Research Article

ANALYSIS OF DIGITALIZED ICU PATIENT INITIAL ASSESSMENT FORMS TO SUPPORT ELECTRONIC MEDICAL RECORDS

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Abstract

Digitizing initial assessments is an effort to support electronic medical records. One private hospital in Palembang has been using an electronic medical record system since 2024. However, in its implementation, several forms are still manually filled out. The purpose of this study was to determine the process of digitizing initial assessment forms and the factors that cause the informed consent form to still be filled out manually. The study was conducted using a descriptive qualitative method using data collection through interview and observation techniques. For ICU patients, the initial assessment form is created when the patient enters the ICU room. The initial assessment needs to be digitized because the nurse who performs the initial assessment still uses a wet signature when filling in the initial assessment, so it needs to be scanned and uploaded to the SIMRS. From the data of 20 ICU patient medical record numbers viewed from SIMRS between July and December 2024, the results showed that the three types of initial assessment forms had been successfully digitized but not optimally. The checklist sheet that was created showed that for one patient's medical record number, the initial assessment form was still not digitized. This happened because when the scanning process was carried out, the informed consent form was not found in the medical record file folder taken from the ICU room.

Keywords: Digitalization, Initial Assessment, ICU patients

Background

Technological advances in the healthcare field have developed rapidly over the past few decades. One example of this progress is the use of Electronic Medical Records (EMR), which has replaced traditional paper-based record systems. EMR is a healthcare information system that manages patient medical records in digital format. This system not only improves the efficiency of healthcare services but also supports accuracy, continuity, and security of patient data. In the context of care provided in the Intensive Care Unit (ICU), a unit that treats patients with critical conditions, the use of EMR is especially important because there is a high demand for precise, fast, and accurate medical data. One important component of filling out EMR is the initial patient assessment form, which serves as the basis for planning nursing care and future medical interventions (Alhur, 2023).

This form usually includes demographic data, initial clinical status, medical history, initial observations, and clinical assessment scales such as GCS, APACHE, or SOFA. In the ICU, initial assessment is very important because patients are in very unstable conditions and require quick and accurate monitoring and intervention. The accuracy of this form directly affects the quality of documentation and the overall medical decision-making process (Carayon et al., 2011).

However, in practice, filling out the initial assessment form manually in the ICU often faces various challenges. These include limited time, high workload for healthcare staff, the risk of losing or damaging paper records, and a lack of standardization in documentation among medical personnel. This can not only affect the effectiveness of patient care but also increase the risk of medical errors and lower the quality of care provided to patients. In this context, digitizing the initial assessment form becomes a solution that can significantly improve the medical documentation system(Derecho et al., 2024).

Nurses, as the frontline healthcare providers, play a key role in conducting and recording initial assessment results. Therefore,

nurses' perceptions of the EMR system, particularly regarding its ease of use and usefulness in supporting clinical decision-making, are critical factors in the successful implementation of this system. Positive perceptions will encourage consistent and optimal use of the EMR, while negative perceptions can hinder its utilization, potentially reducing work efficiency and documentation quality (Jedwab et al., 2022).

Accurate and timely nursing documentation is a crucial component of nursing care delivery, particularly for critically ill patients who require rapid and complex treatment. Electronic Medical Records (EMRs) exist as a digital solution to improve the efficiency, accuracy, and accessibility of medical information (Foba et al., 2024). One key feature of EMRs is the completion of initial patient assessments, which plays a crucial role in determining the priority of nursing actions. However, the success of EMR implementation is determined not only by the sophistication of the system but also by the perceptions of users, particularly nurses, regarding its usefulness and ease of use. These perceptions can influence the adoption rate and consistency of system use (Almarzouqi et al., 2022).

On the other hand, the use of EMR in the context of critical care patient assessment still faces various challenges, such as complex user interfaces, the need for additional training, and mismatches between system features and nurses' clinical workflows (Pasham, 2023). Therefore, it is crucial to evaluate nurses' perceptions from the early stages of system implementation to identify barriers and areas for improvement. This study is a pilot study aimed at determining nurses' perceptions of the usefulness and ease of use of EMR in completing initial critical care patient assessments. This study is called a pilot study because it was conducted in the early stages of EMR implementation and has not been widely researched, particularly in the context of initial critical care patient assessments. This study aims to obtain an initial overview of nurses' perceptions as a basis for system development and broader follow-up research (Derecho et al., 2024).

This study aims to analyze the digitalization of the initial assessment form of icu patients in supporting electronic medical records in critical patients as a step in assessing the effectiveness of the system and user readiness in the clinical environment. The results of this study are expected to be the basis for the development and improvement of the EMR system and in accordance with the needs of nursing practice in critical units.

Method

This study employed a qualitative approach grounded in the philosophy of postpositivism, aiming to deeply understand naturally occurring phenomena. In this method, the researcher serves as the primary instrument, enabling direct involvement in the data collection and analysis process. This approach was chosen to contextually and deeply explore the complexity of the phenomenon under study.

The focus of this study was to gain a broader understanding of the digitization process of initial assessment forms for critically ill patients, specifically in supporting the implementation of Electronic Medical Records (EMR) in a private hospital in Palembang City. To achieve this goal, the researcher collected data through direct observation, in-depth interviews, and documentation. Observations were conducted by observing the process of digitizing initial assessment forms for critically ill patients directly in the field, assisted by an observation sheet (checklist) to ensure completeness and systematization of observations.

Meanwhile, interviews were conducted with several informants who played a direct role in the implementation and use of the system to obtain subjective, contextual, and in-depth information. Through this method, the research results are expected to provide a comprehensive overview of digitalization practices in completing initial assessment forms, including the challenges, benefits, and potential for integration into hospital EMR systems. Furthermore, this study aims to highlight the efficiency, accuracy, and impact on the quality of medical documentation produced through this digitalization process.

Results and Discussion

The private hospital where this study was conducted is one of the healthcare institutions that has strived to improve the quality of healthcare services by implementing electronic medical records (EMR). Digitization is an effort undertaken by hospitals to support current electronic medical records. Digitization is the process of converting manual documents into digital ones using a scanner. For ICU patients, the informed consent digitization process is carried out upon discharge after hospitalization.

The digitization process is not limited to scanning but also involves uploading documents for storage in the hospital system. The stages of

digitizing informed consent for ICU patients by medical records officers, as directly observed in the field, are as follows: Every day, medical records officers bring folders containing hardcopy patient medical records back to each treatment room. Medical records officers organize the files by assembling them.

Forms, including the organized informed consent, are scanned using a scanner. For ICU patients, daily care notes are scanned separately using a mobile phone camera. After the scanning process is complete, the scanned files will automatically appear on the computer and be renamed (change the file name) with the format Name_Medical Record Number_Form Type. Then, the upload process is carried out to the Hospital's SIMRS according to the patient's medical record number and discharge date. Medical records officers also input the diagnosis and disease code into the inpatient statistics spreadsheet based on the medical record number and discharge date. Informed consent and other scanned and uploaded hardcopy forms are immediately stored in a storage cabinet according to the discharge date.

In this study, the initial assessment forms examined consisted of an initial assessment, an elderly assessment, and a fall risk assessment. Based on the ICU patient analysis conducted by the researcher in December 2024, 20 medical record numbers were obtained from the patient's discharge spreadsheet. These numbers were then analyzed by entering the ICU patient's medical record number into the Hospital Management Information System (SIMRS). The following results were obtained:

Assessment Type	Total Digitized	Prosentase
Initial Assessment	20	100%
Elderly Assessment	15	75%
Fall Risk Assessmen	18	90%

From the observation data, it can be seen that three types of initial assessments in ICU patients have not been optimally digitized. This can be seen when checking one ICU patient's medical record number listed in the SIMRS, there is one type of ICU patient assessment form that is not there and is therefore said not to be digitized. This can occur because there are several obstacles encountered during the digitization process that cause the initial assessment form not to be digitized, such as the initial assessment form being scattered in the treatment room or the fall risk assessment form being separated from the medical record file folder so it is not in the patient's folder to be scanned. In the era of electronic-based medical records, initial assessments must be optimally digitized because the assessment can be a crucial factor before further patient care.

Discussion

The findings of this study indicate that the digitization of informed consent and initial assessment forms for ICU patients in a private hospital has not yet been implemented optimally. Although the initial assessment form reached 100% digitization, other forms such as the elderly assessment (75%) and fall risk assessment (90%) still showed incomplete digitization. This gap illustrates that despite the hospital's efforts to adopt electronic medical records (EMR), the process remains vulnerable to technical and procedural challenges.

The incompleteness of digitized forms is largely due to operational barriers, such as forms being misplaced in treatment rooms, incomplete organization of medical records prior to scanning, or separation of certain forms from the main folder. These findings align with previous studies which emphasize that the success of EMR implementation is highly dependent on the accuracy of documentation, workflow standardization, and staff compliance in maintaining complete patient records (Al-Kahtani et al., 2022; Kruse et al., 2018).

From a clinical perspective, incomplete digitization of initial assessments may have significant implications for patient safety and continuity of care. The assessment forms—particularly elderly assessment and fall risk assessment—serve as critical tools in identifying potential complications and preventing adverse events in ICU patients. Missing or unavailable data in the hospital's management information system (SIMRS) may hinder healthcare providers from accessing complete information, thereby potentially affecting the quality of clinical decision-making.

Another important finding is the reliance on manual scanning and uploading by medical record officers. This process introduces a high risk of human error and delays in data entry, which are consistent with the barriers identified in other hospitals undergoing digital transformation (Mehraeen et al., 2020). Therefore, while the hospital has shown progress in adopting digital medical records, the process still requires strengthening through automation, quality control, and monitoring mechanisms.

To address these challenges, hospitals need to implement several strategies: (1) Standardizing workflows and ensuring all forms are consolidated in the patient's medical folder before scanning; (2) Training medical records officers to enhance compliance and accuracy in digitization; (3) Utilizing integrated scanning devices or mobile health applications that directly connect to SIMRS, thereby reducing the risk of lost or misplaced files; and (4) Conducting regular audits to monitor the completeness of digitized patient assessments.

In summary, this study underscores that while digitization of medical records has been implemented, there are still gaps in execution that must be addressed to achieve optimal utilization of EMR in ICU settings. Ensuring complete digitization of all initial assessment forms is crucial, as these documents are fundamental in guiding comprehensive and safe patient care.

Suggestion

Based on the results of this study, it is recommended that hospitals standardize workflows so that each patient assessment form, including initial assessments, geriatric assessments, and fall risk assessments, can be properly consolidated before the scanning process. Furthermore, increasing the capacity of medical records staff through ongoing training and supervision is crucial to ensure accuracy and compliance throughout the digitization process, from file organization, scanning, file naming, and uploading to the Hospital Management Information System (SIMRS).

The implementation of more integrated technology, such as the use of scanners directly connected to the SIMRS or mobile applications with automatic upload features, should also be considered to minimize human error and document loss. To ensure data quality, hospitals need to implement a routine audit mechanism for the completeness of digitized assessment forms and take corrective action if any data is missing.

Furthermore, hospital management is expected to develop policies that emphasize the mandatory completeness of initial assessment digitization as a crucial component of patient safety, service quality, and compliance with accreditation standards. Further research is also recommended to examine the impact of completeness of assessment digitization on clinical outcomes, decision-making efficiency, and healthcare worker satisfaction in the use of electronic medical records in the ICU.

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