Review

Fall Prevention in Adult Patients Hospitalized in Acute Care Wards: A Narrative Literature Review Conducted Using a Systematic Approach

Citation: Cucci F, Lupo R, Marasciulo D, Vitale E, Rubbi I, Conte L, De Matteis F, Calassanzio M, Alemanno A. "Fall Prevention in Adult Patients Hospitalized in Acute Care Wards: A Narrative Literature Review Conducted Using a Systematic Approach" (2026) *International Journal of Wound Research* 50(1): 3-11. DOI: https://doi.org/10.82051/neu-2026-312

Received: December 12, 2025

Revised: January 1, 2026

Just accepted online: February 12, 2026

Published: March 27, 2026

Correspondence: Federico Cucci, Città di Lecce Hospital, Gruppo Villa Maria, 73100 Lecce, Italy. Email: fcucci@gvmnet.it

Data Availability Statement: All relevant data are within the paper and its Supporting Information files. This article has been accepted for publication and undergone full peer review but has not been through the copyediting, typesetting, pagination, and proofreading process, which may lead to differences between this version and the Version of Record.

Federico Cucci[1], Roberto Lupo[2], Dario Marasciulo[3], Elsa Vitale[4], Ivan Rubbi[5], Luana Conte[6,7], Fulvia De Matteis[8], Marta Calassanzio[1], Alessandro Alemanno[9]

[1] Città di Lecce Hospital, Gruppo Villa Maria, Lecce, Italy
[2] "San Giuseppe da Copertino" Hospital, Local Health Authority, Copertino, Italy
[3] University "Magna Grecia" of Catanzaro, Catanzaro, Italy
[4] Directorate of Health and Nursing Professions, ASL (Local Health Authority), Bari, Italy
[5] School of Nursing, University of Bologna, Faenza, Italy
[6] Department of Physics and Chemistry, University of Palermo, Palermo, Italy
[7] Laboratory of Advanced Data Analysis for Medicine (ADAM) at DReAM, University of Salento and ASL (Local Health Authority), "V. Fazzi" Hospital, Lecce, Italy
[8] "Sacro Cuore di Gesù" Hospital, Local Health Authority, Gallipoli, Italy
[9] "M. Giannuzzi" Hospital, Local Health Authority, Manduria, Italy

Abstract

Introduction. Falls in hospitals are frequent adverse events with significant clinical and organisational implications. Patients with neurological conditions are particularly at risk, as motor deficits, balance disorders and cognitive changes increase the likelihood of falling.
Study design. A narrative literature review was conducted using a systematic approach.
Materials and methods. A search was carried out in PubMed to identify studies published between 2020 and 2025, in Italian or English language, involving adult patients hospitalised in acute care wards. Original quantitative studies describing structured fall prevention interventions and reporting fall and/or fall-related injury rates, comparing the post-implementation period with the preceding period or with control wards, were included.
Results. Six studies were included. The interventions described

Competing Interests: The author(s) declare(s) no conflict of interest.

included nurse education with systematic fall risk assessment, overnight video monitoring, electronic surveillance with or without a dedicated staff member, multicomponent programmes, analytical tools integrated into the electronic clinical records and wearable sensors connected to alert systems. In most studies structured programmes were associated with reduced fall rates and, in some cases, reduced rates of falls resulting in injury, particularly when technologies were embedded in organisational pathways with clearly defined roles and response times.

Discussion. In acute care wards, particularly those with a high proportion of patients with neurological conditions, multicomponent fall prevention programmes that are integrated into nursing workflows and supported by a clear organisation of the response to alerts are promising strategies. Further studies are needed to assess their long-term effectiveness and sustainability and their transferability to different settings.

Keywords: Falls, Fall Prevention, Acute Care Wards, Neurological Patients

Introduction

Falls are one of the most common and costly adverse events among adult inpatients, impacting clinical outcomes, length of stay, quality of life and healthcare costs (Ministero della Salute, 2011; Rubbi et al., 2020). Systematic reviews and meta-analyses have demonstrated the effectiveness of structured interventions and multicomponent programmes in reducing the incidence of falls in hospitals and other care settings (Cameron et al., 2018; Miake-Lye et al., 2013; Morris et al., 2022).

In neurological settings, the risk of falling is further increased by the presence of motor deficits, balance and gait disturbances, cognitive and behavioural alterations, epileptic seizures, and the use of medications that affect alertness. Studies involving patients with neurological conditions admitted to neurology, neurosurgery, or rehabilitation units report higher fall rates than individuals without neurological disease, with a relevant role of factors such as hemiparesis and impaired orientation and attention (Miake-Lye et al., 2021). In acute and subacute stroke pathways, fall rates of several events per 1,000 patient-days have been reported, emphasising the substantial impact of falls on rehabilitation programmes (Morone et al., 2020; Sinanović et al., 2012). Recent analyses conducted in brain injury rehabilitation centres confirm that falls are associated with delays in functional recovery and potential traumatic complications (Choo et al., 2025).

The literature on falls in hospitals describes the phenomenon as multifactorial: intrinsic factors (advanced age, comorbidities, neurological deficits, polypharmacy) interact with extrinsic factors (physical environment, work organisation, care workload) (Cameron et al., 2018; Hitcho et al., 2004; Morris et al., 2022). Observational studies have characterised the circumstances in which falls typically occur, such as transfers between bed and chair, bathroom use, unassisted rising and night-time hours. This has helped to identify priority areas for intervention (Hitcho et al., 2004). Structured interdisciplinary programmes combining risk assessment, education, environmental modifications, and monitoring protocols are associated with reductions in falls and fall-related injuries (Cameron e al., 2018; Schwendimann et al., 2006).

For nurses working in acute care units, particularly in predominantly neurological contexts, fall prevention is therefore a key clinical and organizational priority. Nurses systematically assess risk, plan individualised interventions, coordinate the use of aids and technologies, and integrate patient and caregiver education into daily ward practice.

In light of this, the aim of this structured narrative review of the literature is to describe structured fall-prevention interventions implemented in acute hospital wards caring for adults and to summarize the available evidence

on their impact on fall rates and injurious falls.

Materials and Methods

Study design and structuring of the research question (PICO)

A structured narrative literature review was conducted on structured fall-prevention interventions for adult patients hospitalized in acute care wards. The PICO framework (Population, Intervention, Comparison, Outcome) was used to guide the search strategy and organisation of the results.

Structured research question (PICO)

P (Population): adult patients hospitalised in acute care hospital wards (internal medicine, surgery, geriatrics, orthopaedics and acute rehabilitation); students and paediatric/psychiatric settings were excluded if they could not be separated.

I (Intervention/Exposure): structured fall-prevention interventions (e.g., bundled/multicomponent programmes, hourly rounding/safety rounds, checklists/protocols, education for patients and caregivers, operational management of alarms/assistive devices, digital/analytical tools supporting nursing practice).

C (Comparison): pre-implementation period or control unit.

O (Outcomes): fall rate and injurious fall rate.

A summary of the PICO elements and the related operational criteria is presented in Table 1 (PICO framework).

Table 1. PICO.

POPULATION	Adult patients hospitalized in acute care hospital wards (internal medicine, surgery, geriatrics, orthopaedics and acute rehabilitation); students and paediatric/psychiatric settings were excluded if they could not be separated.
INTERVENTION	Structured fall-prevention interventions (e.g., bundled/multicomponent programmes, hourly rounding/safety rounds, checklists/protocols, education for patients and caregivers, operational management of alarms/assistive devices, digital/analytical tools supporting nursing practice).
COMPARISON	Pre-implementation period or control unit.
OUTCOMES	Fall rate and injurious fall rate.

Information sources and search strategy

The literature search was conducted primarily in PubMed. To minimise the risk of overlooking potentially relevant studies, the reference lists of the included articles were manually screened to identify additional papers that were relevant to the research question. Citations were managed in a dedicated spreadsheet, which enabled duplicates to be tracked and the screening decisions (inclusion or exclusion of records) to be documented.

Articles published between 2020 and 2025 were considered, with the aim of synthesising the most recent evidence on fall-prevention interventions in acute care hospital wards. Full-text studies in Italian and English were included, while papers that were not available in full text were excluded.

The search strategy was developed using English keywords and their variants and applied to the Title/Abstract field. Specifically, terms relating to nursing personnel (e.g. nurse, nurses, nursing staff, registered nurse, staff nurse), fall risk (e.g. fall risk, risk of fall*, falls risk, fall risk assessment, fall prediction) and the care setting (e.g. hospital, inpatient, ward) were used. Keywords were combined using Boolean operators according to the database rules. The full query is reported in Table 2.

Table 2. Query.

PubMED	((nurse[Title/Abstract] OR nurses[Title/Abstract] OR nursing staff[Title/Abstract] OR registered nurse[Title/Abstract] OR staff nurse[Title/Abstract]) AND (fall risk[Title/Abstract] OR risk of fall*[Title/Abstract] OR falls risk[Title/Abstract] OR fall risk assessment[Title/Abstract] OR fall prediction[Title/Abstract])) AND (hospital[Title/Abstract] OR inpatient[Title/Abstract] OR ward[Title/Abstract])

Eligibility criteria

Inclusion criteria: quantitative original studies conducted in hospital wards with adults, evaluating structured fall-prevention interventions (e.g., bundled/multicomponent programmes, rounding, checklists/protocols, education, management of alarms/assistive devices, digital tools).

Exclusion criteria: reviews/meta-analyses, protocols, editorials/letters/comments/opinion pieces/consensus statements; studies involving students; settings that cannot be separated into

paediatric and psychiatric; non-hospital settings; studies focused solely on scale validation without an intervention; purely educational simulations; non-peer-reviewed proceedings/abstracts; studies lacking fall-related outcomes.

Results

Study selection

A total of 295 records were identified in the PubMed search. To ensure the evidence was more up to date, the analysis was limited to the period from 2020 to 2025, reducing the number of records to 129. The remaining records underwent title and abstract screening based on predefined eligibility criteria. This resulted in the exclusion of 121 records and the selection of eight articles for full-text assessment.

The main reasons for exclusion were:

– lack of relevance to the research question (104 records);

– non-original nature of the contribution (protocols, editorials, letters/comments, opinions/perspectives, guidelines/consensus, case reports/series; 10 records);

– literature review articles (systematic, scoping, narrative, integrative and umbrella reviews, including meta-analyses; 7 records).

All 8 articles assessed in full text were eligible according to the defined criteria and were included in the review. The study selection process and the number of studies at each stage are summarised in the flow chart (Figure 1).

Overview of the included studies

This review includes 8 hospital fall-prevention studies conducted in acute care wards and published between 2020 and 2024. The examined interventions included training combined with systematic risk assessment, video monitoring/electronic surveillance, either with or without a dedicated rounder, multicomponent approaches, analytic tools integrated into the electronic health record (EHR), and wearable sensors. An experimental study involving 581 patients at a tertiary-level hospital found that the overall fall incidence was 1.2%, with 0.3% in the intervention group and 2.2% in the control group (OR 0.127; 95% CI 0.013–0.821) (Montejano-Lozoya et al., 2020). Another study analysing three wards and 494 night-time video-monitoring episodes recorded only four falls among monitored participants (0.8% of episodes), representing a statistically significant reduction in ward-level night-time falls compared with the pre-implementation period (Woltsche al., 2022). In a randomised trial involving 1,032 patients using electronic surveillance, 8 fall events occurred: 2 with a dedicated rounder versus 6 without a rounder (Daley et al., 2021). A stepped-wedge cluster-randomised study across 18 units (33,856 total admissions and 4,766 high-risk patients) found that following the implementation of new systems the fall rate decreased from 4.0 to 1.34 per 1,000 patient-days (IRR 0.19; 95% CI 0.14–0.26; P = .001) as did the rate of injurious falls, from 2.4 to 0.79 per 1,000 patient-days (IRR 0.22; 95% CI 0.15–0.32; P = .001) (Najafpour et al., 2024). Another study conducted across 12 clinical units (42,476 admissions), found that the mean fall rate decreased from 1.92 to 1.79 in units using the EHR-based analytic model. In contrast, it increased from 1.95 to 2.11 in units using STRATIFY. The immediate reduction was 29.73% in the intervention group (z = −2.06; P = .039) and 16.58% in the control group (z = −1.28; P = .20 There were no significant differences in injurious fall rates (0.31 vs 0.42; z = 1.50; P = .134) (Cho et al., 2021). In a prospective study involving 569 at-risk patients in neurology/neurosurgery units (2,211.6 patient-days), "smart socks" generated 4,999 alarms with a median response time of 24 seconds and there were no falls among users, compared with an historical rate of 4 per 1,000 patient-days (Moore et al., 2023). A large multicentre non-randomised study involving14 medical wards and over 37,000 patients found that implementing a customised nurse-led toolkit reduced falls rates by 15% (from 2.92 to 2.49 per 1,000 patient-days) and injury falls by 34% (from 0.73 to 0.48) (Dykes et al., 2020). Another pre-post study involving 651 patients admitted between 2020 and 2023 showed a reduction in fall rates from 4.05 to 2.54 per 1,000 patient-days (−37%; P = 0.0001) following the introduction of a structured interdisciplinary programme based on a non-punitive culture, monthly feedback, and targeted staff training (Roderman et al., 2024).

The 8 selected studies are summarized in Table 3.

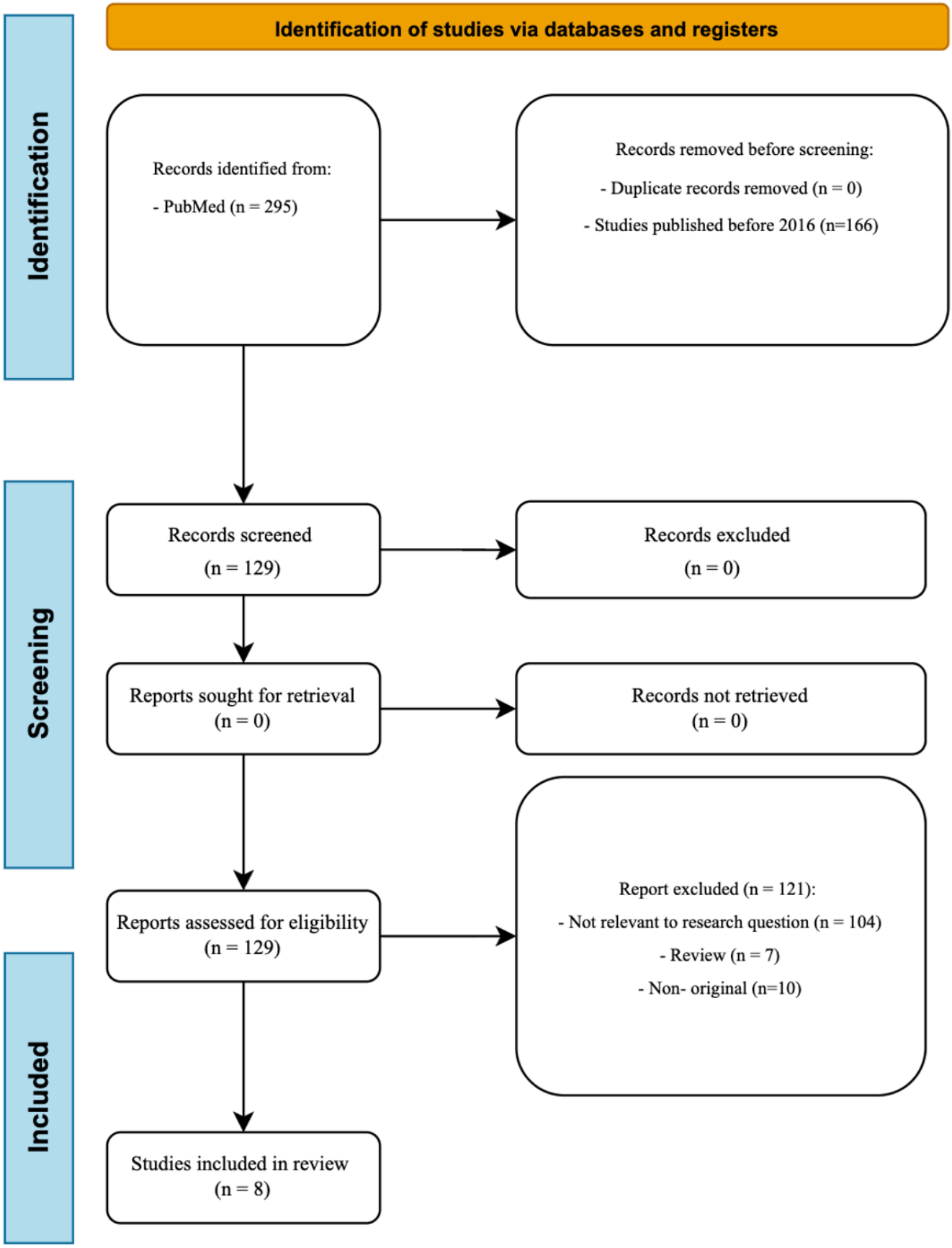

Figure 1. Flow chart.

Table 3. Results.

TITLE	STUDY DESIGN	SAMPLE	INTERVENTION	RESULTS	DISCUSSION/ CONCLUSIONS
Impact of Nurses' Intervention in the Prevention of Falls in Hospitalized Patients	Experimental study with a control group	581 patients (303 interventions; 278 control).	Nursing education and systematic fall-risk assessment.	Overall incidence 1.2%; 0.3% in the intervention group vs 2.2% in the control group; OR 0.127 (95% CI 0.013-0.821); no effect of age/LOS.	Systematic fall-risk assessment is an effective intervention for reducing fall incidence.
Preventing Patient Falls Overnight Using Video Monitoring: A Clinical Evaluation	Cohort study	494 night time video-monitoring episodes; nurse survey n=31.	Portable night time video monitoring for high-risk patients.	4 falls among monitored participants (0.8% of episodes); statistically significant reduction in ward-level night time falls.	Night time video monitoring is supported as an effective fall-prevention strategy in the hospital setting.
Staffing Utilization and Fall Prevention With an Electronic Surveillance Video System: A Randomized Controlled Study	Randomized controlled trial	1,032 patients.	Electronic surveillance with a dedicated rounder vs without a rounder.	8 total falls: 2 with a dedicated rounder vs 6 without; difference not statistically significant.	The dedicated rounder is adopted as operational support (mobility) for patients at risk of falls.
A Stepped-Wedge Cluster-Randomized Controlled Trial of a Multi-interventional Approach for Fall Prevention	Stepped-wedge cluster randomized controlled trial	33,856 admissions; 4,766 high-risk patients.	Multicomponent approach (training, education, call bell, lighting, supervision, assistive devices, signage, etc.).	Falls 4.0 -> 1.34 per 1,000 patient-days (IRR 0.19; 95% CI 0.14-0.26; P = .001); injurious falls 2.4 -> 0.79 per 1,000 patient-days (IRR 0.22; 95% CI 0.15-0.32; P = .001); LOS unchanged.	The multicomponent approach reduced falls and injuries, with no effect on average length of stay.
Clinical Impact of an Analytic Tool for Predicting the Fall Risk in Inpatients: Controlled Interrupted Time Series	Controlled interrupted time series	42,476 admissions; fall events n=707; fall-related injuries n=134.	Predictive analytic tool integrated into the EHR vs STRATIFY assessment.	Mean fall rate: control 1.95 -> 2.11; intervention 1.92 -> 1.79; immediate reduction 29.73% (z = -2.06; P = .039) in the intervention group; injuries not significantly different (0.31 vs 0.42).	The tool may increase risk awareness and support targeted interventions, with favourable signals on outcomes.
Fall Prevention With the Smart Socks System Reduces Hospital Fall Rates	Prospective study	569 at-risk patients; 2,211.6 patient-days; 4,999 alerts.	Wearable sensors ('smart socks') with alerts and nursing response.	0 falls among users (0 per 1,000 patient-days) vs historical rate 4 per 1,000; median response time 24 s.	Smart socks reduced fall rates in the patients included in the study.
Evaluation of a Patient-Centered Fall-Prevention Tool Kit to Reduce Falls and Injuries: A Nonrandomized Controlled Trial	Nonrandomized controlled trial, multicentre stepped-wedge design	37,231 patients admitted to 14 medical units (3 U.S. academic hospitals).	Customized fall-prevention toolkit (Fall TIPS), nurse-led, with identification of risk factors and active patient engagement (e.g., bedside posters and personalized prevention plans).	Fall rates reduced from 2.92 to 2.49 per 1,000 patient-days (-15%; RR 0.85; 95% CI 0.73-0.98; p = 0.01); injurious falls reduced from 0.73 to 0.48 per 1,000 patient-days (-34%; RR 0.66; 95% CI 0.47-0.92; p = 0.003).	The Fall TIPS toolkit, which focuses on collaboration between nurses, patients and caregivers, as well as personalised interventions, significantly reduced the number of falls, including those resulting in injury. This study demonstrates the effectiveness of a structured, personalised approach that can easily be implemented in acute care wards.
Assessing the Effectiveness of a Non-Punitive Fall Prevention Program	Pre-post study	Data were analysed for a total of 651 patients who fell between 2020 and 2023.	Fall-prevention program developed by an interdisciplinary committee, based on staff and caregiver training, standardized measures, identification of high-risk patients, weekly fall reviews, monthly feedback, and management involvement.	Fall rate reduced from 4.05 to 2.54 per 1,000 patient-days (-37%; p = 0.0001); estimated savings of over USD 1.6 million.	A structured, interdisciplinary, non-punitive approach supported by data and ongoing training can significantly reduce hospital falls. The intervention is sustainable and replicable in other acute care settings.

Discussion

This structured narrative review of the literature described and compared several structured fall-prevention interventions applied to adult patients admitted to acute care wards, considering fall rates and injurious fall rates as the main outcomes. Overall, the findings suggest that interventions are most effective when they are embedded in organised care pathways, integrated into nursing workflows, and supported by clearly defined roles and responsibilities. Conversely, when technology is introduced without corresponding changes to clinical care, its impact on outcomes is less evident. These findings are consistent with those reported in systematic reviews and meta-analyses of hospital fall-prevention interventions (Cameron et al., 2022; Morris et al., 2022).

Nursing education combined with a systematic assessment of fall risk represents the first level of intervention and provides clear operational benefits. In the study by Montejano-Lozoya et al. (2020), introducing a structured assessment led to a significant reduction in fall incidence in the intervention group compared to the control group, regardless of age or mean length of stay. Standardising assessment increases the likelihood of identifying high-risk profiles and activating targeted measures early. It is also a relatively low-cost, replicable approach that can be easily integrated into nursing routines in acute care wards, including those with a high prevalence of patients with neurological conditions. The study by Dykes et al. (2020) also confirms the importance of a structured, nurse-led risk assessment integrated with individualised plans and tools to support communication with patients and caregivers: the toolkit resulted in a significant reduction in both total falls and injurious falls.

Night-time video monitoring and electronic surveillance systems promote a culture of continuous vigilance during periods of vulnerability, such as night-time hours or unassisted mobilisation. A study by Woltsche et al. (2022) suggests that portable video monitoring for high-risk patients could help to reduce night-time falls and is well accepted by nursing staff. However, the randomised trial by Daley et al. (2021) shows that technology has a more limited impact if it is not accompanied by a clear response organisation: the presence of a dedicated rounder responsible for mobility and alarm response appears to be more influential than images alone. In neurological settings, where many patients have balance deficits, cognitive or behavioural disturbances, and a higher risk of attempting to stand uncontrollably (Miertová et al., 2021; Morone et al., 2020; Sinanović et al., 2012), a well-organised electronic surveillance system can provide valuable support, provided that shared pathways exist regarding who responds, their priorities and response times.

Multicomponent approaches demonstrate the greatest and most consistent overall effect. In the trial by Najafpour et al. (2024), a combination of staff training, patient and caregiver education, signage, assistive devices, supervision, and surveillance procedures was associated with a substantial reduction in total falls and injurious falls, without affecting the mean length of stay. The "bundle" logic confirms that effectiveness does not derive from a single measure, but rather from the overall coherence of the components and sustained operational adherence over time. It also depends on the organisation's ability to maintain the programme active through audit and feedback. This aligns with broader evidence syntheses (Cameron et al., 2018 Morris et al., 2022), which suggest that multimodal interventions are the preferred strategy in complex hospital contexts. The study by Roderman et al. (Roderman et al., 2024) supports this view, demonstrating that an interdisciplinary programme backed by a non-punitive culture and regular feedback on performance data can reduce falls consistently, while also enhancing staff engagement and perceived safety. A non-punitive culture is an organisational approach that, when adverse events such as falls occur, avoids placing blame on individuals in favour of conducting a systems-based analysis of the causes. This approach promotes event reporting and organisational learning.

Predictive analytic tools integrated into the electronic health record represent an additional level of sophistication. In the study by Cho et al. (2021), the analytic model produced an immediate reduction in fall rates in units that adopted it compared with units using the STRATIFY scale alone; however, the effect on injurious falls was less evident. These results suggest that the ability to predict risk alone is insufficient: predictive value only translates into clinical benefit if it is embedded in a complete care cycle (signal, decision, action, verification) and if the team has shared procedures to

convert alerts into timely interventions. In wards with a high concentration of neurological patients, where fall risk is often associated with motor deficits, hemispatial neglect, and executive dysfunction [9], predictive models that incorporate condition-specific variables (e.g. lesion type, level of motor impairment, cognitive status) could be even more effective, provided they are integrated into daily practice and not just used to produce a numerical output.

The "smart socks" wearable technology described by Moore et al. (2023) and implemented in neurology and neurosurgery units shows an apparent reduction in fall rates alongside very rapid alarm response times. This result should again be interpreted from an organisational perspective: the technology works because it is embedded in a pathway that includes activation criteria, a clear alert flow, and a structured nursing response within defined timeframes. Without these elements, alarms risk becoming an additional workload, contributing to alarm fatigue and resulting in a loss of effectiveness in the medium term.

Several key elements that seem to characterise the most effective programmes emerge across the included studies:

- systematic, repeated assessment of fall risk over time as a prerequisite to guide care priorities;
- definition of specific roles and responsibilities when responding to signals;
- integration of technologies (video, sensors and analytic tools) into operational procedures with target response times and shared escalation pathways;
- attention to high-risk moments and locations (e.g. night-time, bathrooms, transfers, early days of admission or rehabilitation);
- combined monitoring of clinical indicators (e.g. fall rates and injurious fall rates) and process indicators (e.g. adherence to interventions, alarm response times and coverage of high-risk patients).

Differences in settings, comparators, and study designs (experimental, quasi-experimental and time series) mean that the results cannot be fully compared and a single definitive estimate of the effect of each intervention cannot be made. In addition, the overall number of studies is limited, and follow-up is relatively short in several cases. Restricting the search to a single database (PubMed) and to studies published between 2020 and 2025 focused the analysis on the most recent evidence, but this approach may have excluded relevant contributions indexed elsewhere or published in earlier years. From an applied perspective, the results support the development of structured fall-prevention pathways combining staff education and systematic assessment, patient and caregiver education, proactive surveillance using video or sensors, alongside a clearly organised response and, where available, these pathways should also incorporate analytic tools that trigger timely interventions. In predominantly neurological wards, such programmes should be adapted to account for specific clinical characteristics, such as motor deficits, cognitive and behavioural alterations and balance disturbances. Nursing leadership, rehabilitation teams, and risk management services should be involved in shared governance of fall prevention.

Conclusions

This structured narrative review of the literature indicates that fall-prevention interventions are more effective when embedded within structured programmes, integrated into care processes and supported by an organised nursing response. Multicomponent approaches, combining systematic risk assessment, education, proactive surveillance and the targeted use of assistive devices and technologies, are particularly effective in reducing fall rates and, in several cases, preventing injurious falls.

In acute care wards with a high proportion of patients with neurological conditions, these findings emphasise the importance of dedicated pathways that consider motor impairments, balance disturbances, and cognitive and behavioural changes. Nurse-led fall-prevention bundles that are integrated into ward routines, monitored through outcome and process indicators, and supported by periodic audits represent a practical direction for nursing leadership and multidisciplinary teams to take.

Further studies are needed, particularly in neurological contexts, to evaluate the long-term effectiveness and sustainability of these interventions, including patient-centred outcomes and cost-effectiveness analyses. It is also necessary to explore implementation strategies that are compatible with the workflows of acute care wards.

References

1. Cameron, I. D., Dyer, S. M., Panagoda, C. E., Murray, G. R., Hill, K. D., Cumming, R. G., & Kerse, N. (2018). Interventions for preventing falls in older people in care facilities and hospitals. *Cochrane Database of Systematic Reviews*, 2020. https://doi.org/10.1002/14651858.CD005465.pub4
2. Cho, I., Jin, I. S., Park, H., & Dykes, P. C. (2021). Clinical impact of an analytic tool for predicting the fall risk in inpatients: Controlled interrupted time series. *JMIR Medical Informatics*, 9, e26456. https://doi.org/10.2196/26456
3. Choo, Y. J., Moon, J. S., Lee, G. W., Park, W.-T., & Chang, M. C. (2025). Falls in a single brain rehabilitation center: A 3-year retrospective chart review. *Frontiers in Neurology,* 16. https://doi.org/10.3389/fneur.2025.1519555
4. Daley, B., Fetherman, B., & Turner, J. (2021). Staffing utilization and fall prevention with an electronic surveillance video system. *Journal of Nursing Care Quality,* 36, 57–61. https://doi.org/10.1097/NCQ.0000000000000472
5. Dykes, P. C., Burns, Z., Adelman, J., Benneyan, J., Bogaisky, M., Carter, E., Ergai, A., Lindros, M. E., Lipsitz, S. R., Scanlan, M., et al. (2020). Evaluation of a patient-centered fall-prevention toolkit to reduce falls and injuries. *JAMA Network Open*, 3, e2025889. https://doi.org/10.1001/jamanetworkopen.2020.25889
6. Hitcho, E. B., Krauss, M. J., Birge, S., Dunagan, W. C., Fischer, I., Johnson, S., Nast, P. A., Costantinou, E., & Fraser, V. J. (2004). Characteristics and circumstances of falls in a hospital setting. *Journal of General Internal Medicine*, 19, 732–739. https://doi.org/10.1111/j.1525-1497.2004.30387.x
7. Miake-Lye, I. M., Hempel, S., Ganz, D. A., & Shekelle, P. G. (2013). Inpatient fall prevention programs as a patient safety strategy. *Annals of Internal Medicine*, 158, 390–396. https://doi.org/10.7326/0003-4819-158-5-201303051-00005
8. Miertová, M., Bóriková, I., Tomagová, M., Madleňák, J., Grendár, M., & Barnau, A. (2021). Risk factors of falling among hospitalized patients with neurological disease: Post-fall analysis. *Medical Studies*, 37, 16–24. https://doi.org/10.5114/ms.2021.104996
9. Ministero della Salute. (2011). *Raccomandazione per la prevenzione e la gestione della caduta del paziente nelle strutture sanitarie*. Ministero della Salute.
10. Montejano-Lozoya, R., Miguel-Montoya, I., Gea-Caballero, V., Mármol-López, M. I., Ruíz-Hontangas, A., & Ortí-Lucas, R. (2020). Impact of nurses' intervention in the prevention of falls in hospitalized patients. *International Journal of Environmental Research and Public Health*, 17, 6048. https://doi.org/10.3390/ijerph17176048
11. Moore, T., Kline, D., Palettas, M., & Bodine, T. (2023). Fall prevention with the smart socks system reduces hospital fall rates. *Journal of Nursing Care Quality*, 38, 55–60. https://doi.org/10.1097/NCQ.0000000000000653
12. Morone, G., Cinnera, A. M., Paolucci, T., Beatriz, H. D. R., Paolucci, S., & Iosa, M. (2020). Clinical features of fallers among inpatient subacute stroke: An observational cohort study. *Neurological Sciences,* 41, 2599–2604. https://doi.org/10.1007/s10072-020-04352-2
13. Morris, M. E., Webster, K., Jones, C., Hill, A.-M., Haines, T., McPhail, S., Kiegaldie, D., Slade, S., Jazayeri, D., Heng, H., et al. (2022). Interventions to reduce falls in hospitals: A systematic review and meta-analysis. *Age and Ageing*, 51. https://doi.org/10.1093/ageing/afac077
14. Najafpour, Z., Arab, M., Rashidian, A., Shayanfard, K., Yaseri, M., & Biparva-Haghighi, S. (2024). A stepped-wedge cluster-randomized controlled trial of a multi-interventional approach for fall prevention. *Quality Management in Health Care*, 33, 77–85. https://doi.org/10.1097/QMH.0000000000000435
15. Roderman, N., Wilcox, S., & Lang, C. (2024). Assessing the effectiveness of a non-punitive fall prevention program. *HCA Healthcare Journal of Medicine*, 5. https://doi.org/10.36518/2689-0216.1908
16. Rubbi, I., Sciolino, L., & Mongardi, M. (2020). I risultati di un progetto di implementazione delle buone pratiche di prevenzione e gestione della caduta in ospedale. *Scienze Infermieristiche*.
17. Schwendimann, R., Bühler, H., De Geest, S., & Milisen, K. (2006). Falls and consequent injuries in hospitalized patients: Effects of an interdisciplinary falls prevention program. *BMC Health Services Research*, 6, 69. https://doi.org/10.1186/1472-6963-6-69
18. Sinanović, O., Raičević, B., Brkić, M., Hajdarbegović, E., Zukić, S., Kojić, B., & Imamović, K. (2012). Falls in hospitalized acute stroke patients. *Medical Archives,* 66, 33–34. https://doi.org/10.5455/medarh.2012.66.33-34
19. Woltsche, R., Mullan, L., Wynter, K., & Rasmussen, B. (2022). Preventing patient falls overnight using video monitoring: A clinical evaluation. *International Journal of Environmental Research and Public Health*, 19, 13735. https://doi.org/10.3390/ijerph192113735