

REDUCING INPATIENT FALLS – A MULTIDISCIPLINARY APPROACH TO IMPROVE PATIENT SAFETY

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Background and Objectives

In 2024, hospital inpatient falls showed an increasing trend and were higher than in previous years. This translated to an alarming rate of 1.38 falls per 1,000 bed days. Most critically, 2024 also included the occurrence of sentinel fall events. This highlighted critical gaps in fall risk assessment accuracy, staff compliance with preventive measures, and patient engagement in safety practices. Addressing these gaps became essential to reduce preventable harm and improve patient safety. Hence, the objective of this project is to reduce inpatient falls by 15% and eliminate sentinel events through improving fall risk assessment accuracy, strengthening staff compliance, and enhancing patient and family involvement in fall prevention.

Methods

Driven systematically by the iterative Plan-Do-Study-Act (PDSA) cycle, the project successfully executed the following comprehensive, targeted interventions:

Policy Review & Team Formalisation

The formalised FIT team commenced conducting exhaustive root cause analyses for all documented falls, prompting a comprehensive review and subsequent update of institutional safety policies.

Clinical Workflow Redesign

A highly integrated, multidisciplinary workflow was formally established specifically for moderate-risk Morse Fall Scale (MFS) patients. This redesign seamlessly incorporated nurse-led postural blood pressure monitoring, comprehensive medical officer delirium status assessments utilising the 4AT scoring system, and rigorous pharmacist-led medication reviews to identify fall-inducing pharmacological agents.

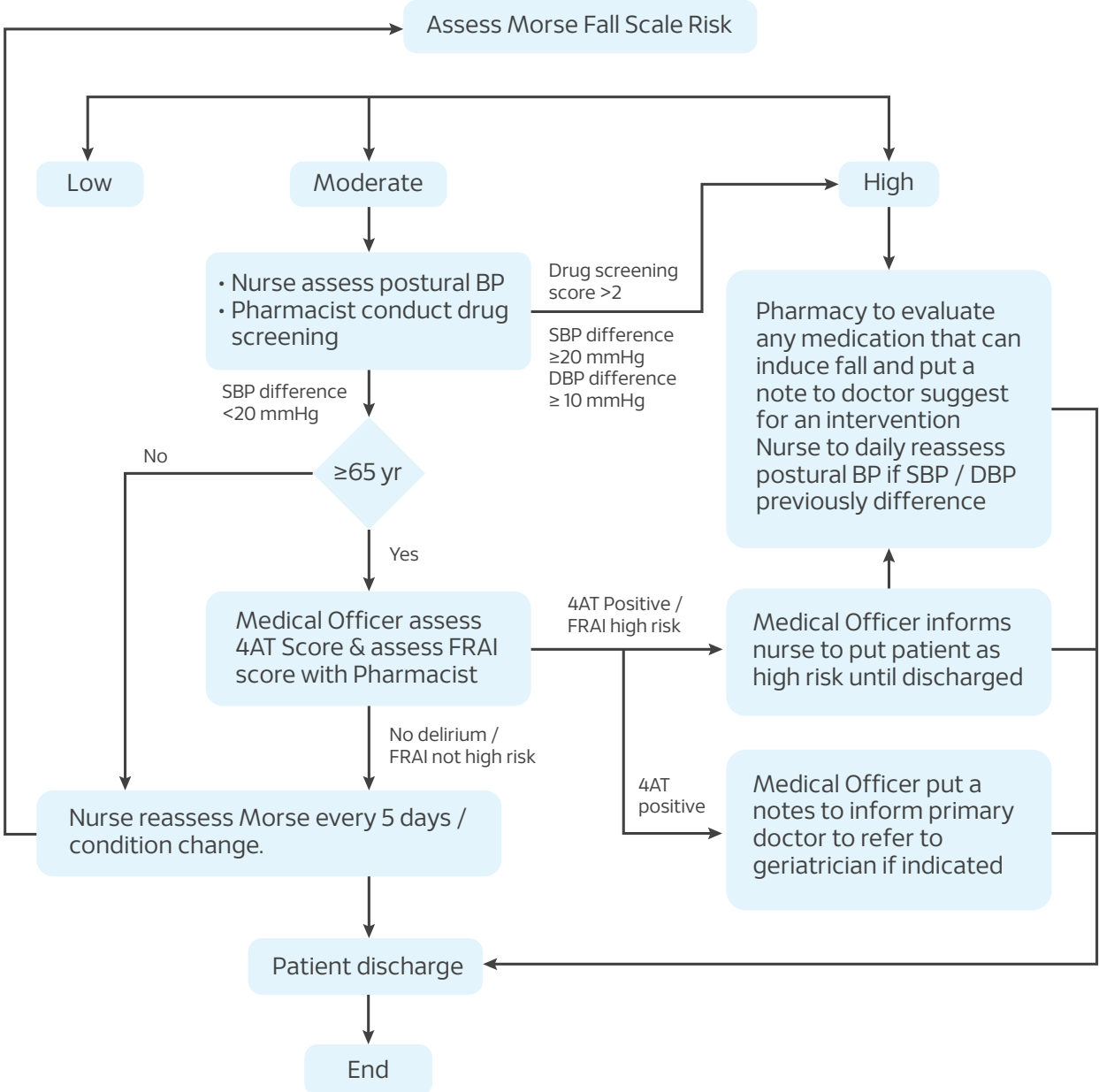


Figure 1: Revised Fall Risk Assessment Workflow with Multidisciplinary Approach

Environmental Safety Upgrades

To directly mitigate the specific hazard of slippery floor surfaces, an investment of approximately RM 500,000 was allocated to expertly apply specialised, high-friction chemical coatings across more than 300 inpatient toilet facilities.

Physical Upgrade:

Application of specialised, high-friction chemical coatings to mitigate slippery floor surfaces across 300+ inpatient toilet facilities.

Investment:

RM 500,000 allocated.

Technology Advancement

The "Nemuri Scan" intelligent patient movement detection system was broadly expanded across all clinical wards. This advanced technological infrastructure, representing an investment of approximately RM 1.7 million, instantly delivers real-time notifications to nursing personnel whenever high-risk patients attempt to independently vacate their beds.

Technology:

Broad expansion of the Nemuri Scan intelligent patient movement detection system.

Investment:

RM 1.7 million.



Bed Padding Sensors:

Detects patient movement.

Central Server:

Processes movement data instantly.

Real-Time Alerts:

Delivers immediate desktop screen monitoring and mobile device notifications to nurses when high-risk patients attempt unassisted bed exits.

Visual Cues & Patient Identification

Custom-designed "High Fall Risk" prominent yellow wristbands were systematically introduced across all inpatient clinical areas to significantly improve the rapid visual identification of highly vulnerable patients.

Failure Tree: Systemic Gaps



Clinical Gaps

Inconsistent initial fall risk assessments (MFS)

Inaccurate clinical documentation

Highly variable compliance with patient-specific interventions



Environmental Hazards

Excessive ward clutter

Inadequate lighting

Slippery floor in toilet



Cultural Deficits

Lack of multidisciplinary teamwork

Insufficient patient and family involvement in the safety culture

Comprehensive Training

Clinical Instructors and Nurse Managers diligently conducted mandatory, monthly MFS refresher training sessions, successfully covering all nursing staff and Patient Care Assistants (PCAs) to ensure foundational competency.

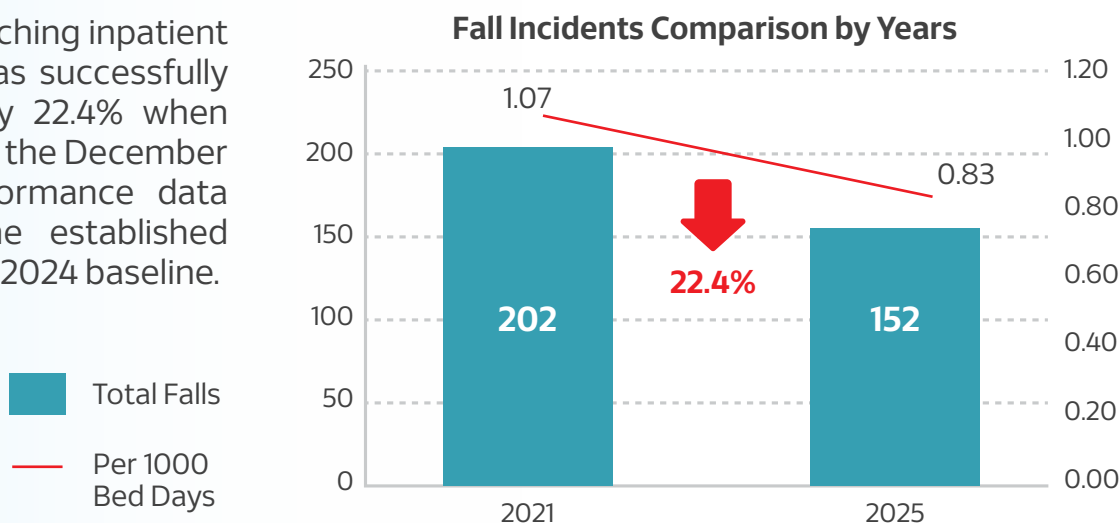
Rigorous Auditing

Monthly, randomised compliance audits were initiated to strictly monitor MFS assessment adherence, precise scoring accuracy, and the timely execution of mandated fall prevention interventions.

Results

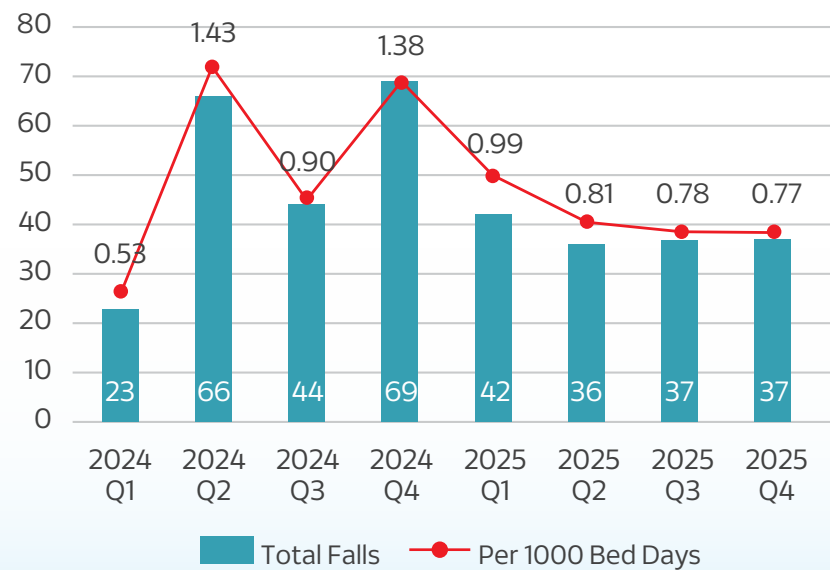
Primary Clinical Outcomes (Fall Incidence Reduction):

- The overarching inpatient fall rate was successfully reduced by 22.4% when comparing the December 2025 performance data against the established December 2024 baseline.

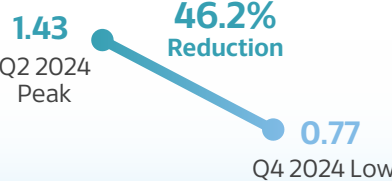


- In absolute numbers, total inpatient falls experienced a dramatic reduction, dropping from a peak of 69 incidents during the fourth quarter (Q4) of 2024 to 37 incidents by Q4 2025.
- Consequently, the calculated rate of falls per 1,000 patient bed days decreased drastically from 1.38 in Q4 2024 to a much safer 0.77 in Q4 2025.

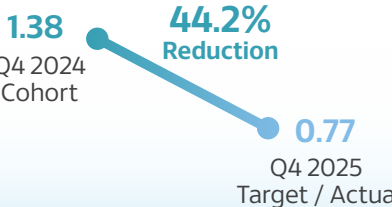
Fall Incidents Comparison by Quarters



Aggressive Mitigation from Peak Incidents



Sustained Year-Over-Year Decline



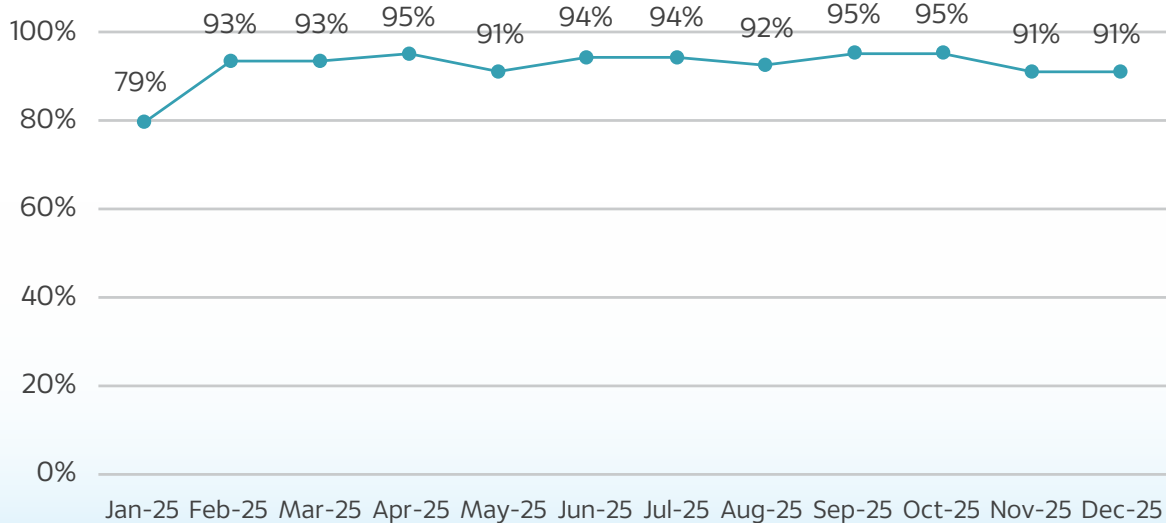
- Most crucially, the hospital successfully achieved the critical safety target of absolute zero sentinel fall events throughout the intervention period.

ZERO Sentinel Fall Events

By rigorously standardising preventative measures, integrating technology, and refining assessment accuracy, preventable patient harm was decisively mitigated.

Process & Operational Improvements (Compliance & Assessment Accuracy):

Compliance in Fall Risk Assessment (MFS) Jan - Dec 2025



- Overall compliance regarding the Fall Risk Assessment (MFS) demonstrated a pattern of sustained improvement. Adherence rose sharply from a preliminary baseline of 79% in January 2025 to consistently meet or heavily exceed the target, peaking at an impressive 95% during April, September, and October 2025.
- Systemic compliance in executing designated, patient-specific fall prevention interventions reliably achieved the 90% target.
- The project successfully realised a 100% staff training coverage rate for all active Nurses and PCAs.
- These profound quantitative improvements indicate a fundamental, systemic enhancement in how hospital services actively manage clinical risk. By highly refining MFS scoring accuracy and standardising preventative measures, preventable patient harm was significantly mitigated, fostering a markedly safer care environment.

Conclusion

A multidisciplinary approach with targeted interventions significantly reduced inpatient falls and improved patient safety. Effective interventions were integrated into standard practice, supported by ongoing audit, feedback, and education to ensure sustainability. Continuous monitoring is essential to sustain these outcomes.