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Research Article

ASSESSMENT OF FALL-RISK IDENTIFICATION COMPLIANCE AND DEVELOPMENT OF A PATIENT MONITORING DASHBOARD AT MUHAMMADIYAH LAMONGAN HOSPITAL

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Abstract:

Background: Fall prevention is a core component of hospital patient safety. Visual identification of patients at risk of falling supports staff awareness, but compliance with identification procedures may be inconsistent.

Objective: To describe compliance with fall-risk identification among hospitalized patients at Muhammadiyah Lamongan Hospital and the development of a monitoring dashboard as a quality-improvement support tool. Methods: A descriptive observational field study was conducted during an internship in the hospital's Quality Improvement and Patient Safety (PMKP) Unit. Direct observation, document review, and discussions with staff were reported. Thirty hospitalized patients already identified as being at risk of falling were observed. Descriptive analysis was combined with Urgency, Seriousness, and Growth (USG) prioritization, fishbone analysis, and the use of Lean Management and Plan–Do–Check–Act (PDCA) concepts to develop a dashboard.

Results: Of 30 patients identified as being at risk of falling, 24 (80%) had the required fall-risk identifier and six (20%) did not. A dashboard was developed to display patient identifiers, ward location, risk category, and identifier status. The manuscript does not provide post-implementation compliance data or a formal usability evaluation.

Conclusion: The observation identified a 20% gap in compliance with fall-risk identification in the observed sample. The dashboard was developed as a monitoring aid; its effect on compliance and fall incidence remains to be evaluated.

Keywords: dashboard; fall prevention; hospital; patient safety; quality improvement

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1. INTRODUCTION

Patient safety is a fundamental dimension of healthcare quality and requires health facilities to identify hazards, reduce preventable harm, and continuously improve care processes. In hospitals, falls are an important safety concern because they may result in physical injury, prolonged hospitalization, additional treatment, and loss of patient confidence. International patient-safety initiatives emphasize systematic risk assessment and prevention strategies throughout the care pathway (World Health Organization [WHO], 2021a, 2021b).

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Fall prevention requires more than an initial risk assessment. Risk status must be communicated clearly to the multidisciplinary team and translated into appropriate precautions. Visual identifiers can support staff recognition of patients who require additional attention. However, visual identifiers are only one component of a comprehensive fall-prevention programme and should complement individualized assessment, environmental safety, patient and family education, and appropriate supervision (Agency for Healthcare Research and Quality [AHRQ], 2023).

Previous work has examined fall-risk assessment, documentation, supervision, and hospital fall-prevention initiatives. Sugianto et al. (2022) addressed completeness of fall-risk management documentation, while Diana et al. (2022) examined supervision and nurses' fall-prevention assessment practices. Research on hospital fall-risk algorithms also demonstrates the importance of structured patient-level information for identifying risk (Nakanishi et al., 2021). These studies support the relevance of reliable assessment and communication, although their approaches and outcomes differ from the operational monitoring focus of the present report.

During an internship in the Quality Improvement and Patient Safety (PMKP) Unit at Muhammadiyah Lamongan Hospital, an observational review identified patients who had been classified as being at risk of falling but did not display the required fall-risk identifier. Of 30 observed patients, six (20%) did not have the identifier. This finding indicates a gap between the hospital procedure and the observed practice. The study describes the development of a dashboard intended to consolidate patient location, risk category, and identifier status to facilitate monitoring.

The practical contribution of this work is the description of a local quality-improvement response linking a compliance observation with a dashboard prototype. The available data do not establish that the dashboard improved compliance or reduced falls. Therefore, this article aimed to describe observed compliance with fall-risk identification among hospitalized patients and the development of a patient monitoring dashboard at Muhammadiyah Lamongan Hospital.

2. MATERIAL AND METHODS

2.1 Research Design

This work used a descriptive observational field-study approach conducted as part of an internship in the PMKP Unit. It combined a one-time descriptive observation of fall-risk identifier compliance with a quality-improvement problem analysis and the development of a dashboard prototype.

2.2 Research Population and Sample

The observation unit comprised 30 hospitalized patients who had already been identified through routine hospital screening procedures as being at risk of falling. Participants were selected via a consecutive sampling approach from eligible inpatients across medical and surgical wards during the designated observation period. Inclusion criteria encompassed patients with documented high fall-risk status who were actively admitted and capable of completing the monitoring cycle, while patients transferred out or discharged prematurely were excluded.

2.3 Research Setting and Time

The activity took place in the PMKP Unit and inpatient areas of Muhammadiyah Lamongan Hospital, East Java, Indonesia, during an internship. The study identifies the primary observation data as 2026.

2.4 Research Procedures

The reported procedure comprised the following stages: (1) observing hospitalized patients who had been identified as being at risk of falling; (2) comparing the presence of fall-risk identifiers with the hospital's applicable standard operating procedure (SOP); (3) reviewing supporting documents and discussing the process with relevant staff; (4) prioritizing the identified problem using the Urgency, Seriousness, and Growth (USG) approach; (5) exploring potential causes using a fishbone framework covering human, method, material, and environmental factors; and (6) developing a monitoring-dashboard concept informed by Lean Management and the Plan–Do–Check–Act (PDCA) cycle.

The dashboard was described as displaying patient identity, medical record number, ward/room location, fall-risk category, and whether the fall-risk identifier had been installed. The dashboard was intended to support routine surveillance and evaluation by healthcare staff.

2.5 Data Collection Techniques

Data collection was reported to include direct observation of fall-risk identifier installation, review of supporting hospital documents, and discussions with staff involved in patient-safety activities.

2.6 Research Instruments

The study identifies the hospital SOP, direct observation, document review, USG prioritization, and fishbone analysis as the main tools used. The dashboard fields described in the manuscript were patient identity, medical record number, room/ward, risk category, and identifier status.

2.7 Data Analysis

Compliance was summarized descriptively as the number and percentage of observed patients with and without the required identifier. The reported percentages were calculated using the 30 observed patients as the denominator. Problem prioritization was described using USG, and potential causes were grouped through fishbone analysis. Lean Management and PDCA were used as conceptual approaches to formulate the dashboard improvement.

2.8 Scope and/or Limitations of the Research Used

The findings are limited to 30 patients observed in one hospital and cannot be generalized to all inpatients or other facilities. The sampling method and observation period are not specified. Compliance was assessed descriptively, with no reported inter-rater reliability or repeated observations. Most importantly, no post-dashboard compliance measurement, usability assessment, staff feedback instrument, or fall-incidence outcome was reported. The dashboard's effectiveness therefore remains untested.

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2.9 Ethical Considerations

This quality improvement and observational activity was conducted in strict adherence to institutional ethical standards and hospital governance protocols for clinical quality assessment. Prior to data collection and dashboard implementation, administrative authorization and ethical clearance were obtained from the relevant committee of Muhammadiyah Lamongan Hospital. To uphold patient privacy and confidentiality, all patient-identifying data were thoroughly anonymized and processed securely solely for internal quality improvement and fall-risk monitoring purposes.

3. RESULTS AND DISCUSSION

3.1. Result

The observation covered 30 hospitalized patients who had been identified as being at risk of falling. As shown in Table 1, 24 patients (80%) had the required fall-risk identifier, whereas six patients (20%) did not. Thus, one in five observed patients did not display the identifier at the time of observation.

Table 1. Compliance With Fall-Risk Identifier Installation (n = 30)

Observed status	Patients, n	Percentage
Identifier installed	24	80.0
Identifier not installed	6	20.0
Total	30	100.0

The problem analysis identified incomplete compliance as the priority issue. The manuscript attributes the gap to several potential process factors: staff adherence to the SOP, limitations in monitoring and evaluation, insufficient visual reminders, and the absence of an integrated monitoring tool. These factors were reported as findings from the USG and fishbone analysis; numerical USG scores and a detailed fishbone diagram were not included in the source manuscript.

A monitoring dashboard was developed to consolidate patient-level information relevant to fall-risk surveillance. Figure 1 presents the dashboard layout from the source manuscript after removal of direct patient identifiers. The displayed fields include patient/record identification, room or ward, risk category, and the status of fall-risk identifier installation. The manuscript does not report a formal usability test, user-acceptance assessment, or post-implementation compliance outcome.

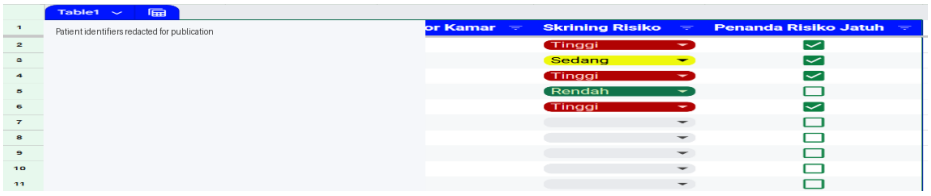


Figure 1. De-identified view of the Fall-Risk Patient Monitoring Dashboard

3.2 Discussion

The principal quantitative finding was that 80% of the 30 observed patients had the required fall-risk identifier, while 20% did not. Although most observed patients were compliant, the remaining gap is relevant because a missing visual identifier may reduce the

visibility of a patient's risk status during routine care. Nevertheless, the presence of an identifier should not be treated as a complete fall-prevention intervention; it is one communication aid within a broader, individualized prevention plan.

The finding is consistent with the broader emphasis on reliable fall-risk assessment and documentation in patient-safety programmes. Sugianto et al. (2022) examined completeness of fall-risk management documentation, highlighting the importance of consistent recording and implementation. Diana et al. (2022) discussed the role of supervision and nursing competence in fall-prevention assessment. The current report adds a local operational observation and a dashboard design intended to make the status of risk identifiers easier to monitor. Direct numerical comparison is not appropriate because the populations, measures, and study designs are not shown to be equivalent.

The dashboard's proposed value lies in bringing selected patient information into a consolidated view. Such a display may support situational awareness, prioritization of follow-up, and audit of whether required identifiers are present. However, the source manuscript only documents dashboard development and its intended functions. It does not provide evidence that the dashboard was used consistently, that staff response times improved, or that compliance increased after implementation. Claims of effectiveness must therefore be avoided until a prospective evaluation is completed.

The USG and fishbone approaches provide a structured way to move from an observed service gap to a proposed improvement. The reported contributing factors span individual practice and system design, suggesting that education alone may not be sufficient. A sustainable approach would combine clear SOP expectations, availability of identifiers, role assignment, routine ward-level checks, feedback to staff, and a reliable information display. The PDCA cycle could then be used to test the dashboard on a small scale, evaluate process measures, and refine the system before wider adoption.

Patient confidentiality is especially important for a dashboard containing names and medical record numbers. The original screenshot includes identifiable patient information. Such details must not appear in a public article or in materials shared beyond authorized clinical personnel.

3.2.1 Implications

For hospital quality teams, the observation suggests that fall-risk identifier compliance should be included in routine patient-safety audits, with clear responsibility for checking and correcting omissions. A dashboard may serve as an adjunct to existing clinical systems if it is updated reliably, access is role-based, and staff are trained in its use.

3.2.2 Research contribution

This report contributes a practical example of using a local compliance observation to inform the development of a digital monitoring aid in a hospital PMKP setting. It links a measurable process gap (20% of observed patients without the identifier) with a proposed dashboard that displays risk category and identifier status. The contribution is the description of a quality-improvement design, not proof of improved compliance or reduced falls.

3.2.3 Limitations

The study included only 30 patients from one hospital, and the sampling method, observation dates, ward coverage, and observation checklist were not reported. The study provides no post-intervention comparison, no dashboard usability or acceptability data,

and no patient-fall incidence data. Potential observer bias and the lack of inter-rater reliability assessment may also affect the compliance estimate.

3.2.4 Suggestions

The hospital should evaluate the dashboard through a documented pilot using pre-specified process indicators, such as identifier compliance, time from risk classification to identifier installation, frequency of dashboard updates, and completion of follow-up actions. A before-and-after design with clearly defined observation periods and comparable samples would provide stronger evidence. Future evaluations should also assess usability, staff acceptance, data accuracy, access control, and any unintended workflow burden. The observation checklist, USG matrix, fishbone analysis, and relevant SOP should be retained as supporting quality-improvement documentation.

4. CONCLUSION

Among 30 hospitalized patients identified as being at risk of falling at Muhammadiyah Lamongan Hospital, 24 (80%) had the required fall-risk identifier and six (20%) did not. A patient monitoring dashboard was developed to display patient location, fall-risk category, and identifier status as a support for monitoring and evaluation.

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6. AUTHOR CONTRIBUTIONS STATEMENT

FYP: Conceptualization, methodology, investigation, data curation, formal analysis, and writing—original draft. FU: Supervision, methodology review, and writing—review and editing. SBL: Supervision, resources, and writing—review and editing.

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