesmas system. The flow is arranged sequentially starting from the registration process until the service is completed, including alternative steps in the event of a system disruption. With this flowchart, officers can understand the service stages more clearly and systematically.

Draft SOP Design for New, Old Patient Registration Services and E-Puskesmas System Disruptions

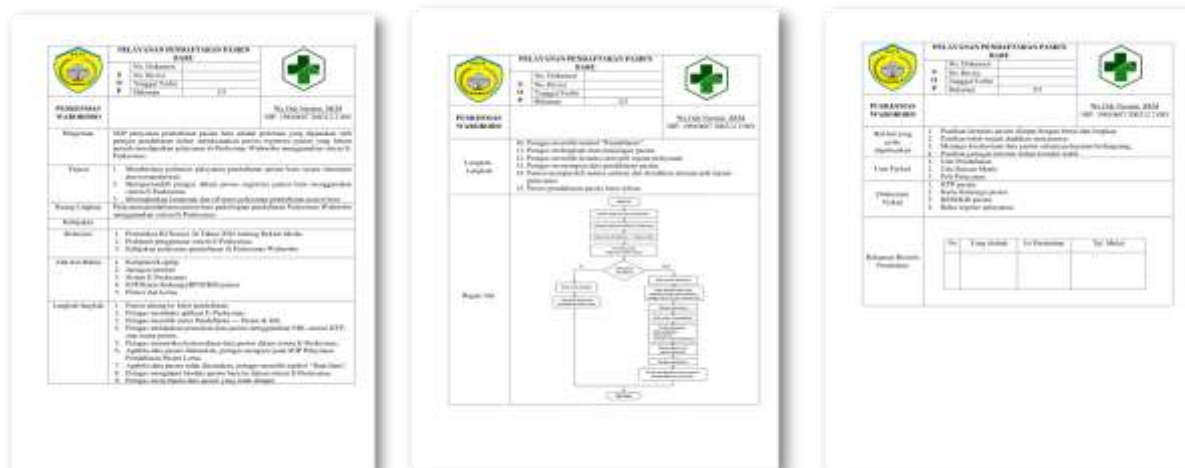


Figure 2. Draft SOP Design for New Patient Registration Services

In Figure 2 above, the draft SOP design for new patient registration services describes the stages of service starting from E-Puskesmas login, patient data input and checking, data storage, visit registration, to patients being directed to the destination polyclinic.

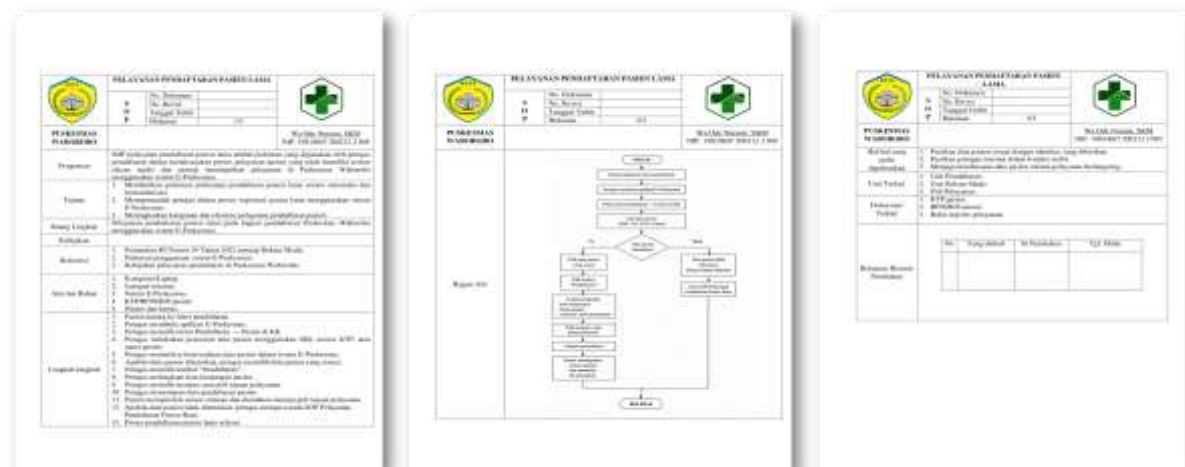


Figure 3. Draft SOP Design for Elderly Patient Registration Services

In Figure 3 above, the draft SOP design for old patient registration services describes the process of searching for patient data using NIK or medical record numbers, identity verification, visit registration, determination of poly destinations, until the service is completed.

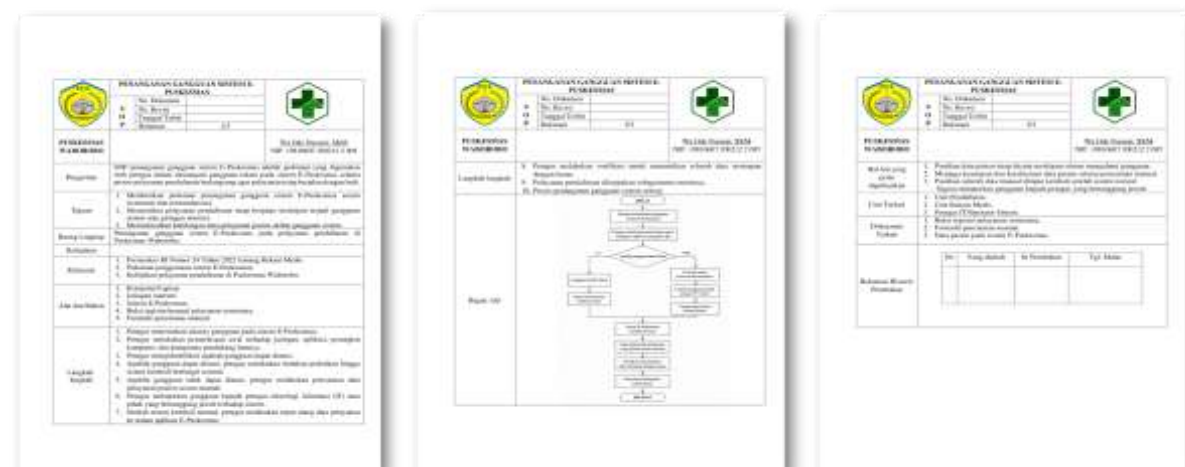


Figure 4. Draft SOP Design for E-Puskesmas System Disruption

In Figure 4 above, the draft SOP design for handling E-Puskesmas system disruptions describes the steps taken by officers when a network or application disruption occurs. The process includes checking for disturbances, reusing the system, manual recording if the system cannot be used, reporting to the operator, and re-input data after the system returns to normal.

Based on the results of the research, the design of the SOP design for registration services at the Waborobo Health Center was carried out through several stages, namely the design, preparation, observation, preparation of draft SOPs, preparation of SOP formats, and preparation of service flowcharts. The SOP designed includes registration services for old patients, new patients, and handling disruptions to the E-Puskesmas system. The preparation of SOPs is carried out by adjusting service conditions in the field so that the service flow becomes clearer, systematic, and easier to understand by registration service officers. In addition, service flowcharts are made to help officers understand the service workflow visually and structured

According to Cahyadi (2023), design is an initial framework used to describe the direction, objectives, and characteristics of a system or procedure so that it can be implemented effectively and efficiently. In addition, the implementation of the design must be systematically prepared so that it can be understood and executed by system users. In addition, according to Subandi et al. (2024), which states that SOP is a written document that contains work procedures and stages of activities systematically as a guideline for the implementation of services.

The results of this study are in line with Taufiq's (2019) research, which states that the systematic preparation of SOPs can help create more targeted service procedures and minimize service errors. This research is also supported by the research of Subandi et al. (2024), which shows that the preparation of SOPs for registration services helps officers in carrying out services more effectively and in accordance with procedures.

Based on the results of the research and theory used, it can be concluded that the design of the SOP design of registration services is very necessary to create services that are more standardized, directed, and easy to apply by officers so that they can help improve the quality of registration services at the Waborobo Health Center.

Trial and Evaluation

After the design is completed, trials and evaluations are carried out to find out whether the designed SOP can run in accordance with the procedures and service needs at the Waborobo Health Center. The results of the trial can be seen in the following table:

Trial SOP for New Patient Registration

Table 1. SOP Test Sheet for New Patient Registration

Yes	Test Scenarios	Test Steps	Expected Results	Actual Results	Status	Notes
1	E-Puskesmas system login	The officer logs in using the account	The system can be used well	The system is successfully logged in and can be used	Successful	System runs normally
2	Input of new patient data	Officers input patient data	Patient data is successfully saved	Patient data is successfully input into the system	Successful	Complete stored patient data
3	Patient data storage	Officers store patient data	Auto-generated medical record number	The patient's medical record number was successfully formed	Successful	No duplicate of patient data found
4	Examination of patient data	Officers re-check patient data	Patient data according to patient identity	Patient data successfully verified	Successful	Patient data according to identity
5	Patient visit registration	The officer determines the patient's destination poly	Patient registration was successfully carried out	Patient visit data is successfully saved	Successful	The service lasts about 1–2 minutes
6	Service Completed	The patient was directed to the poly waiting room	Patients get a service queue number	Patients follow the flow of registration services	Successful	The service runs according to the SOP

Source: Primary Data, 2026

In Table 1 above, the results of the trial SOP for new patient registration show that the six stages tested, ranging from system login, data input, data storage, data checking, visit registration, to service completion, all obtained a successful status and in accordance with the expected results.

Trial SOP for Registration of Old Patients

Table 2. SOP Test Sheet for Registration of Old Patients

Yes	Test Scenarios	Test Steps	Expected Results	Actual Results	Status	Notes
1	E-Puskesmas system login	The officer logs in using the account	The system is well accessible	The system successfully logs in and the main menu appears	Successful	System runs normally
2	Search for old patient data	Officers search patient data using NIK/RM Number	Patient data is displayed according to the patient's identity	Patient data was successfully found according to the patient's identity	Successful	Patient data is quickly found
3	Verify patient data	Officers match patient identities	Patient data according to patient identity	Patient data successfully verified	Successful	No duplicate of patient data found
4	Patient visit registration	Officers register patients	Patient visit registration was successfully carried out	Patient visit data is successfully saved	Successful	Serving time is about 1–2 minutes
5	Determination of the polypurpose	The officer determines the patient's destination poly	Patients are directed according to the destination poly	The patient's destination poly was successfully determined	Successful	The flow of services runs according to the SOP
6	Service Completed	The patient was directed to the poly waiting room	Patients get services according to the flow of services	The patient was directed to the poly waiting room	Successful	The service runs smoothly

Source: Primary Data, 2026

In Table 2 above, the results of the trial SOP for old patient registration show that all six scenarios tested, starting from login, patient data search, verification, visit registration, determination of poly destinations, until the service is completed, obtained successful results and ran according to the SOP flow.

Trial of SOPs for Handling Disruptions of the E-Puskesmas System

Table 3. SOP Test Sheet for Handling E-Puskesmas System Disruptions

Yes	Test Scenarios	Test Steps	Expected Results	Actual Results	Status	Notes
1	Internet network disruption	Officers conduct an internet network check	Officers are able to conduct an initial check of the internet network	The internet network check was successfully carried out	Successful	Temporary internet network disruption can be overcome
2	Disruption of the E-Puskesmas application	The officer relogs in or restarts the system	Reusable System	The system is successfully reusable	Successful	Disruption in the BPJS bridging process can be handled
3	System unusable	The officer performs manual recording	Patient data is still recorded	Patient data is successfully recorded manually	Successful	Using a temporary registration book
4	System outage reporting	Officers report disturbances to operators	System disruption is followed up	The interference was successfully reported to the operator	Successful	Disturbances handled by relevant officers
5	Data re-input	The officer re-	Patient data is	Patient data	Successful	No loss of patient

Yes	Test Scenarios	Test Steps	Expected Results	Actual Results	Status	Notes
		inputs the manual data	stored completely on the system	is successfully re-input into the system		data

Source: Primary Data, 2026

In Table 3 above, the results of the SOP trial for handling E-Puskesmas system disruptions show that the five scenarios tested, namely network disruptions, application disruptions, system unusability, disruption reporting, and data re-input, all obtained a successful status. The results show that the SOP has provided clear and systematic handling steps when there is a disruption in services.

Based on the results of the trial and evaluation conducted at the Waborobo Health Center, it is known that the SOP for registration services for old patients, new patients, and handling of system disruptions of the E-Puskesmas system can be applied well to registration services. The test results show that the SOP is able to assist officers in carrying out services faster, more regularly, and in accordance with the service procedures that have been designed. In addition, the results of the evaluation show that the implementation of SOPs helps improve service efficiency, the accuracy of patient data input, and supports the handling of system disruptions so that services continue to run well.

According to Cahyadi (2023), implementation is the stage of implementing the design into real practice to ensure that the procedures that have been prepared can run according to the goals and conditions of the field. The success of implementation is influenced by the clarity of procedures, the readiness of officers, and the support of service facilities and infrastructure. In addition, according to Subandi et al. (2024), the implementation of SOPs can improve work efficiency, reduce service errors, and help create better work standards.

The results of this study are in line with the research of Zarul (2025), which shows that SOPs that have been designed and tested can be applied well in electronic medical record services and help officers in carrying out service procedures in a more structured manner. This research is also supported by the research of Antameng et al. (2022), who explain that the implementation of SOPs helps improve the implementation of services even though it still requires periodic evaluation.

Based on the results of the research and theory used, it can be concluded that the trial and evaluation of SOP registration services is very important to ensure that the SOP that has been designed can be implemented effectively, help improve service quality, and support more efficient and standardized registration services at the Waborobo Health Center.

CONCLUSION

Based on the results of the research on the design and implementation of Standard Operating Procedures (SOP) for registration services using the E-Puskesmas system at the Waborobo Health Center, which includes needs analysis, design, and testing and evaluation of SOPs, it can be concluded that the design and implementation of the SOP for registration services has been carried out and can be applied as a guideline in the implementation of patient registration services. At the needs analysis stage, it is known that registration services at the Waborobo Health Center have used the E-Puskesmas system, but there is no special SOP that regulates the registration of new patients, old patients, and the handling of system disturbances. In addition, there are still obstacles in the use of the system in the form of network disruptions and errors in the P-Care bridging process that can hinder the implementation of services. At the design stage, SOPs for new patient registration, old patients, and handling of disruptions to the E-Puskesmas system have been produced which are compiled based on the conditions and needs of services at the Waborobo Health Center and are equipped with procedural stages and flowcharts. At the trial and evaluation stage, the SOP that has been designed can be applied by officers and helps provide clearer, systematic, and standardized guidelines in the implementation of registration services. SOPs for handling system disruptions also provide a reference for officers in dealing with obstacles such as network disruptions and system errors. Based on these results, the SOP that has been designed can be used as a guideline in the implementation of registration services at the Waborobo Health Center and needs to be implemented on an ongoing basis, socialized to officers, and periodically monitored and evaluated to keep it in line with the development of the E-Puskesmas system and service needs. In addition, the SOPs designed in this study are dynamic and do not apply permanently, because they can undergo changes or updates along with developments and updates to

the E-Puskesmas application and applicable policies. Therefore, the resulting SOPs need to be adjusted periodically to remain relevant and in accordance with the conditions of the system used.

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