Safety Literature 29th October 2023

Real-world balance assessment while standing for fall prediction in older adults

Albites-Sanabria J, Palumbo P, Helbostad JL, Bandinelli S, Mellone S, Palmerini L, Chiari L. IEEE Trans. Biomed. Eng. 2023; ePub(ePub): ePub.

DOI: 10.1109/TBME.2023.3326306 **PMID:** 37862272

Abstract

OBJECTIVE: Postural control naturally declines with age, leading to an increased risk of falling. Within clinical settings, the deployment of balance assessments has become commonplace, facilitating the identification of postural instability and targeted interventions to forestall falls among older adults. Some studies have ventured beyond the controlled laboratory, leaving, however, a gap in our understanding of balance in real-world scenarios.

METHODS: Previously reported algorithms were used to build a finite-state machine (FSM) with four states: walking, turning, sitting, and standing. The FSM was validated against video annotations (gold standard) in an independent dataset with data collected on 20 older adults. Later, the FSM was applied to data from 168 community-dwelling older people in the InCHIANTI cohort who were evaluated both in the laboratory and then remotely in real-world conditions for a week. A 70/30 data split with recursive feature selection and resampling techniques was used to train and test four machine-learning models.

RESULTS: In identifying fallers, duration, distance, and mean frequency computed during standing in real-world settings revealed significant relationships with fall risk. Also, the best-performing model (Lasso Regression) built on real-world balance features had a higher area under the curve (AUC, 0.76) than one built on lab-based assessments (0.57).

CONCLUSION: Real-world balance features differ considerably from laboratory balance assessments (Romberg test) and have a higher predictive capacity for identifying patients at high risk of falling. SIGNIFICANCE: These findings highlight the need to move beyond traditional laboratory-based balance measures and develop more sensitive and accurate methods for predicting falls.

Language: en

Can minimum toe clearance predict community-based trips by older adults?

Avalos MA, Rosenblatt NJ. Gait Posture 2023; ePub(ePub): ePub.

DOI: 10.1016/j.gaitpost.2023.09.017 **PMID:** 37852886

Abstract

BACKGROUND: Tripping is the leading cause of falls by older adults. While tripping theoretically occurs when minimum toe clearance (MTC) is insufficient to avoid an unseen obstacle, the relationship between MTC and community-based trips is unknown.

RESEARCH QUESTION: To what extent do MTC and its variability predict the number of community-based trips during gait by older adults? METHOD: 51 older adults with normal or obese body mass index walked across an 8 m walkway. For each step, we identified MTC as the local minimum of the vertical trajectory of a toe marker during the swing phase. We calculated the across-steps mean, median, interquartile range, and standard deviation for MTC, and skewness and kurtosis of the distribution of all MTC values for an individual. Every two weeks for one year, participants reported on community-based trips. A series of negative binomial regressions were used to predict the number of trips over obstacles (with or without a fall) based on MTC measures.

RESULTS: 28 participants experienced at least one trip, with 14 experiencing two or more. In the absence of any covariates, only kurtosis and skewness significantly predicted the incidence rate of trips. However, neither remained significant after accounting for fall history. The model that included kurtosis and fall history predicted trips better than one with fall history alone, with the incidence rate of trips decreasing by 35% for every unit increase in kurtosis (incidence rate ratio of 0.64 with 95% confidence interval: 0.38 - 1.08; p = 0.09) SIGNIFICANCE: While MTC has the potential to provide insight into older adults more likely to trip over obstacles in the community, assessing MTC during level-ground walking within a lab environment may lack ecological validity to strongly describe the risk of community-based trips above and beyond fall history.

Language: en

Keywords: Accidental falls; Gait; Obesity; Stumble

A physiotherapy-led review of guideline-based care for community-dwelling older people presenting to a metropolitan hospital with accidental falls

Barton L, Nelson M, Scholes C, Strudwick K. Australas. J. Ageing 2023; ePub(ePub): ePub.

DOI: 10.1111/ajag.13247 **PMID:** 37861178

Abstract

OBJECTIVE(S): Several guidelines exist to inform best-practice management of community-dwelling fallers. This study aimed to outline a pragmatic approach to developing an audit tool for guideline-based care of falls and provide an overview of current practice.

METHODS: An audit tool to determine compliance with guideline-based care was developed with an allied health and physiotherapy focus, utilising the Australian Commission on Safety and Quality in Health-Care Guidelines for Preventing Falls and Harm from Falls in Older People (2009) and Queensland State Government 'Stay on your Feet' guidelines. A retrospective audit of medical records was completed in July 2020 of community-dwelling people aged 65 years and over with a fall-related emergency department (ED) presentation in a medium-sized metropolitan hospital in Australia. Data were compared between patients admitted to hospital and those discharged home from the ED.

RESULTS: Ninety-three patients were included: 68 were discharged home from ED and 25 were admitted to hospital. There was a significant difference in receiving an allied health review ($p < .001$) between admitted patients (96%) and those who discharged home from ED (68%). The Clinical Frailty Scale was only completed for 23% of patients. Physiotherapy quality-of-care ($n = 46$ patients) was variable, with poor completion of physical outcome measures (7%) and fall education (4%). However, assessment of mobility was routinely completed (94%), and most patients were referred to an appropriate community service (66%).

CONCLUSIONS: Adherence to guideline-based care of community-dwelling fallers is inconsistent. Improvements are required in the consistency of risk stratification, comprehensive physical assessment and patient education.

Language: en

Keywords: frailty; accidental falls; allied health occupations; physical therapy modalities; quality of health care

Prevention of falls in Parkinson's disease: guidelines and gaps

Camicioli R, Morris ME, Pieruccini-Faria F, Montero-Odasso M, Son S, Buzaglo D, Hausdorff JM, Nieuwboer A. Mov. Disord. Clin. Pract. (Hoboken) 2023; 10(10): 1459-1469.

DOI: 10.1002/mdc3.13860 **PMID:** 37868930 **PMCID:** PMC10585979

Abstract

BACKGROUND: People living with Parkinson's disease (PD) have a high risk for falls.

OBJECTIVE: To examine gaps in falls prevention targeting people with PD as part of the Task Force on Global Guidelines for Falls in Older Adults.

METHODS: A Delphi consensus process was used to identify specific recommendations for falls in PD. The current narrative review was conducted as educational background with a view to identifying gaps in fall prevention.

RESULTS: A recent Cochrane review recommended exercises and structured physical activities for PD; however, the types of exercises and activities to recommend and PD subgroups likely to benefit require further consideration. Freezing of gait, reduced gait speed, and a prior history of falls are risk factors for falls in PD and should be incorporated in assessments to identify fall risk and target interventions. Multimodal and multi-domain fall prevention interventions may be beneficial. With advanced or complex PD, balance and strength training should be administered under supervision. Medications, particularly cholinesterase inhibitors, show promise for falls prevention. Identifying how to engage people with PD, their families, and health professionals in falls education and implementation remains a challenge. Barriers to the prevention of falls occur at individual, environmental, policy, and health system levels.

CONCLUSION: Effective mitigation of fall risk requires specific targeting and strategies to reduce this debilitating and common problem in PD. While exercise is recommended, the types and modalities of exercise and how to combine them as interventions for different PD subgroups (cognitive impairment, freezing, advanced disease) need further study.

Language: en

Keywords: falls; accidental falls; exercise; freezing; gait speed; Parkinson's disease

Hospitalization and readmission after single-level fall: a population-based sample

Cook A, Swindall R, Spencer K, Wadle C, Cage SA, Mohiuddin M, Desai Y, Norwood S. Inj. Epidemiol. 2023; 10(1): e49.

DOI: 10.1186/s40621-023-00463-4 **PMID:** 37858271 **PMCID:** PMC10588028

Abstract

BACKGROUND: Single-level falls (SLFs) in the older US population is a leading cause of hospital admission and rates are increasing. Unscheduled hospital readmission is regarded as a quality-of-care indication and a preventable burden on healthcare systems. We aimed to characterize the predictors of 30-day readmission following admission for SLF injuries among patients 65 years and older.

METHODS: We conducted a retrospective cohort study using the Nationwide Readmission Database from 2018 to 2019. Included patients were 65 and older, admitted emergently following a SLF with a primary injury diagnosis. Hierarchical logit regression was used to model factors associated with readmission within 30 days of discharge.

RESULTS: Of 1,338,905 trauma patients, 65 years or older, 61.3% had a single-level fall as the mechanism of injury. Among fallers, the average age was 81.1 years and 68.5% were female. SLF patients underwent more major therapeutic procedures (56.3% vs. 48.2%), spent over 2 million days in the hospital and incurred total charges of over $28 billion annually. Over 11% of SLF patients were readmitted within 30 days of discharge. Increasing income had a modest effect, where the highest zip code quartile was 9% less likely to be readmitted. Decreasing population density had a protective effect of readmission of 16%, comparing Non-Urban to Large Metropolitan. Transfer to short-term hospital, brain and vascular injuries were independent predictors of 30-day readmission in multivariable analysis (OR 2.50, 1.31, and 1.42, respectively). Palliative care consultation was protective (OR 0.41). The subsequent hospitalizations among those 30-day readmissions were primarily emergent (92.9%), consumed 260,876 hospital days and a total of $2.75 billion annually.

CONCLUSIONS: SLFs exact costs to patients, health systems, and society. Transfer to short-term hospitals at discharge, along with brain and vascular injuries were strong predictors of 30-day readmission and warrant mitigation strategy development with consideration of expanded palliative care consultation.

Language: en

Keywords: Hospitalization; Falls; Geriatric trauma; Hospital charges; Palliative care; Readmission

Older adult falls in the community: does unsafe home environment have a risk role through the mediating effect of functional limitations?

Das Gupta D, Kelekar U, Turner SC. Gerontologist 2023; ePub(ePub): ePub.

DOI: 10.1093/geront/gnad139 **PMID:** 37870156

Abstract

BACKGROUND AND OBJECTIVES: Fall incidents from unsafe home environment are frequent in older-adult homes but the literature is ambiguous whether it is the presence/absence, or the interplay of such conditions and physical functioning that is of salience. We therefore estimated whether unsafe home environment adversely associated with subsequent falls among older adults and what proportion of this association was mediated through limitations in daily and instrumental activities of daily living (ADL/IADL). RESEARCH DESIGN AND METHODS: Using a nationally representative sample of community-dwelling Medicare beneficiaries (≥65 years) in the 2018-2019 National Health and Aging Trends Study (NHATS; n=2,599), we conducted bivariate and multivariable analyses. We examined baseline conditions of home disorders, unsafe bathroom settings, unsafe house/building features, and house disrepairs in 2018 and their relation with subsequent falls in 2019, after controlling for covariates. To assess whether ADL/IADL limitations mediated this relationship, we employed the Karlson-Holm-Breen (KHB) methodology.

RESULTS: In 2019, the self-reported prevalence of falls among older adults was estimated at 34.68%. While baseline home disorders had both a direct (adjusted Odds Ratio [aOR]: 1.14, 95% Confidence Interval [CI]:1.03,1.26) and an indirect effect through limitations in ADL and IADL (aOR: 1.01; 95%CI: 1.00,1.03), the relation between unsafe bathroom settings and subsequent falls was unclear. Unsafe house/building features and house disrepairs were not statistically significantly related either directly or indirectly with subsequent falls.

DISCUSSION AND IMPLICATIONS: Addressing home disorders through policy and housing assessments to highlight home environmental safety would be essential to address falls among older adults.

Language: en

Keywords: activities of daily living (ADL); home disorders; instrumental activities of daily living (IADL); NHATS; unsafe bathroom settings

Fall risk assessment dataset: older-adult participants undergoing the Time Up and Go test

Jutharee W, Paengkumhag C, Limpornchitwilai W, Mo WT, Chan JH, Jennawasin T, Kaewkamnerdpong B. Data Brief 2023; 51: e109653.

DOI: 10.1016/j.dib.2023.109653 **PMID:** 37869625 **PMCID:** PMC10589772

Abstract

This article presents a dataset comprising signal data collected from Inertial Measurement Unit (IMU) sensors during the administration of the Time Up and Go (TUG) test for assessing fall risk in older adults. The dataset is divided into two main sections. The first section contains personal, behavioral, and health-related data from 34 participants. The second section contains signal data from tri-axial acceleration and tri-axial gyroscope sensors embedded in an IMU sensor, which was affixed to the participants' waist area to capture signal data while they walked. The chosen assessment method for fall risk analysis is the TUG test, requiring participants to walk a 3-meter distance back and forth. To prepare the dataset for subsequent analysis, the raw signal data underwent processing to extract only the walking periods during the TUG test. Additionally, a low-pass filter technique was employed to reduce noise interference. This dataset holds the potential for the development of effective models for fall risk detection based on insights garnered from questionnaires administered to specialists who observed the experiments. The dataset also contains anonymized participant information that can be explored to investigate fall risk, along with other health-related conditions or behaviors that could influence the risk of falling. This information is invaluable for devising tailored treatment or rehabilitation plans for individual older adults. The complete dataset is accessible through the Mendeley repository."

Language: en

Keywords: Aging; IMU sensors; Signal data; Walking analysis

Balancing the risk of stroke and bleeding in atrial fibrillation patients with a history of falls

Latt NKZ, Calvert P, Lip GYH. Expert Opin. Drug Saf. 2023; ePub(ePub): ePub.

DOI: 10.1080/14740338.2023.2273333 **PMID:** 37860853

Abstract

INTRODUCTION: Atrial fibrillation (AF) is the most common sustained cardiac arrhythmia, and can lead to serious consequences such as ischemic stroke and systemic thromboembolism. The risk of thromboembolism can be reduced by anticoagulation, however many patients with high falls risk do not receive oral anticoagulation. AREAS COVERED: In this narrative literature review, performed with searches of the PubMed database, we discuss the factors predisposing AF patients to falls, ways to optimize bleeding risk with individualized assessment, and clarify the misconceptions around falls risk and anticoagulation therapy. EXPERT OPINION: In general, the advantages of stroke prevention with oral anticoagulation outweigh the risk of bleeding resulting from falls, especially with the increasing use of non-vitamin K oral anticoagulants, which are associated with fewer intracranial hemorrhages and thromboembolic complications than vitamin K anticoagulants. Most studies in this field are observation and randomized controlled studies would be beneficial.

Language: en

Keywords: safety; fall; Anticoagulants; atrial fibrillation; bleeding

Associations between Social Isolation Index and changes in grip strength, gait speed, bone mineral density (BMD), and self-reported incident fractures among older adults: results from the Canadian Longitudinal Study on Aging (CLSA)

Lee A, McArthur C, Ioannidis G, Mayhew A, Adachi JD, Griffith LE, Thabane L, Papaioannou A. PLoS One 2023; 18(10): e0292788.

DOI: 10.1371/journal.pone.0292788 **PMID:** 37851659

Abstract

BACKGROUND: The aim is to investigate whether social isolation and loneliness are associated with changes in grip strength, gait speed, BMD, and fractures.

METHODS: Canadian Longitudinal Study on Aging (CLSA) Comprehensive Cohort participants aged 65 years and older at baseline (2012-2015) who completed the three-year follow-up interview (2015-2018) were included in this analysis (n = 11,344). Social isolation and loneliness were measured using the CLSA social isolation index (CLSA-SII, range 0-10). We calculated absolute and percent change in grip strength (kg) and gait speed (m/s) and annualized absolute (g/cm2) and percent change in femoral neck and total hip BMD during the three-year follow-up. Self-reported incident fractures of all skeletal sites in the previous 12 months were measured at three-year follow-up. Multivariable analyses were conducted. Odd ratio (OR) and 95% confidence interval (CI) are reported.

RESULTS: The mean age (standard deviation [SD]) was 72.9 (5.6) years and 49.9% were female. The mean (SD) of CLSA-SII at baseline was 3.5 (1.4). Mean absolute and percentage change (SD) in grip strength (kg) and gait speed (m/s) were -1.33 (4.60), -3.02% (16.65), and -0.05 (0.17), -3.06% (19.28) during the three-year follow-up, respectively. Mean annualized absolute (g/cm2) and percentage change (SD) in femoral neck and total hip BMD were -0.004 (0.010), -0.47% (1.43) and -0.005 (0.009), -0.57% (1.09), respectively. 345 (3.1%) participants had incident fractures. As CLSA-SII increased (per one unit change), participants had 1.13 (adjusted OR 1.13, 95% CI 1.01-1.27) times greater odds for incident fractures. The interaction term between the CLSA-SII and centre for epidemiology studies depression 9 scale (CES-D 9) for self-reported incident fractures was shown (interaction OR 1.02, 95% CI 1.00-1.04).

CONCLUSIONS: Socially isolated and lonely older adults were more likely to have had incident fractures, but social isolation was not associated with the three-year changes in grip strength, gait speed, or BMD.

Language: en

The impact of cardiovascular diagnostics and treatments on fall risk in older adults: a scoping review and evidence map

Pronk AC, Wang L, van Poelgeest EP, Leeflang MMG, Daams JG, Hoekstra AG, van der Velde N. Geroscience 2023; ePub(ePub): ePub.

DOI: 10.1007/s11357-023-00974-4 **PMID:** 37864713

Abstract

BACKGROUND: We aimed to summarize the published evidence on the fall risk reducing potential of cardiovascular diagnostics and treatments in older adults.

METHODS: Design: scoping review and evidence map. DATA SOURCES: Medline and Embase. ELIGIBILITY CRITERIA: all available published evidence; Key search concepts: "older adults," "cardiovascular evaluation," "cardiovascular intervention," and "falls." Studies reporting on fall risk reducing effect of the diagnostic/treatment were included in the evidence map. Studies that investigated cardiovascular diagnostics or treatments within the context of falls, but without reporting a fall-related outcome, were included in the scoping review for qualitative synthesis.

RESULTS: Two articles on cardiovascular diagnostics and eight articles on cardiovascular treatments were included in the evidence map. Six out of ten studies concerned pacemaker intervention of which one meta-analyses that included randomized controlled trials with contradictory results. A combined cardiovascular assessment/evaluation (one study) and pharmacotherapy in orthostatic hypotension (one study) showed fall reducing potential. The scoping review contained 40 articles on cardiovascular diagnostics and one on cardiovascular treatments. It provides an extensive overview of several diagnostics (e.g., orthostatic blood pressure measurements, heart rhythm assessment) useful in fall prevention. Also, diagnostics were identified, that could potentially provide added value in fall prevention (e.g., blood pressure variability and head turning).

CONCLUSION: Although the majority of studies showed a reduction in falls after the intervention, the total amount of evidence regarding the effect of cardiovascular diagnostics/treatments on falls is small. Our findings can be used to optimize fall prevention strategies and develop an evidence-based fall prevention care pathway. Adhering to the World guidelines on fall prevention recommendations, it is crucial to undertake a standardized assessment of cardiovascular risk factors, followed by supplementary testing and corresponding interventions, as effective components of fall prevention strategies. In addition, accompanying diagnostics such as blood pressure variability and head turning can be of added value.

Language: en

Keywords: Intervention; Cardiovascular; Scoping review; Older adults; Fall prevention; Evidence map

Mild stroke, serious problems: limitations in balance and gait capacity and the impact on fall rate, and physical activity

Roelofs JMB, Zandvliet SB, Schut IM, Huisinga ACM, Schouten AC, Hendricks HT, de Kam D, Aerden LAM, Bussmann JBJ, Geurts ACH, Weerdesteyn V. Neurorehabil. Neural Repair 2023; ePub(ePub): ePub.

DOI: 10.1177/15459683231207360 **PMID:** 37877724

Abstract

BACKGROUND: After mild stroke persistent balance limitations may occur, creating a risk factor for fear of falling, falls, and reduced activity levels.

OBJECTIVE. To investigate whether individuals in the chronic phase after mild stroke show balance and gait limitations, elevated fall risk, reduced balance confidence, and physical activity levels compared to healthy controls.

METHODS: An observational case-control study was performed. Main outcomes included the Mini-Balance Evaluation Systems Test (mini-BEST), Timed Up and Go (TUG), 10-m Walking Test (10-MWT), and 6-item version Activity-specific Balance Confidence (6-ABC) scale which were measured in 1 session.

OBJECTIVEly measured daily physical activity was measured for 7 consecutive days. Fall rate in daily life was recorded for 12 months. Individuals after a mild stroke were considered eligible when they: (1) sustained a transient ischemic attack or stroke longer than 6 months ago, resulting in motor and/or sensory loss in the contralesional leg at the time of stroke, (2) showed (near-) complete motor function, that is, ≥24 points on the Fugl-Meyer Assessment-Lower Extremity (range: 0-28).

RESULTS: Forty-seven healthy controls and 70 participants after mild stroke were included. Participants with stroke fell more than twice as often as healthy controls, had a 2 point lower median score on the mini-BEST, were 1.7 second slower on TUG, 0.6 km/h slower on the 10-MWT, and had a 12% lower 6-ABC score. Intensity for both total activity (8%) as well as walking activity (6%) was lower in the participants with stroke, while no differences were found in terms of duration.

CONCLUSIONS: Individuals in the chronic phase after a mild stroke demonstrate persistent balance limitations and have an increased fall risk. Our results point at an unmet clinical need in this population.

Language: en

Keywords: accidental falls; gait; postural balance; stroke; stroke rehabilitation; transient ischemic attack

Correction: Development and external validation of a risk prediction model for falls in patients with an indication for antihypertensive treatment: retrospective cohort study

The editors. BMJ 2023; 383: p2267.

DOI: 10.1136/bmj.p2267 **PMID:** 37875299

Abstract

In this paper by Archer and colleagues (BMJ 2022;379:e070918; doi:10.1136/bmj-2022-070918, published 8 November 2022) several errors occurred during its preparation.

Abstract

Main outcome measures: The second sentence should state: Model development was conducted using a Fine-Gray approach in data from CPRD GOLD, accounting for the competing risk of death from other causes, with subsequent recalibration at "five and 10 years" using pseudo values.

Results: The third sentence should state: Upon external validation, the recalibrated model showed good discrimination, with pooled C statistics of "0.843 (95% confidence interval 0.841 to 0.844) and 0.833 (0.831 to 0.835)" at five and 10 years, respectively.

Figures 7 and 8

Figure 7: The labelling of the decision curves was inadvertently transposed--the top panel shows the results for five years, the bottom panel for 10 years.

Figure 8: The authors identified an error in the analysis code used to generate figure 8.

Results: Clinical utility analysis

The final paragraph should state: In analyses comparing the risk of falls with the risk of cardiovascular disease in CPRD GOLD, "1725 (0.1%)" patients had a high risk of falls (>10%) but low risk of cardiovascular disease (<10%) at 10 years (fig 8). A further "324 884 (18.3%)" patients were classified as high risk of both, and "607 228 (34.2%)" had a low falls risk but high risk of cardiovascular disease.

Discussion: Implications for policy and practice

The third sentence before the end should state: We examined the prevalence of this scenario in our model development population (fig 8) and identified only "a small" number of individuals "(0.1%)" who would be classified in this way, when comparing risks at 10 years.

The article and typeset pdf have been revised.

Language: en

Correction to: World guidelines for falls prevention and management for older adults: a global initiative

The editors. Age Ageing 2023; 52(10): afad199.

DOI: 10.1093/ageing/afad199 **PMID:** 37862147 **PMCID:** PMC10588741

Abstract

This is a correction to: Age and Ageing, Volume 51, Issue 9, September 2022, afac205, https://doi.org/10.1093/ageing/afac205

This is a correction to: Manuel Montero-Odasso, Nathalie van der Velde, Finbarr C Martin, Mirko Petrovic, Maw Pin Tan, Jesper Ryg, Sara Aguilar-Navarro, Neil B Alexander, Clemens Becker, Hubert Blain, Robbie Bourke, Ian D Cameron, Richard Camicioli, Lindy Clemson, Jacqueline Close, Kim Delbaere, Leilei Duan, Gustavo Duque, Suzanne M Dyer, Ellen Freiberger, David A Ganz, Fernando Gómez, Jeffrey M Hausdorff, David B Hogan, Susan M W Hunter, Jose R Jauregui, Nellie Kamkar, Rose-Anne Kenny, Sarah E Lamb, Nancy K Latham, Lewis A Lipsitz, Teresa Liu-Ambrose, Pip Logan, Stephen R Lord, Louise Mallet, David Marsh, Koen Milisen, Rogelio Moctezuma-Gallegos, Meg E Morris, Alice Nieuwboer, Monica R Perracini, Frederico Pieruccini-Faria, Alison Pighills, Catherine Said, Ervin Sejdic, Catherine Sherrington, Dawn A Skelton, Sabestina Dsouza, Mark Speechley, Susan Stark, Chris Todd, Bruce R Troen, Tischa van der Cammen, Joe Verghese, Ellen Vlaeyen, Jennifer A Watt, Tahir Masud, the Task Force on Global Guidelines for Falls in Older Adults , World guidelines for falls prevention and management for older adults: a global initiative, Age and Ageing, Volume 51, Issue 9, September 2022, afac205, https://doi.org/10.1093/ageing/afac205

In the originally published version of this manuscript, there was a typographical error in the name of the collaborative author Frances Batchelor.

This has been corrected.

Language: en

Findings from three methods to identify falls in hospitals: results from the Ambient Intelligent Geriatric Management system fall prevention trial

Visvanathan R, Lange K, Selvam J, Dollard J, Boyle E, Jones K, Ingram K, Shibu P, Wilson A, Ranasinghe DC, Karnon J, Hill KD. Australas. J. Ageing 2023; ePub(ePub): ePub.

DOI: 10.1111/ajag.13245 **PMID:** 37861202

Abstract

OBJECTIVE: To (a) compare characteristics of patients who fall with those of patients who did not fall; and (b) characterise falls (time, injury severity and location) through three fall reporting methods (incident system reports, medical notes and clinician reports).

METHODS: A substudy design within a stepped-wedge clinical trial was used: 3239 trial participants were recruited from two inpatient Geriatric Evaluation and Management Units and one general medicine ward in two Australian states. To compare the characteristics of patients who had fallen with those who had not, descriptive tests were used. To characterise falls through three reporting methods, bivariate logistic regressions were used.

RESULTS: Patients who had fallen were more likely than patients who had not fallen to be cognitively impaired (51% vs. 29%, $p < 0.01$), admitted with falls (38% vs. 28%, $p = 0.01$) and have poor health outcomes such as prolonged length of stay (24 [16-34] vs. 12 [8-19] days [IQR], $p < 0.01$) and less likely to be discharged directly to the community (62% vs. 47%, $p < 0.01$). Most falls were captured from medical notes (93%), with clinician (71%) and incident reports (68%) missing 21%-25% of falls. The proportion of injurious falls identified through incident reports was higher than medical records or clinician reports (40% vs. 34% vs. 37%).

CONCLUSIONS: This study reaffirms the need to improve reporting falls in incident systems and at clinical handover to the team leader. Research should continue to use more than one method of identifying falls, but include data from medical records. Many falls cause injury, resulting in poor health outcomes.

Language: en

Keywords: aged; accidental falls; aged 80 and over; inpatients; patient safety; risk management