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Designing A Prototype of Observation and Intervention Applications for Intensive Care Unit (ICU) Patients at Sultan Imanuddin Pangkalan Bun Hospital

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ABSTRACT

Background: The use of Information Technology (IT) for storing and retrieving patient data has advantages over paper, but faces challenges such as infrastructure problems, information technology, lack of needs assessment, cultural barriers, and high costs for software, hardware, and data exchange standards.

Purpose: Research was conducted to explore the design of a prototype observation and intervention application for Intensive Care Unit (ICU) patients at Sultan Imanuddin Pangkalan Bun Regional Hospital**.**

Methods: The design of this research is qualitative research with a phenomenological approach with the focus of the research directed at exploring the design of a prototype application for observation and intervention for Intensive Care Unit (ICU) patients at Sultan Imanuddin Hospital Pangkalan Bun. Apart from that, with a qualitative approach. The informants in this research were the owners or people in charge of the clinic, a total of 6 (six) people with triangulation of sources.

Results: The observation and intervention application in the ICU at Sultan Imanuddin Hospital aims to improve communication, reporting and quality of patient service, as well as increasing data accuracy. The main obstacles are network problems and adjusting application usage. Technical solutions, better network infrastructure, medical staff training and hospital support are needed. The main goal is reporting efficiency in emergency situations and rapid response to changes in the condition of ICU patients.

Conclusion: The Sultan Imanuddin Hospital ICU application aims to improve patient communication and reporting, but there are network problems and adjustments to the use of the application that need to be addressed.

Keywords: applications observation and intervention, ICU, patient

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BACKGROUND

Information technology (IT) offers many advantages compared to using paper for storing and retrieving patient data. However, to implement Electronic Medical Records, several challenges are encountered, including infrastructure and structure problems, information technology problems, lack of need assessment, cultural problems, high costs of software, hardware and data exchange standards (Quraesi, 2012).

Medical records according to Minister of Health Regulation no. 269/MENKES/PER/III/2008 is a file containing notes or documents about patients, examinations, treatment, procedures and other services provided to patients during the treatment period. Medical records consist of several service units.

Good medical records are a manifestation of effective and efficient patient care. Good medical records can also be described as a reflection of good clinical practice in a hospital, good administrative processes for patient care, and also as an assessment point in hospital accreditation. Medical records are useful in several ways, namely related to the patient treatment process, improving the quality of hospital services, education and training, determining funding for services, health statistics, as well as proof in legal, disciplinary and professional ethical matters (Kristianto, 2015).

Filling out medical records is one of the obligations of doctors. Based on the Medical Practice Law, namely Minister of Health Regulation No.269/Menkes/Per/III/2008 article 46 paragraph 1, states that every doctor or dentist is obliged to keep medical records when carrying out medical practice. The contents of medical records, namely documentation, include identity, examination procedures, treatment, action procedures and various services received by the patient. Medical records consist of many forms, including administrative forms containing patient identity data, initial assessment forms, integrated record forms, pre-surgical evaluation forms, discharge patient resumes, and also various other formulas, including surgical report forms for patients undergoing surgical procedures (Ministry of Health of the Republic of Indonesia, 2018). The use of medical records is not only related to patient care, but can also be used as evidence of law enforcement, medical and dental discipline and enforcement of dental ethics, in accordance with the provisions of article 13 paragraph 1 letter c of Minister of Health Regulation No. 269/MENKES/PER/ III/2008. Therefore, complete medical records are very important. Initially medical record documents were made conventionally on pieces of paper, but entering the 21st century where information and communication technology has become more advanced, electronic medical records have been created which are more practical and efficient (Sudjana, 2015).

Incomplete medical records can affect services, insurance claims, and can cause accumulation of medical record files. Apart from that, there are many impacts resulting from incomplete medical records and the existence of points in the accreditation assessment related to medical records. The completeness of medical records in a hospital is also part of the assessment of hospital accreditation standards (Widyaningrum, 2013; Kristianto, 2015).

The use of Electronic Medical Records (EMR) to improve documentation and quality of medical records is one implementation of developments in information and communication technology in the health sector (Qureshi QA, et al. 2012). It is hoped that this can be an efficiency solution in the field of health services, considering that the distribution of health human resources in Indonesia is still limited. However, according to the Technology Acceptance Model theory, acceptance and use are influenced by various external and internal factors from technology users (Marangunić and Granić, 2015; Rahimi et al., 2018).

According to Blumenthal et al (2007) the use of electronic medical records is important in improving patient safety. Electronic medical records make it easier for staff to

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access patient information, thus helping in patient treatment, for example: selecting drugs, knowing allergy history, and avoiding giving the same type of drug repeatedly (Dinevski et al, 2013).

According to a study conducted by Joukes et al (2018), implementation of a structured and standardized electronic medical record is associated with an 8.5% reduction in time that should be dedicated to patient care, and an 8.3% increase in time for medical record data documentation. Therefore, in this case, an electronic medical record design is needed that is simple and efficient, but can still maintain the filling of medical records systematically, completely and quickly (Joukes et al, 2018).

Based on the background above, researchers are interested in conducting research with the theme of designing a prototype for observation and intervention applications for Intensive Care Unit (ICU) patients at Sultan Imanuddin Pangkalan Bun Regional Hospital.

OBJECTIVE

In general, this research was conducted to explore the design of a prototype observation and intervention application for Intensive Care Unit (ICU) patients at Sultan Imanuddin Pangkalan Bun Regional Hospital.

METHODS

Research design is a strategy to achieve the research objectives that have been set and is used as a guide or guide for researchers throughout the research process. Judging from the type of data, the research approach used in this research is a qualitative approach. What is meant by qualitative research is research that intends to understand the phenomena experienced by research subjects holistically, and by means of descriptions in the form of words and language, in a special natural context and by utilizing various scientific methods (Moleong, 2012). The design of this research is qualitative research with a phenomenological approach with the research focus directed at exploring the design of a prototype for observation and intervention applications for Intensive Care Unit (ICU) patients at Sultan Imanuddin Pangkalan Bun Regional Hospital. Triangulation. Apart from that, with a qualitative approach it is hoped that the situations and problems faced in these activities can be revealed.

RESULTS

Objectives of Designing a Prototype of Observation and Intervention Applications for Intensive Care Unit (ICU) Patients at Sultan Imanuddin Pangkalan Bun Hospital

The observation and intervention application has a very good purpose because it helps nurses communicate directly with DPJP doctors. The aim of this application is to make it easier for nurses to carry out intense communication with doctors. This is one of the important aspects of ICU patient care, where fast and efficient communication with doctors can save a patient's life. This goal also reflects efforts to improve continuity of patient care in the ICU, as expressed by the Informant. With this application, the reporting process will become more efficient and accurate.

The aim of this application is to enable better service. By providing doctors with more complete and accurate information, nurses can provide better care to ICU patients. This goal is in line with efforts to improve the quality of patient care in hospitals. The purpose of this application is very useful because it can help in observation in the ICU. This indicates that this application is designed to support nurses in monitoring patient conditions better. Good observation is essential in the care of ICU patients who are often in critical condition. This application is to make data more accurate by supporting written reports with videos. This will

allow doctors to directly see the patient's condition, even if they cannot visit the patient in person. This goal reflects an effort to provide physicians with more complete and accurate information for better decision making.

Observation and intervention applications are very good and necessary for direct reporting to DPJP. This shows that one of the main goals of this application is to facilitate more efficient communication and reporting between nurses and doctors responsible for ICU patients. This application is a relatively easy alternative and is needed to speed up service to patients. This shows that the application is designed to be a more efficient solution than existing reporting methods.

Several informants discussed the importance of data security and patient confidentiality in the context of this application. This application is very necessary because communication methods via social media such as WhatsApp can have higher security risks. This goal emphasizes the importance of protecting patient medical data and maintaining the confidentiality of patient information in the application. It may take some getting used to at first, but over time, you will become more comfortable and accustomed to using this app. This underscores the importance of providing initial support and training to users so they can adopt the application well.

One of the main objectives of this application is to make reporting to the DPJP easier. This reflects efforts to improve communication and collaboration between nurses and physicians caring for ICU patients. Although this app is helpful, there are possible network related issues that may affect its use. This shows that technical infrastructure and network reliability also need to be considered in designing this application.

The application of observation and intervention for ICU patients at Sultan Imanuddin Hospital Pangkalan Bun can be a very valuable solution in managing patients who require intensive care. Several objectives for designing this application prototype can be found in previous literature.

Prototype Design Process for Observation and Intervention Applications for Intensive Care Unit (ICU) Patients at Sultan Imanuddin Pangkalan Bun Hospital

ICU patients usually experience hemodynamic changes (related to blood circulation) and changes in general condition. This illustrates the importance of early understanding of the ICU patient's condition, which is often variable and requires close monitoring. The reporting process to the doctor is carried out via telephone or instant messaging applications such as WhatsApp (WA). They also mentioned that using WA often takes a long time. This reflects pre-existing reporting methods that may be inefficient.

Several informants emphasized that reporting is especially done when there is a significant change in the patient's condition. This includes changes in vital signs and the patient's overall condition. They also mentioned that reports are usually required when PDJB doctors need information to provide interventions such as administering fluids. Non-routine conditions or adverse changes in the patient's condition are always reported. This indicates that the ICU nursing team is aware of the importance of documenting significant changes in the patient's condition to ensure appropriate medical treatment.

Based on the results of this interview, it can be concluded that the process of reporting and monitoring ICU patients has previously focused on structured and scheduled reporting, but remained responsive to significant changes in the patient's condition. This reporting process involves various important aspects of ICU patient care, including monitoring vital signs and the use of various equipment and medications.

The prototype observation and intervention application being designed at RSUD Sultan Imanuddin Pangkalan Bun appears aimed at increasing the efficiency of the reporting

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process, facilitating faster reporting in emergency situations, and enabling better communication between nurses and doctors. This application is also expected to improve documentation and accuracy of information about patient conditions, which is very important in the care of ICU patients.

Constraints in Designing a Prototype of Observation and Intervention Applications for Intensive Care Unit (ICU) Patients at Sultan Imanuddin Hospital, Pangkalan Bun

The majority of informants emphasized that one of the main obstacles they faced was network problems. They suggested that this app might be experiencing network issues because it is a new app. Network constraints can cause slow application response, difficulty accessing patient data, or even complete failure in application use. Therefore, there needs to be an adequate technical solution to overcome this network problem.

One of the obstacles you may face is adjusting to using new applications. This reflects changes in work culture and maintenance practices that may be required when transitioning to the use of new applications. This kind of change requires adequate training and support to ensure that medical staff can use the application effectively. Obstacles can arise if doctors do not open or do not support the use of the application. This can hinder necessary reporting about the patient's condition. Therefore, it is important to obtain active support from all parties involved in patient care, including physicians.

In essence, the obstacles highlighted in the interview results relate to technical aspects (network), adjustments to use, and support from medical parties. To overcome these obstacles, coordinated efforts need to be undertaken, such as improving network infrastructure, providing adequate training for medical staff, and communicating the benefits of the application to physicians and other care teams. In addition, there needs to be a commitment from the hospital to support the implementation of this application to ensure that its potential benefits can be realized in the daily practice of caring for ICU patients.

Several informants stated that they felt able to learn and collaborate in using this application. This positive attitude is important because it shows that medical staff are willing to adapt to new technologies that will help them in the care of ICU patients. One possible problem is network problems. However, he expressed hope that this issue could be improved in the future. This shows awareness of the importance of a strong network infrastructure in supporting these applications.

If network problems arise, they will look for other alternatives, such as using the telephone. This attitude shows flexibility in overcoming obstacles that may arise in using the application. And if network problems occur, they will always coordinate with management and related parties. This is a wise action, because collaboration and good communication between various parties can help overcome obstacles that arise.

Overall, the interview results showed a positive and open attitude towards obstacles that might occur in designing this application prototype. This attitude is important for the successful implementation of applications in hospitals. With a spirit of learning, cooperation, and readiness to look for alternative solutions, medical staff at Sultan Imanuddin Hospital Pangkalan Bun can face and overcome obstacles more effectively, ensuring that this application can provide maximum benefits in the care of ICU patients.

DISCUSSION

Objectives of Designing a Prototype of Observation and Intervention Applications for Intensive Care Unit (ICU) Patients at Sultan Imanuddin Pangkalan Bun Hospital

Increasing patient monitoring through observation and intervention applications creates a system that is able to optimize real-time patient monitoring by focusing on the main goal of the ICU, namely monitoring patient vital parameters, such as blood pressure, heart

rate, and other aspects that are crucial for monitoring. clinical. Research conducted by Tawalbeh and Ahmad (2019) really emphasizes how important it is to carry out close and regular monitoring of ICU patients, in order to detect significant clinical changes more quickly and efficiently.

In addition, observation and intervention applications also provide increased efficiency by simplifying the patient reporting and documentation process, shifting administrative work roles from medical personnel in the ICU, so that they can concentrate more on direct care. Choi et al. (2020) in their research highlighted the importance of efficiency in ICU management, as well as how information systems can make a significant contribution in improving overall patient management.

Not only that, the observation and intervention application also facilitates Rapid Intervention by providing the necessary tools for the medical team to respond immediately to changes in the patient's condition, in line with the principles of ICU care which emphasize the urgency of intervention when there are signs of deterioration. The study by Arabi et al. (2019) strongly underscore the importance of timely care in the ICU, and how these applications can be an integral part of achieving that goal.

Observation and intervention applications also play a role in improving patient safety by reducing the risk of human error in the medical documentation and reporting process. The study by Rothschild et al. (2005) emphasizes the importance of using information systems to reduce medical errors, so that patient safety can be guaranteed. Thus, this application is an innovation that supports significant improvements in better and safer management and care of ICU patients.

Improving Data Management in the ICU Context is becoming increasingly important, as research conducted by Bai et al. (2018). They highlight how efficient data management in the ICU has a major impact. The introduced observation and intervention applications can play an important role in the process of collecting, storing and managing patient data in a more structured way. Moreover, this opens up opportunities to improve data analysis and more precise and informed decision making in the care of ICU patients which is very meaningful.

Observation and intervention applications not only provide more efficient Data Management, but also enable Better Patient Information Delivery. This is an important aspect in the world of ICU, because good communication between the medical team, patient and family has a very significant impact. By utilizing this application, information relating to the patient's condition and the procedures carried out can be conveyed more clearly and comprehensively to the patient and family. Research conducted by Lee et al. (2020) also underscores the importance of effective communication with ICU patients in improving care.
Apart from that, observation and intervention applications also stimulate the development of more sophisticated non-invasive monitoring technology. This illustrates how these applications have the potential to leverage sensor technology and related devices to monitor patients in real-time with greater precision. Through this approach, ICU patient care can be further improved. Research by Devarakonda et al. (2020) describe developments in monitoring technology that are driving significant changes in ICU patient care.

The application of observations and interventions also contributes to the development of better Treatment Protocols based on available patient data. In the view of Vincent et al. (2018), the use of patient data is an important foundation in directing better clinical decision making. With this application, the collected data can be used to develop and implement more effective treatment protocols, tailored to individual patient needs and responses. Thus, this

application becomes an integral part of efforts to realize more personalized and efficient ICU care.

According to researchers, designing a prototype for observation and intervention applications for Intensive Care Unit (ICU) patients has great potential in improving the quality of ICU care at Sultan Imanuddin Pangkalan Bun Regional Hospital. The research results highlight several important aspects that need to be considered in developing this application, such as improving patient data management, improving communication with patients and families, developing non-invasive monitoring technology, and using data for better clinical decision making. This application is expected to help medical personnel carry out more accurate, efficient and responsive monitoring of changes in patient conditions, which can ultimately improve patient safety and treatment outcomes.

In addition, the research results also emphasize that the development of this application must be based on strict ethical and patient privacy principles and take into account applicable regulations and policies. The use of information technology in healthcare is a positive step, but also requires special attention in terms of data security and compliance with applicable regulations. Therefore, the implementation of observation and intervention applications in ICU patients must be supported by adequate training and careful planning to ensure their effective and safe use in this sensitive healthcare context.

By implementing a prototype observation and intervention application for ICU patients, Sultan Imanuddin Pangkalan Bun Hospital can improve patient care, reduce the workload of medical personnel, facilitate rapid intervention, and increase patient safety. In developing this application, it was important to adhere to guidelines and best practices in ICU management and ensure the availability of adequate resources.

Prototype Design Process for Observation and Intervention Applications for Intensive Care Unit (ICU) Patients at Sultan Imanuddin Pangkalan Bun Hospital

Needs Analysis is the initial stage in the process of designing observation and intervention applications for ICU patients, where these steps begin by carrying out an in-depth analysis of the needs required by users, including the medical team and ICU patients. To achieve a deeper understanding of these needs, steps such as interviews with medical staff, understanding the ICU workflow, and identifying problems that need to be addressed will be carried out in a comprehensive manner. This best practice is in line with findings from research conducted by Kim et al. (2017), who underline that properly understanding user needs is a key step in designing successful healthcare applications.

After the analysis stage is complete, the next step is Prototyping and Testing. At this stage, an initial prototype of the application will be developed, so that the development team and ICU users have the opportunity to provide valuable input and feedback. Frequent testing and active user involvement are key to ensuring that the application truly meets their practical needs. In this context, findings from research by Maguire (2001) provide guidance that the iterative development cycle, which includes prototyping and testing, is a proven effective method in designing successful healthcare applications.

Then, special attention needs to be paid to Security and Privacy aspects in developing this application. This includes compliance with applicable regulations, such as the Health Insurance Portability and Accountability Act (HIPAA) in the United States or similar regulations in other countries that regulate the privacy and security of patient data. In this context, research conducted by Deldar et al. (2012) consider the importance of maintaining data security in health information systems.

User Involvement is also a key element in this design process, and the end users, namely the ICU medical team, must be actively involved in making decisions regarding the

design and functionality of the application throughout the entire development process. Research by Kushniruk et al. (2016) specifically highlighted the importance of user involvement in the development of health information systems. Finally, once the application has been developed, a comprehensive training plan needs to be drawn up for the medical staff who will use it. Application implementation must be done carefully, and continuous monitoring must be carried out to ensure that the application operates well in real situations. All of these steps are integral to the process of designing effective and successful observation and intervention applications in the ICU environment.

The importance of User-Friendly Interface Design is highly emphasized in the results of research conducted by Raza et al. (2018). The research shows that a design that is not only intuitive but also easy to use will make a major contribution to increasing application adoption by ICU medical staff at Sultan Imanuddin Hospital Pangkalan Bun. In addition, such a design is also able to reduce potential input errors, while speeding up response to much-needed patients.

Observation and Intervention Applications need to have Integration capabilities with Existing Health Systems, such as electronic medical records and patient management systems that already exist in hospitals. Adler-Milstein et al. (2017) in their research emphasized the importance of health system integration in the context of patient care, which will contribute greatly to optimizing care services at Sultan Imanuddin Pangkalan Bun Regional Hospital.

This application is also designed for use on mobile technology such as tablets or smartphones, following recommendations from research by Chiang et al. (2016). This will bring significant benefits in the efficiency of medical staff's time as well as improving the quality of care provided to patients, along with advances in technology in the world of health. Data Collection and Advanced Analytics are important features of this application, which will facilitate better clinical decision making. The study by Foronda et al. (2016) highlight the importance of utilizing data in patient care, which will improve the quality of services and ensure patients receive care that meets their needs. No less important, this application must also consider advanced data security, such as data encryption and strict access control settings. Data security is something that cannot be ignored in the world of healthcare, so further protective measures must be implemented to ensure high patient data security. Thus, this application not only makes it easier to manage health care, but also prioritizes data security and integrity, which are crucial in the context of medical services.

According to researchers, designing a prototype of an observation and intervention application for Intensive Care Unit (ICU) patients is a critical step in improving patient care at Sultan Imanuddin Pangkalan Bun Hospital. The research results show that the design of these applications must be carried out with a focus on the needs of users, including medical staff and ICU patients, as well as considering aspects such as user-friendly interface design, integration with existing health systems, use of mobile technology, and careful data security. The importance of data collection and analysis in supporting better clinical decision making was also highlighted. Additionally, the use of prototyping and user-involved testing is a critical step in ensuring that these applications truly meet practical needs in the complex ICU care environment. The implementation of this application must also receive special attention in training and careful monitoring.

In addition, the research results also underscore the importance of developing comprehensive and integrated healthcare applications in improving efficiency, accuracy and patient safety. The use of information technology and mobile applications in health care is a growing trend and has great potential to improve the quality of health services. However, the design and development of such applications must consider data security requirements and

applicable regulations to protect patient information. In the context of RSUD Sultan Imanuddin Pangkalan Bun, the design of a prototype application for observation and intervention for ICU patients must reflect best practices in modern health care management, prioritizing patient safety and quality of care as the main focus.

Constraints in Designing a Prototype of Observation and Intervention Applications for Intensive Care Unit (ICU) Patients at Sultan Imanuddin Hospital, Pangkalan Bun

The Complexity of the ICU Environment illustrates that the ICU is a dynamic and complicated environment, where there are various variables that must be monitored and taken into account in an effort to care for patients optimally. To achieve this, the application prototype must have the ability to combine and integrate data from multiple sources, including data from patient monitors, medical devices, and electronic medical records. Findings in research by Gong et al. (2018) firmly emphasize the importance of dealing with the complexity of care in the ICU and the need for efficiency in data management in this context.

Furthermore, the importance of Real-time Data Availability cannot be ignored. The application must have the ability to provide medical staff with accurate and up-to-date patient data. This is key in supporting rapid decision making and timely intervention. The study conducted by Khan et al. (2017) clearly highlight how crucial real-time access to data is in the context of ICU care.

Apart from that, data security issues are also a main focus. These applications must adhere to very strict data security standards, especially when the data involved is highly sensitive medical information. Data security is one of the key aspects of healthcare, and data security breaches can have serious impacts on patients and healthcare institutions. Best practices in securing data in healthcare applications have been studied and published by Schreiber et al. (2019).

Training and User Adoption barriers must also be addressed. Complexity or difficulty in accessing the application may be a barrier to adoption by ICU medical staff. Therefore, it is necessary to find best practices in the training and education of medical staff to use these healthcare applications. Research conducted by Islam et al. (2019) have identified solutions that can facilitate smoother user training and adoption in healthcare settings.

Compliance with Regulations and Policies is very important in the design stage of healthcare applications. In an effort to ensure compliance, healthcare apps must comply with applicable regulations, such as those governing patient privacy, such as GDPR in Europe or HIPAA in the United States. The legal and ethical implications associated with the use of information technology in health care also need to be a major concern, as has been emphasized in research by Al-Hajj et al. (2019).

Patient Engagement has become an important focus in modern healthcare. These healthcare applications can play a role in facilitating more effective communication between patients and the ICU care team. The active role of patients in their own care is becoming increasingly relevant, as discussed in research by Ammenwerth et al. (2020).

System Interoperability is another important factor. Health care applications must have the ability to integrate with various other systems in the hospital, such as hospital management systems and medical information systems. Interoperability is a key element that greatly influences the successful implementation of healthcare applications. The challenges in achieving interoperability in the context of electronic healthcare systems have been discussed in research by Bagayoko et al. (2011).

Limited resources at Sultan Imanuddin Pangkalan Bun Hospital need to be taken into account. Limitations such as budget, IT personnel, and information technology infrastructure

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can be inhibiting factors in implementing healthcare applications. Such obstacles have been identified and studied in research by Kruse et al. (2016), which describes several obstacles that hospitals often face in adopting health information technology.

According to researchers, designing a prototype for an observation and intervention application for Intensive Care Unit (ICU) patients at Sultan Imanuddin Pangkalan Bun Regional Hospital is a complex and challenging task. Associated obstacles include the complexity of the ICU environment, real-time data availability, strict data security, applicable regulations and policies, patient engagement, system interoperability, and resource limitations. Therefore, the design of this application must take a holistic approach that considers these various factors so that the application can function effectively and meet the care needs of ICU patients.

Additionally, the research results also show that healthcare applications should be designed with a focus on end users, including medical staff and patients. User involvement in the entire design process, adequate training, and a user-friendly approach are essential for the success of these applications. The adoption of information technology in healthcare is a positive step, but it needs to be done carefully to ensure that technical, ethical, data security and regulatory challenges are properly considered. Thus, designing observation and intervention applications for ICU patients must combine technology with a deep understanding of the clinical and ethical aspects of patient care.

CONCLUSION

The application of observation and intervention for ICU patients at Sultan Imanuddin Hospital Pangkalan Bun has a very good aim, namely improving communication between DPJP nurses and doctors, making reporting easier, improving service quality, and supporting better patient observation. This application also aims to improve data accuracy with video support for better decision making. Additionally, the importance of data security and patient confidentiality in this application is also highlighted. Although there may be initial adjustments and potential network constraints, use of this application is expected to provide significant benefits in the management of ICU patients.

ICU patients experience frequent hemodynamic changes and general conditions, requiring close monitoring. Reporting to doctors is done via telephone or WhatsApp, which sometimes takes time. Informants emphasized the importance of reporting when significant changes occur in the patient's condition, including vital signs, for appropriate intervention. This application prototype aims to increase reporting efficiency, facilitate rapid reporting in emergencies, and increase the accuracy of ICU patient documentation.

The majority of informants faced major obstacles related to network problems in using this new application. These obstacles include slow application response, difficulty accessing data, and potential usage failures. Technical solutions are required to resolve these network issues. Apart from that, adjusting to the use of new applications and support from doctors are other obstacles that need to be overcome. In conclusion, coordinated efforts are needed, including improving network infrastructure, training of medical staff, and support from hospitals to overcome these obstacles. A positive attitude and readiness to seek alternative solutions is important for the successful implementation of this application.

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CONFLICTS OF INTEREST

There are no relevant conflicts of interest that could affect the integrity and objectivity of this research regarding the design of a prototype observation and intervention application for Intensive Care Unit (ICU) patients at Sultan Imanuddin Hospital Pangkalan Bun. The authors and research team are fully committed to conducting this research with high integrity and transparency, without the involvement of personal or commercial interests that could interfere with the research results or their interpretation.

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