Managing Electronic Prescribing Adoption to Improve Physician Compliance and Service Quality

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ABSTRACT

The transition from manual to electronic prescribing still faces significant challenges, leading to data inconsistencies, potential medical errors, and service inefficiencies. This study aims to analyze the system adoption planning, management's efforts to facilitate doctors, and identify the main obstacles affecting compliance. This research uses a qualitative approach to find that the hospital adopted the electronic prescribing system with a pragmatic and integrated approach, choosing a free platform that is integrated with the national "Satu Sehat" program. The main obstacles found include the system's functional limitations, such as the absence of template and autocorrect features, and difficulty in inputting compounded medication dosages, as well as user factors, namely old habits and resistance to change. A more user-friendly electronic prescribing model was developed that includes features desired by medical personnel, such as repeat order, prescription templates, autocorrect, and automatic labels. The model's trial showed an increase in efficiency, speed, and convenience, which can significantly improve doctor compliance with system usage. This thesis supports the national health digitalization policy and offers a practical solution to improve the quality of service and patient safety.

Keywords*: Change Management, Digital Transformation, Doctor Compliance, Electronic Prescribing.*

INTRODUCTION

Electronic prescriptions, also known as e-prescriptions or e-prescribing, are electronic systems for issuing medical prescriptions that have been widely implemented in healthcare facilities worldwide, including Indonesia. This system was developed to address various errors commonly found in manual prescription writing, such as errors in prescribing, transcription, interpretation, dispensing, administering, and monitoring (Arifin & Dirgahayu, 2017; Farida et al., 2017). These errors often result in long waiting times, incorrect medication administration, and inaccurate dosages, which can lead to adverse patient outcomes. One common problem with manual prescription writing is illegible handwriting, making it difficult for pharmacists to interpret prescriptions and often requiring reconfirmation with physicians, leading to service delays or medication administration errors (Gariépy-Saper & Decarie, 2021; Fattah & Hariyati, 2022; Fenilho & Ilyas, 2023).

Globally, the adoption of Electronic Medical Records (EMR) systems continues to increase. Data from the third global eHealth survey reported a 46% growth in EMR adoption, with more than half of high-income and upper-middle-income countries implementing EMR systems, while adoption rates remain lower in lower-middle-income countries (35%) and low-income countries (around 15%). In Indonesia, health digitalization has been designated as one of the six pillars of national health

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transformation (Atika, 2023; Binsar et al., 2025). Through Minister of Health Regulation Number 24 of 2022, all health facilities are required to implement EMRs by the end of 2023, including the implementation of electronic prescriptions as a mandatory part of clinical documentation (Prajany et al., 2025).

Despite this, hospitals face challenges in the transition from manual to electronic prescribing. Since 2023, full implementation of electronic prescribing has been implemented in outpatient clinics and emergency departments; however, inpatient units, particularly those involving specialist physicians, still rely on manual prescribing (Biruk et al., 2014; Torkman et al., 2025). This practice leads to inconsistencies in prescription documentation, increases the risk of administrative errors and service delays, and can degrade the quality of EMRs. The disparity in technology adoption rates reflects the gap between national health digitalization policies and actual clinical practice, with old habits, limited technical training, and resistance to change, especially among senior physicians, being key factors contributing to non-compliance with electronic prescribing systems.

Although the benefits of e-prescribing, such as reducing prescribing errors, increasing dosage accuracy, accelerating medication dispensing, reducing paper use, and improving coordination between physicians and pharmacists, have been widely documented (Kusumarini et al., 2011; Mohsin-Shaikh et al., 2019), research examining how hospitals in Indonesia plan, manage, and support physicians in adopting e-prescribing remains limited. In particular, there is limited evidence on the specific challenges and compliance issues physicians face, and how e-prescribing models can improve adherence. This gap between policy, system implementation, and actual clinical practice highlights the need for research that focuses on physician experiences and hospital management strategies.

Based on this background, the researcher formulated a research problem to examine how planning was carried out by Permata Keluarga Jababeka Hospital in adopting an electronic prescription system to suit the operational needs of doctors. This study also examines how hospital management organizes and facilitates doctors in the process of implementing electronic prescriptions, the obstacles that affect doctor compliance, and the ways in which the electronic prescription model can improve compliance. In addition, this study aims to identify challenges faced by doctors in utilizing electronic prescriptions, provide information for Permata Keluarga Jababeka Hospital to improve their system, enrich the literature on problems faced by doctors in using electronic prescriptions, and provide guidance for other researchers interested in this topic.

LITERATURE REVIEW

Electronic Prescribing Adoption

Electronic prescribing (e-prescribing) is a digital system that allows healthcare professionals to create and send medication prescriptions directly to pharmacies, eliminating the need for paper-based prescriptions (Aluga et al., 2021; Farghali et al., 2021). This technology helps reduce errors caused by illegible handwriting and misinterpretation of prescriptions, which are common in manual prescribing. E-prescribing also enables features such as dosage verification, drug-interaction checking, and automatic alerts, which contribute to safer medication administration. By streamlining the prescribing process, it reduces patient waiting times, minimizes delays in obtaining medications, and improves overall efficiency in healthcare delivery.

In Indonesia, the implementation of e-prescribing began around 2010–2012 and was initially focused on major urban areas. Over time, more hospitals and clinics have adopted this system as part of efforts to digitalize healthcare services. The main advantages of e-prescribing include improving patient safety, reducing the risk of medication errors, and enhancing cost-effectiveness by preventing unnecessary or incorrect prescriptions (Alipour et al., 2021; Williams et al., 2022). Despite these benefits, challenges remain, such as resistance from healthcare providers, limited technical infrastructure, and insufficient training, especially in smaller hospitals and rural areas. Understanding both the benefits and the obstacles of e-prescribing is essential for optimizing its implementation and achieving better healthcare outcomes.

Theoretical Foundations of Compliance and Technology Adoption

Compliance Theory, introduced by Khan et al. (2024) and Roy (2024), explains individuals' obedience to rules or authority. In legal and organizational contexts, compliance is viewed through two perspectives. The instrumental perspective suggests that individuals comply based on self-interest and cost–benefit considerations, whereas the normative perspective emphasizes internalized norms, moral values, and perceived legitimacy of authority as the basis of compliance (Merhi & Ahluwalia, 2024).

User resistance, a core concept of Innovation Resistance Theory, refers to the refusal to accept innovations that threaten established routines or conflict with existing beliefs (Talwar et al., 2024; Hameed et al., 2025; Kuzmanov, 2025). Resistance may appear as rejection, delay, or opposition. In the context of e-prescribing, resistance is influenced by seven key factors: perceived lack of usefulness, perceived novelty, perceived cost, disruption of, self-efficacy, technological dependence, and privacy concerns.

The Technology Acceptance Model (TAM), adapted from the Theory of Reasoned Action by Liesa-Orús et al. (2023) and Papakostas et al. (2023), explains technology adoption through four constructs: perceived usefulness, perceived ease of use, attitude toward use, and behavioral intention to use. Technologies are more likely to be adopted when users perceive them as useful and easy to operate, leading to positive attitudes and sustained usage intentions (FakhrHosseini et al., 2024; Bano & Siddiqui, 2024).

Change Management in Information Systems

Change management in Information Systems (IS) is increasingly recognized in recent literature as a strategic and structured approach to guide organizations through technology transitions, with a particular emphasis on aligning people, processes, and technological changes to achieve successful implementation outcomes. Research indicates that the success of IS implementation is strongly influenced by how effectively change is managed, rather than merely the technical deployment itself. For example, Aslami and Husni (2023) propose that IS implementation failures often stem from inadequate attention to change processes, so models integrating steps from established frameworks like McKinsey 7-S, Kotter's 8-Step, and Prosci's ADKAR can enhance both process alignment and user adaptation, ultimately supporting implementation goals.

Similarly, studies by Septiana and Aslami (2024) show that change management efforts that emphasize communication, stakeholder engagement, and leadership support help reduce resistance and foster readiness for transformation. Digital transformation contexts also highlight that well-executed change management facilitates adaptation by preparing employees for new ways of working, aligning organizational culture with technological shifts, and ensuring that the transition aligns with strategic objectives. This comprehensive approach goes beyond technical tasks to include human and organizational readiness as key determinants of success.

Moreover, contemporary research on organizational resilience explores how strategic change management based on innovation, digitalization, and adaptive leadership can improve organizational capability to respond to rapid environmental changes. Utami and Ramadhani (2025) argue that digitalization accelerates the need for adaptive leadership and innovative change strategies, which help organizations not only implement new technologies but also sustain performance improvements following adoption.

RESEARCH METHODS

This study adopts a descriptive qualitative research design to explore the implementation of electronic prescribing in a hospital setting. This approach was chosen to gain an in-depth understanding of the experiences, perspectives, and practices of stakeholders regarding the use of electronic prescribing systems. The study aims to identify the planning and implementation processes, challenges, and expectations of the system, as well as to support the development of an effective electronic prescribing prototype. Data were collected using two primary methods. First, in-depth interviews with semi-structured guidelines were conducted to obtain comprehensive information

from key informants. The open-ended questions focused on planning, implementation, challenges encountered, and expectations regarding the electronic prescribing system. Second, direct observation was carried out in relevant hospital units to examine the real-time prescribing process and interactions among stakeholders. Interviews were audio-recorded with participants' consent, and observation sheets were used to systematically document activities.

The population consisted of all staff involved in using electronic prescribing at Permata Keluarga Jababeka Hospital, including physicians, pharmacy personnel, and hospital management. Although the exact number of staff was unknown, purposive sampling was applied to ensure adequate representation of diverse perspectives. The sample included 12 key informants selected intentionally: physicians from various specialties and levels of experience who routinely use electronic prescribing, pharmacy staff who process digital prescriptions, and hospital management, particularly directors and heads of relevant departments involved in planning and decision-making. Informed consent was obtained from all participants prior to interviews and observations to ensure confidentiality and adherence to ethical research principles.

Data analysis was conducted using a qualitative thematic analysis approach. The process began with transcription of audio-recorded interviews, followed by repeated readings to achieve data familiarity. Initial coding was performed to identify important information, and related codes were grouped into themes representing patterns, experiences, and key issues regarding electronic prescribing implementation. Themes were compared across participants to provide a comprehensive understanding. Triangulation was applied by integrating data from interviews, observations, and relevant documentation to enhance credibility and validity. The findings were used to identify the needs for an effective electronic prescribing system and to guide the development of a prototype using Figma. The prototype was then tested in a limited trial with physicians and healthcare staff, focusing on usability, reliability, and efficiency to gather feedback for further improvement. The research activities were carried out from April to December 2024, including proposal preparation, data collection, data analysis, prototype development, and final reporting. This systematic methodological sequence ensures a comprehensive overview of electronic prescribing implementation and provides a solid foundation for developing an effective and efficient system within the hospital.

RESULTS

Planning the Adoption of an Electronic Prescribing System

Interviews with various hospital stakeholders showed that the selection of the electronic prescribing system was based on clear strategic and operational considerations. The main factor was the need for integration with Satu Sehat, the national integrated health information system, which allows data exchange between facilities, improves service coordination, and facilitates tracing patients' medical histories. This integration was considered essential to ensure a smooth transition to electronic prescribing without disrupting existing workflows (Alipour et al., 2021). In addition, the system needed to be easy to use for all medical staff, regardless of their technical skills, and being free of charge was an important advantage that did not increase operational costs.

A two-month trial period, accompanied by intensive training and support from the IT team and nurses, was considered effective in helping doctors adapt to the system. The training materials were comprehensive and included hands-on simulations, allowing doctors to understand the system relatively quickly. However, the short duration and tight schedules made it difficult for some doctors to participate fully (Perera et al., 2025). Therefore, repeated sessions and more flexible scheduling were recommended to ensure all staff could engage effectively. Technical support during the early implementation stage was also viewed as responsive, particularly with the availability of a hotline and IT staff during working hours. Nevertheless, support tended to decrease over time and was limited outside operational hours. Coordination among doctors, nurses, the pharmacy unit, and the IT team generally ran smoothly, although occasional miscommunications occurred,

especially during prescription revisions. Regular and systematic post-implementation evaluations were still needed to improve the process (Prajany et al., 2025).

Management support was perceived positively, providing moral encouragement for doctors to adopt the system. The hospital organized both online and offline training, offered a two-month trial period with intensive assistance, and prepared technical support mechanisms to address operational issues. Hardware infrastructure was sufficient, but network stability required attention through routine maintenance and standard procedures for handling disruptions. These efforts demonstrate a systematic and sustainable approach to implementing electronic prescribing without affecting patient services. Additionally, a needs analysis was conducted through interviews with doctors and pharmacists to identify the system's required features. Expected features include ease of repeat prescriptions, diagnosis-based templates, autocorrect, access to medication history, and prescription change notifications (Roy, 2024). The goal is to reduce barriers and improve user compliance with the system. With this approach, the implementation of electronic prescriptions in hospitals is expected to be more effective, efficient, and compliant with applicable standards.

Management Strategies for Facilitating Doctors in Electronic Prescription Adoption

Based on the interviews, ease of access to the electronic prescribing system, particularly through mobile devices, emerged as a major need for doctors and greatly influenced system compliance. Limited physical presence of attending physicians in the hospital, because they do not practice every day, often causes delays in prescription changes. This condition is reinforced by clinical situations requiring rapid responses, such as new patient consultations, reporting of critical laboratory results, or sudden patient deterioration, which frequently occur outside regular practice hours (Luo et al., 2024). Therefore, mobile access is considered important so that medical instructions can be immediately recorded in the electronic medical record without requiring doctors to come to the hospital.

In addition to accessibility, doctors also emphasized the importance of ease in prescribing routine medications. The feature for copying prescriptions from previous therapies was considered to save time and increase service efficiency, especially for patients with routine follow-ups. The availability of therapy templates based on diagnosis was also considered helpful, as initial treatment could be selected quickly and then adjusted to the patient's condition (Saleh et al., 2016).

From the perspective of system display and function, a clearer, more flexible, and more readable user interface is strongly needed to reduce errors in drug selection. Supporting features such as drug images, autocorrect for drug names, as well as ease and accuracy in entering compounded drug dosages, were also considered important to improve prescribing accuracy. Access to patients' medication history, both during hospitalization and from other physicians, was viewed as crucial to prevent polypharmacy and to determine appropriate continuation of therapy. Furthermore, automatic generation of drug labels and notifications for any prescription changes by doctors was considered necessary to reduce the risk of errors at the pharmacy level and to improve patient safety (Williams et al., 2022). Thus, these needs reflect medical staff expectations for an electronic prescribing system that is not only easily accessible but also efficient, accurate, and well integrated into daily clinical workflows.

Obstacles to Doctors' Adherence to Electronic Prescription Procedures

The interviews also revealed several barriers that affect compliance with the use of electronic prescribing. The main obstacles faced by doctors relate to technical aspects and system features. Slow internet connections often disrupt the prescription input process, while the absence of prescription template features makes rewriting old prescriptions more time-consuming. In addition, doctors experience difficulties in entering complex compounded dosages and the lack of automatic correction features, which means typing errors require rewriting the entire prescription. The habit of writing prescriptions manually also still influences the adoption of electronic prescribing. Some doctors feel

that manual writing is faster and more comfortable, especially when internet disruptions occur. This condition is reinforced by requests from elderly patients who still prefer paper prescriptions. In inpatient services, the habit of writing prescriptions manually is also considered to remain strong, so electronic prescribing has not yet become the primary option (Talwar et al., 2024; Trianesti & Balqiah, 2025).

Age and technological ability also influence the adaptation process to the electronic prescribing system (Toii et al., 2025). Senior doctors tend to require more time to adjust compared to younger doctors. Not all doctors are accustomed to digital systems, so some of them require more intensive and continuous assistance during the transition period. From the perspective of technical support, assistance at the beginning of implementation was considered quite good. However, after the assistance period ended, technical support was not always quickly available, especially outside working hours. If disruptions occur at night or outside operational hours, doctors have to wait for IT assistance, which may potentially hinder service delivery.

In addition, the electronic prescribing system used is considered not yet fully supportive of daily clinical needs. Limitations in features such as searching medication history, lack of rapid notifications for prescription changes, absence of drug stock reminders, and a user interface that is less intuitive and flexible were highlighted by doctors (Bano & Siddiqui, 2024). These findings indicate that although electronic prescribing has been implemented, system development and continuous support are still needed to improve compliance and effectiveness in clinical practice.

Thus, barriers to doctors' compliance in using electronic prescribing originate from both system limitations and user factors. Technical barriers include limited mobile access, difficulties in entering compounded drug dosages, the absence of automatic correction features, unclear and inflexible interfaces, limited access to medication history, and the lack of automatic labeling and prescription change notifications. From the user side, habits of manual prescribing, limited technical training, and resistance to change, especially among senior doctors, also influence compliance. These barriers impact the standardization of services, reduce service efficiency, and increase the risk of medical errors (Byungura et al., 2022).

Electronic Prescription System: Flowchart, Interfaces, and Functionality

At the system design stage, a system design is carried out based on the results of the needs analysis carried out in the previous stage by making a flowchart, and then a system display design is made that makes it easier for users to run the system (Aluga et al., 2021). On the flowchart, the doctor has the authority to add or insert medication based on an existing template. Doctors can choose to use single or combined drugs from several types of drugs. The drug that has been selected can be saved as a template and can be reused. Doctors can also remove the wrong medication if it is not used. Pharmacists have the authority to see the availability of medicines, see prescriptions given by doctors, view invoices, get notifications if there are changes in the input medicines, and print drug labels automatically.

Figure 1 illustrates the process of adding drugs in the electronic prescribing system through three pathways, namely direct prescriptions, compounded drugs, and prescription templates. Doctors can search and select drugs, save them as prescriptions or templates, and delete them if they are no longer needed. This flow indicates that the system is designed to be flexible and efficient while supporting the reuse of prescriptions. Meanwhile, the List of Recipe – Update Notification – Print Preview flow describes the next stage in the pharmacy unit, starting from managing the prescription list, receiving automatic notifications when changes occur, and proceeding to print preview before labels and invoices are printed. This flow plays an important role in ensuring accuracy, efficiency, and safety before medicines are given to patients (Aluga et al., 2021).

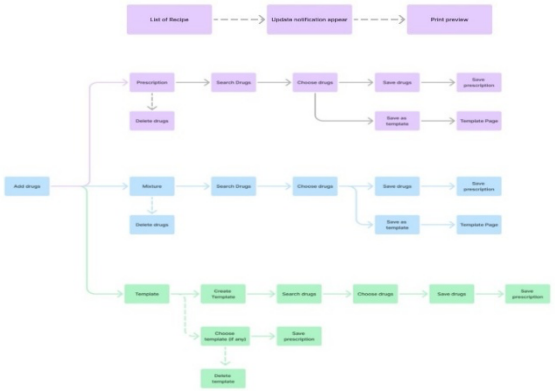
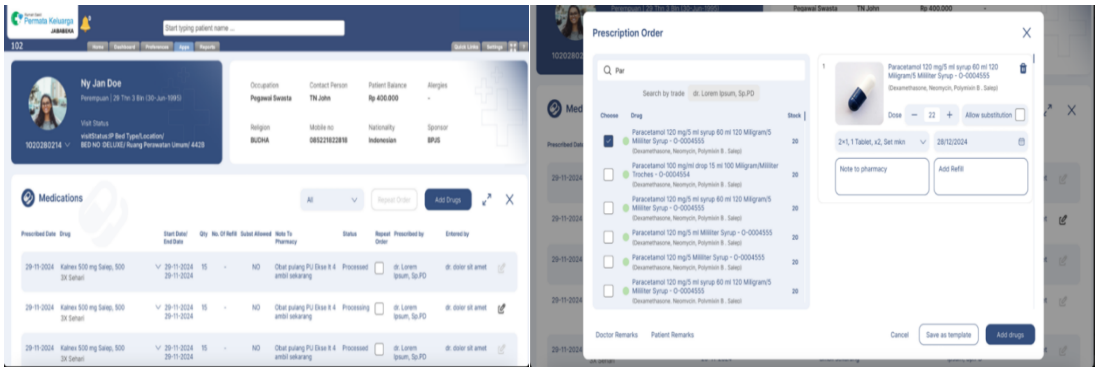


Figure 1. Flowchart Electronic Prescription

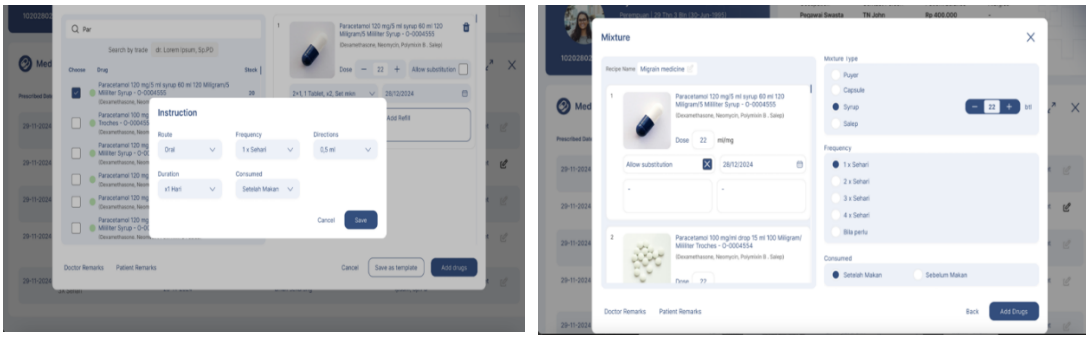
Figure 2(a) shows the patient prescription page in the electronic prescribing system. This page displays the patient's identity and basic information, along with a list of prescribed medications, including drug names, dosage, usage instructions, and prescription status. It also provides features such as adding new drugs and repeating previous prescriptions, which help doctors manage patient therapy more efficiently and accurately. Figure 2(b) shows the single drug input interface in the electronic prescribing system. This page allows doctors to search and select a specific drug, determine the dosage, quantity, and usage instructions, as well as add notes for the pharmacy and allow drug substitution if needed. This interface helps ensure that drug prescriptions are entered clearly, accurately, and efficiently.



(a) (b)

Figure 2. Patient Prescription and Single Drug Input Display

Figure 3(a) show the input of the concocted drug is done by entering the name of the concoction, then the doctor can type the name of the drug and it will appear what drugs are available according to the name of the drug or the content of the drug sought, the dosage of the drug, the method of mixing the drug, allowing the pharmacist to replace it with the same drug if the stock is empty, and adding a special note to the pharmacist or on the label if necessary. Figure 3(b) shows a display of a medication mixture prescription in a digital prescription system. The doctor can select the type of mixture (powder, capsule, syrup, ointment), set the dosage, frequency, and time of administration, and change or delete the medication entered before saving or adding the prescription.



(a) (b)

Figure 3. Display of Instruction on the Use of Drugs and Mixed Drug Prescriptions

Figure 4 shows that pharmacists have a display of a list of prescriptions that must be prepared, instructions for use, prescription price invoices, and available drug stock. Pharmacists will get an alert if there is a stock of drugs that runs out or there is a change in prescription by the doctor. If the drug has been prepared and given to the patient, the pharmacist can input that the status of the prescription has been completed.

Figure 4. Display of Electronic Recipes

Figure 5 shows that the drug labels can be printed automatically by pharmacists by selecting print on existing prescriptions. The program will choose the first printer for the inner medicine and the second printer for the outer medicine.

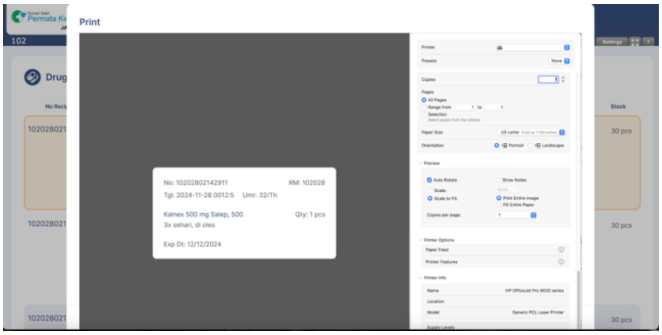


Figure 5. Preview View of the Drug Label Print

Figure 6 shows that electronic prescriptions can also be done using a mobile device by a doctor with a customized face display. The process of entering prescriptions is the same as the desktop version, the doctor chooses a single or mixed type of drug.

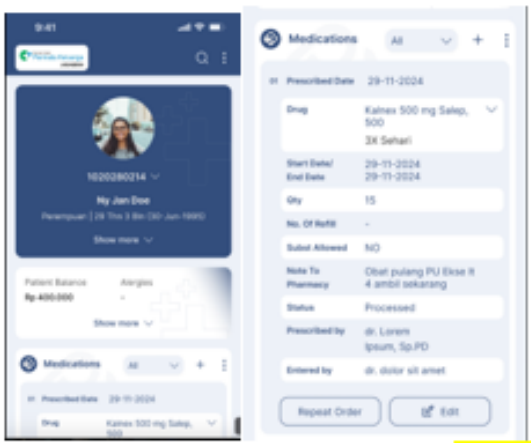


Figure 6. Mobile Version Electronic Prescription Display

Electronic Prescribing Model to Improve Physician Compliance

In the electronic prescribing information system, users access the system through a login page and are then redirected to the dashboard according to their role. Doctors enter the medicines to be redeemed by patients, and the prescriptions are automatically sent to the pharmacy for processing. Doctors can also monitor the progress of prescriptions and modify them as long as they have not been completed. Pharmacists access the pharmacy queue to view patient lists, confirm prescriptions by checking drug availability, and substitute drugs with the same therapeutic effect if needed. After confirmation, the system allows printing of invoices and labels and provides warnings if drug stock runs out or if prescription changes occur. The system includes main features for prescribing by doctors and confirmation by pharmacists, supported by login, printing, and notification functions (Biruk et al., 2014; Binsar et al., 2025).

In the waterfall model system development method, after carrying out the implementation stage, it is followed by the program testing stage. In the trial stage, system testing was carried out on 2 respondents who would be users of the system. Testing the system aims to find out whether the developed system is in accordance with the needs of the user. The system trial was carried out on 2 respondents, namely clinical doctors and pharmacists at the hospital. Each respondent will test the system based on the role of each respondent, namely, doctor and pharmacist users. Test the components of the electronic prescribing information system using a user acceptance test questionnaire.

Table 1. The Result of Each Component of the Doctor's

Feature	Detail	Information
Account	Login page	Appropriate
Drug Page	Patient data	Appropriate
	Prescription data	Appropriate
Drug Input	Single drug	Appropriate
	Concocted medicine	Appropriate
	Drug templates	Appropriate
Medical History	Recipe history	Appropriate
	Recipe repetition	Appropriate

Table 1 shows the results of testing all doctor feature components in the electronic prescription system. All tested components, from the account and login pages, the medication page containing patient and prescription data, the medication input feature for single drugs, compounded medications, and medication templates, to the medical history feature, which includes prescription history and repeat prescriptions, were found to be appropriate. This indicates that all doctoral features functioned properly and met the needs of physician users.

Table 2 indicates that all features tested by pharmacists in the electronic prescription system were deemed appropriate. The account and login functions, medication pages

containing patient and prescription data, input for single and compounded medications, templates, prescription history, and repeat prescriptions all operated correctly, demonstrating that the system meets the functional needs of pharmacist users. Once operational, the system requires maintenance and at least four months of monitoring to ensure optimal performance and to detect potential bugs or errors, including database performance issues. Based on interviews with physicians, the most critical features include the repeat prescription function, diagnosis-based templates, autocorrect, and automatic label generation. Physicians also emphasized the importance of a simple, intuitive, and flexible interface that supports mobile access, as well as drug stock notifications, alerts for dangerous interactions, automatic data saving, and enhanced login security. Prototype trials were considered practical, efficient, and suitable for daily clinical practice, leading physicians to be optimistic that the new system would improve long-term compliance (Budiherwanto, 2025).

Table 2. Trial Assessment Component for Pharmacists

Feature	Detail	Information
Account	Login page	Appropriate
Drug Page	Patient data	Appropriate
	Prescription data	Appropriate
Drug Input	Single drug	Appropriate
	Concocted medicine	Appropriate
	Drug templates	Appropriate
Medical history	Recipe history	Appropriate
	Recipe repetition	Appropriate

The development of this model addresses the research question regarding electronic prescribing systems that can enhance physician compliance, producing a system that is user-friendly and responsive to field needs (Evans, 2016; Cui et al., 2024). The model integrates user needs and feedback into key features such as repeat prescriptions, diagnosis-based therapy templates, compounded dosage input, autocorrect for medication entries, access to medication history, automatic label generation, and prescription change notifications. The design process, which included prescription flowcharts, desktop and mobile interface layouts, and trials with both physicians and pharmacists, demonstrates that the system improves speed, accuracy, and convenience in prescribing. Furthermore, it strengthens physician compliance in accordance with the standards of the Ministry of Health Regulation Number 24 of 2022. User acceptance testing results, indicating that all components met requirements, suggest that this model is feasible for wider implementation and can serve as a reference for developing similar systems in other healthcare facilities.

DISCUSSION

Based on the interviews, the planning conducted by the hospital in adopting the electronic prescribing system was carried out with clear strategic and operational considerations. The system selection was primarily based on its ability to integrate with Satu Sehat, the national integrated health information system, which enables data exchange between health facilities, improves service coordination, and facilitates tracing patients' medical histories. Factors such as ease of access, user-friendly design, availability of technical support, and low operational costs were also crucial in management's decision. This pragmatic planning aligns with previous studies showing that integrated and easily accessible health technologies enhance hospital operational efficiency and medical staff satisfaction (Hasan & Akter, 2022; Barua & Rahman, 2023; Luo et al., 2024).

Regarding organization and facilitation, hospital management conducted both online and offline training, a two-month trial period, and intensive mentoring by IT staff and nurses. The training was considered effective, although its limited duration required repeated sessions and flexible scheduling. Technical support was responsive during early

implementation but decreased outside operational hours. Coordination among doctors, nurses, pharmacists, and IT generally ran smoothly, supporting implementation, though occasional miscommunication occurred. This approach reflects principles of change management in health technology implementation, emphasizing training, mentoring, and continuous evaluation (Byungura et al., 2022; Asghar et al., 2022; Cui et al., 2024).

The main barriers affecting physician compliance involved both technical and user factors. Technical obstacles included slow internet connections, limited mobile access, the absence of prescription templates, difficulty entering compounded doses, and an inflexible interface, all impacting efficiency and accuracy. User-related barriers included habitual manual prescribing, resistance from senior doctors, and limited digital literacy. Similar findings were reported by Graf et al. (2023) and Toii et al. (2025), who noted that user resistance and system limitations affect electronic prescribing adoption.

The electronic prescribing model developed at the hospital was tailored to operational needs, featuring repeat order functions, diagnosis-based therapy templates, autocorrect, access to medication history, automatic label generation, prescription change notifications, and mobile support. The system was found to be more efficient, accurate, and user-friendly, enhancing physician compliance. User acceptance tests confirmed that all features functioned properly, supporting previous studies indicating that user-centered, adaptive system designs improve compliance in clinical practice (Budiherwanto, 2025; Trianesti & Balqiah, 2025). Thus, the implementation of electronic prescribing at Permata Keluarga Jababeka Hospital demonstrates careful planning, layered facilitation, and user-driven system development that effectively increases physician compliance, although ongoing support and periodic evaluations remain necessary to sustain effectiveness.

CONCLUSION

This study found that the adoption planning of the electronic prescribing system at Permata Keluarga Jababeka Hospital was carried out using a pragmatic approach, namely selecting a free platform and adapting it to the hospital's resources and conditions. This approach reflects flexible planning, but it also implies the need for improving system quality to ensure better sustainability and performance in the future.

In terms of organization and facilitation, management has provided support through training and mentoring for doctors and pharmacists during the implementation process. This finding indicates the institution's commitment to the success of the system; however, continuous evaluation and assistance are still needed to address the obstacles that arise in practice. The main obstacles identified are the limited functionality of the system, particularly related to data input via mobile devices, template creation, drug history search, dose input, and drug stock alerts. To overcome these limitations, a more user-friendly electronic prescribing model was developed, focusing on ease of data input, which is expected to increase doctors' compliance in using the system.

Based on these findings, it is suggested that the electronic prescribing system be improved according to user needs and supported by technical training and assistance so that users can handle minor system problems independently. The adaptation process for doctors and pharmacists should also follow existing technological acceptance theories. For future research, it is recommended to examine the effectiveness of the new system in improving doctors' compliance and in increasing the speed of electronic prescribing by doctors and pharmacists.

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improving writing quality, correcting language errors, and verifying originality of the manuscript. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the publication.

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