
Implementation of Falls Prevention Strategies in the in-patient Setting: A Rapid Review.

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Executive Summary

Background

Monash Health has several Falls Management Procedures which require updating and consolidation into one overarching guideline. In 2019, the Centre for Clinical Effectiveness conducted a review of current evidence about fall risk assessment and interventions (or strategies) to prevent falls. This work was conducted to inform the development of Monash Health's Falls prevention and management guideline. The evidence from this review concluded that; falls assessment, standardised, and patient-centred risk assessment tools validated for the specific population should be used. Two assessment tools used together would better evaluate the characteristics of falls by the elderly. Combining functional measures with subjective screening tools may optimise performance and accuracy of identifying falls risk. Further, with respect to fall prevention interventions, no single intervention has been shown to be universally effective. It appears that multifactorial, patient-centered interventions may be of most benefit.

From the evidence about fall risk assessment and interventions (or strategies) to prevent falls we examined whether we could gain insights into the implementation process of these strategies. This examination only revealed details about the content of the strategies and whether it made a difference to preventing falls or rates of risk assessments undertaken.

Implementation processes that we were interested in included, but were not limited to: steps undertaken with respect to engaging clinicians or communication plans, alignment process with current practices, leadership or governance models, feedback and audit processes on local progress or sharing of data, conduct of educational meetings or ongoing training and how this impacts knowledge and behaviour, and sustainability strategies. We also wanted to know if implementation was successful and whether it made an impact on clinical outcomes, such as reduced fall rate or increase in falls assessments.

Given the limited information gained from re-assessing the previously identified evidence for implementation details, the Centre for Clinical Effectiveness undertook an additional review for evidence about the implementation process of falls prevention strategies, paying attention only to studies that described and evaluated implementing a falls prevention intervention or strategy.

Objective

The objective of this review was to identify evidence about the implementation of a falls prevention strategies. More specifically, we were looking for critical lessons on how to effectively implement a falls prevention strategy in an inpatient setting.

Results

After conducting a search of the peer-reviewed and grey literature, two studies (Maia et al., 2018; Ploeg et al. 2018) met the inclusion criteria for this review (Table 1). The grey literature search (9/1/2020) revealed one falls prevention implementation guide (ARHQ, 2017) however, there were no studies found that applied the ARHQ implementation guide.

Details of the falls programs included in Maia et al. (2018) and Ploeg et al. (2018) along with evaluation of these Programs are outlines in Table 1.

To evaluate the implementation of their program, Maia et al. (2018) used the Joanna Briggs Institute Practical Application of Clinical Evidence System (JBI-PACES) and Getting Research into Practice (GRiP) audit and feedback tool (Joanna Briggs Institute, no date).

Ploeg et al. (2018) used the National Health Service (NHS) model for sustainability of healthcare innovations (Maher et al., 2007) tool to implement and evaluate the Registered Nurses Association of Ontario Guideline for Prevention of Falls and Fall injuries in Older Adults strategy (2011). Detail of the implementation plans and evaluations can be found in the full report.

A summary of the programs and results (both implementation and clinical outcomes) are presented below.

Program settings and details

Maia et al., 2018	Ploeg et al. 2018
<p>This project reported experiences in implementing a falls prevention strategy in a public teaching hospital in Sao Paulo Brazil with a capacity of 236 beds.</p> <p>The aim of the program was to promote evidence-based practice in the prevention of falls among inpatients in the Internal Medicine Unit and the Intensive Care Unit.</p> <p>In both units the working time is 36 hours a week, distributed in six-hour daytime shifts and 12-hour night shifts. The nursing chief has management and teaching duties, while baccalaureate nurses are responsible for the planning of the nursing process for inpatients, distribution and supervision of activities for nursing technicians, conducting procedures that are specific to the scope of practice of baccalaureate nurses, and teaching activities for undergraduate students and nursing residents. Nursing technicians perform nursing activities prescribed by baccalaureate nurses in the patient's care plan.</p>	<p>This project implemented a falls prevention program in included three community hospitals in Ontario: two medium-sized hospitals and one small (based on number of beds and admissions).</p> <p>The aim of the program was to assess the impact of a mentored falls prevention guideline implementation focused on enhancing sustainability in reducing fall rates and numbers of serious falls and the experience of participating staff in three acute care hospitals.</p> <p>The falls program was based on the 2017 Registered Nurses' Association of Ontario (RNAO) Best Practice Guideline for Prevention of Falls and Fall Injuries in the Older Adult (RNAO, 2017)</p> <p>The prevention program was a mentored program, that aimed at reducing falls by:</p> <ul style="list-style-type: none"> (a) Enhancing sustainability action planning; (b) Providing on-going feedback to implementation teams about patient outcomes through collection and analysis of quantitative data; (c) Identifying barriers and supports that occurred in the implementation of the guideline through collection and analysis of qualitative data; (d) Providing education and networking opportunities for project leaders at the three participating hospital sites.

Implementation outcomes

<p>100% compliance with the criteria relating to the following:</p> <ul style="list-style-type: none"> • Identification of high risk patients presenting a former or current history of falls • Falls risk assessment during transfer to another unit. <p>75% or more compliance with best practices in all teams:</p> <ul style="list-style-type: none"> • Assessing the risk of falls on admission (75%) • Use of accurate instrument for the assessment of the risk of falls (77%) • Implementation of targeted interventions according to the relevant risk factors (78%). 	<ul style="list-style-type: none"> • There was no change in sustainability between the pre-intervention, intervention or post-intervention time period. • Staff want senior leaders to take visible and active roles in keeping falls prevention an organisational priority • Staff want to be recognised for the accomplishments of staff in falls prevention. • Staff are sensitive to feeling supported by senior management. • The importance of increasing the attendance of staff at senior leader forums and staff meetings and formally engaging point-of-care staff as champions were stressed by participants. • It is important that clinical leaders have resources to sustain fall prevention awareness for all staff, including the need to provide relief hours for ongoing education, feedback, and audit activities.
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Clinical outcomes

<ul style="list-style-type: none"> • The rate of falls at the Internal Medicine Unit, during the period following the implementation the falls prevention strategy, gradually decreased until no falls were recorded in the month of February. From 4 falls in month 1 (start of the implementation project) to 0 in month 4 (close of the implementation project). • Patients who fell during this period suffered no further harm. These results are preliminary and may be affected by the recent changes introduced by the project. It is important to reassess this trend over the following months to determine whether this pattern is sustainable. 	<p>There were no differences in fall rates between pre-intervention, intervention or, post-intervention time points.</p>
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Conclusions

There is a general paucity of evidence that describes and evaluates the implementation of a falls prevention strategy in the inpatient hospital setting. There is more evidence from the community sector with evidence of some success however, there are nuances related to the setting which may mean replication to achieve similar findings would not be possible. It is suggested that a valid and reliable implementation framework be employed, regardless of the strategy, to maximise the efficacy of rolling out a new clinical practice intervention.

Background

Monash Health has several Falls Management Procedures which require updating and consolidation into one overarching guideline. In 2019, The Centre for Clinical Effectiveness conducted a review of current evidence about fall risk assessment and interventions (or strategies) to prevent falls was required as part of the guideline development. It was concluded that, with respect to falls assessment, standardised, patient-centred risk assessment tools validated for the specific population should be used. Two assessment tools used together would better evaluate the characteristics of falls by the elderly. Combining functional measures with subjective screening tools may optimise performance and accuracy of identifying falls risk. Further, with respect to fall prevention interventions, no single intervention has been shown to be universally effective. It appears that multifactorial, patient-centered interventions may be of most benefit.

As a result of these findings, the Centre for Clinical Effectiveness conducted a review of the evidence on the implementation of falls prevention strategies, paying attention only to studies that described and evaluated the implementation of a falls prevention intervention.

Objectives

The objective of this review was to identify evidence about the implementation of a falls prevention strategies. More specifically, we were looking for critical lessons on how to effectively implement a falls prevention strategy in an inpatient setting.

Search strategy

Inclusion/Exclusion Criteria

Table 1. Inclusion/Exclusion criteria

Population	Include: Inpatients. Exclude: Home-based, community-based, primary care.
Interventions	Include: Falls prevention strategies.
Outcomes	Implementation tools, strategies, plans.
Context	Include: All. Exclude: None.
Types of evidence	Include: peer reviewed and grey literature
Limits	Date: 2014 Language: Publications in English.

Search strategy

OVID Medline, AMED and EMBASE were searched using the search terms and combinations the in Appendix (Table 2).

A grey Literature search was also conducted using Google. The following search terms were used: Implement fall prevention program strategies evaluate evaluation

Study Selection

Titles and abstracts identified were exported to EndNote X7 (Thompson, Reuters, Carlsbad, California, USA). Papers identified were screened using inclusion and exclusion criteria established *a priori*. Searches of OVID Medline, AMED and EMBASE were screened by one reviewer (CJ), and the internet (using Google) was screened by one reviewer (AM). Literature was included based on the above criteria.

Results

There were 1075 studies found, with a total of 776 after 299 duplicated were removed. After screening the 776 studies, only two studies (Maia et al., 2018; Ploeg et al., 2018) met the inclusion criteria for this review (Table 1). The grey literature search (9/1/2020) revealed 97 results, of which one falls implementation framework was included in this review (ARHQ, 2017).

Maia et al. (2018) reported their experiences in implementing a falls prevention strategy in a public teaching hospital in Sao Paulo Brazil with a capacity of 236 beds. The aim of the program was to promote evidence-based practice in the prevention of falls among inpatients in the Internal Medicine Unit (IMU) and the Intensive Care Unit (ICU).

Implementation strategy

To evaluate the implementation of their program they used the Joanna Briggs Institute Practical Application of Clinical Evidence System (JBI-PACES) and Getting Research into Practice (GRiP) audit and feedback tool (Joanna Briggs Institute, no date). The tool involves three phases of activity: Phase 1 - Team establishment and baseline audit; Phase 2 - Design and implementation of strategies to improve practice; and Phase 3 - Follow-up audit after implementation of change strategy. Phase 1 is detailed in Table 3, Phase 2 in Table 4.

Table 3: Phase 1 – Detail regarding project team, audit team, stakeholder and baseline audit

Project team	Audit team	Stakeholders	Baseline audit
The project team comprised the Director of Clinical Nursing Division, a faculty member of the EEUSP and the Nursing Chief of Quality Services. They were responsible for the design and implementation of the project and developing the associated tools and strategies for the project.	The audit team comprised the baccalaureate nurses of Quality Services and nurses of the Patient Safety Group who were responsible for the audit process and the training program.	Relevant key stakeholders were the Nursing Chief of IMU and ICU who were responsible for the supervision of the best implementation program and gave feedback to the nurse team.	Data was collected by the implementation team over one month in the IMU and 15 days in the ICU. Audit criteria provided in Figure 1.

Audit criteria are provided in Figure 1.

Audit criterion	Sample	Method used to measure % compliance with best practice
1. Fall risk assessment is done upon admission	The baseline audit sample: IMU: 72 patients ICU: 22 patients Follow-up audit sample: IMU: 48 patients ICU: 18 patients	This criterion was considered as ‘YES’ if the clinical record showed a risk assessment completed within 12 hours of admission.
2. Fall risk assessment is done upon transfer	The baseline audit sample: IMU: 72 patients ICU: 22 patients Follow-up audit sample: IMU: 48 patients ICU: 18 patients	This criterion was considered as ‘YES’ if the clinical record for patients that had been transferred (intra-hospital transfer) showed a risk assessment completed within 12 hours of transfer.

3. Reassessment occurs when there is a change in condition or following a fall	The baseline audit sample: IMU: 72 patients ICU: 22 patients Follow-up audit sample: IMU: 48 patients ICU: 18 patients	This criterion was considered as 'YES' if the clinical record for patients who had a change in condition that affected their falls risk status or experienced a fall included reassessment performed within 12 hours of this event.
4. Patients who have experienced a fall are considered at high risk for future falls	The baseline audit sample: IMU: 72 patients ICU: 22 patients Follow-up audit sample: IMU: 48 patients ICU: 18 patients	This criterion was considered as 'YES' if the clinical record for patients who had a history of falls were assessed as high risk for future falls, according to the risk assessment.
5. Fall risk assessment is done accurately using a falls assessment tool	The baseline audit sample: IMU: 72 patients ICU: 22 patients Follow-up audit sample: IMU: 48 patients ICU: 18 patients	This criterion was considered as 'YES' if the clinical record showed that a risk fall assessment with the Morse Fall Scale was used for patients categorized as at-risk of falls on admission, who developed clinical changes that led to the risk, or had experienced falls during hospitalization.
6. Healthcare professionals have received education regarding falls assessment and prevention strategies	The baseline and follow-up audit sample: IMU: 14 baccalaureate nurses and 35 nursing technicians ICU: 18 baccalaureate nurses and 28 nursing technicians	The criterion was considered as 'YES' if staff members in the participating ward reported that they had received education in the last year. Question: "Have you received education regarding falls prevention strategies a year ago?"
7. Patient and family education is carried out for patients at risk of falls	The baseline audit sample: IMU: 72 patients ICU: 22 patients Follow-up audit sample: IMU: 48 patients ICU: 18 patients	This criterion was considered as 'YES' if, for patients at risk of falls, patient and family education was documented in the case notes as having been done
8. Targeted interventions are implemented according to risk factors	The baseline audit sample: IMU: 72 patients ICU: 22 patients Follow-up audit sample: IMU: 48 patients ICU: 18 patients	This criterion was considered as 'YES' if it was documented in nursing records for patients assessed as at-risk that there had been implementation of targeted interventions to address identified risk factors. Targeted interventions related to key risk factors and levels of risk for falls were selected and included in the 'Falls Prevention Protocol' and the electronic documentation system of the nursing process during assessment, diagnosis, outcome and nursing interventions. The adjustment made was the application of a standardized and validated tool for assessing the risk of falls, choosing the most appropriate interventions according to the risk assessment and the evaluation of the relevant risk factors, for example, patients with pre-existing falls to be identified as at-high-risk of falls, using visual alerts in the yellow code (bracelet and risk of falling plate next to their beds), indicating the risk of falls.

IMU, Internal Medicine Unit; ICU, Intensive Care Unit.

Figure 1. Audit criteria

Phase 2 - Strategies for Getting Research into Practice

Results from the audit were presented and barriers and strategies to overcome them were workshopped followed by an agreed action plan. This action plan is outlined in Table 4.

Table 4. Key strategies based on the audit results, and agreed actions

Key strategy	Audit results	Agreed action
Education of nursing staff	<p>The initial audit showed that the nursing staff had not received any formal training on the prevention of falls in the preceding year.</p> <p>Lack of training and knowledge on updates to the institutional protocol on falls prevention also affected low compliance with other criteria, as all required up to date information to be delivered.</p>	<ul style="list-style-type: none"> - Lectures on falls prevention for all nursing with 40- minute classes to cover the practices based on the best available evidence and the difficulties encountered in daily practice, as identified by the team during the session on group dynamics. - Update of the institutional Falls Prevention Protocol with best practice recommendations and making the contents available online through an icon on the desktop of all computers at the IMU. - Update of the electronic documentation system for the nursing process in order to optimize the work of the team, with information based on best practice and consistent with the lectures and the Falls Prevention Protocol.
Assessment of the risk of falls with standardised and validated tool	<p>The initial audit showed that no standardised and validated instrument had been used for the assessment of the risk of falls made by the nursing staff. This may result in inappropriate decisions about the degree of risk for the patients and affect the choice of appropriate actions for the prevention of falls.</p>	<p>The Morse Fall Scale was adopted, as it has been translated and culturally adapted for use in Brazil. Furthermore, it is recommended for its easy metrics and applicability. The Morse Fall Scale was incorporated into the Falls Prevention Protocol, the electronic documentation system of nursing process, and updated lessons on the prevention of falls.</p>
Education of patients and families	<p>The initial audit showed that only 5% and 17% of patients and their families received information on prevention of falls by nursing staff at the IMU and ICU, respectively. Lack of knowledge on this topic may have contributed to the persistent negative attitude of patients, the lack of engagement for change, or the poor adherence to preventive strategies.</p>	<p>A clear and easy-to understand leaflet was produced containing objective information on the prevention of falls during hospitalisation. Recommendations were included on the basis of the best evidence and the most common problems identified by nursing staff during the group dynamics. The printed material was made available to the nursing staff of the IMU and ICU for distribution among patients or families within the first 24 hours of admission.</p>

Phase 3 – Follow-up audit

The same eight audit criteria from the baseline audit were used for the follow-up audit cycle. Data was collected by implementation team over one month in the IMU and 15 days. The follow-up data was entered into JBI-PACES and data analysis comparing follow-up results with those of the baseline audit was undertaken to examine any change in compliance rates.

Results of falls prevention strategy

Phase 2 - Strategies for Getting Research into Practice

Below are the barriers to best practice falls prevention strategies, the strategy to overcome the barriers, the resources needed and the expected outcomes (Figure 2).

Barrier	Strategy	Resources	Outcomes
Absence of established criteria for the assessment of the risk of falls at the time of hospital admission	<ul style="list-style-type: none"> To include questions about the assessment of the risk of falls in the hospital admission questionnaire in the electronic documentation system of the nursing process To build awareness about the system by highlighting the “risk of falls” diagnosis made by nursing staff in the nursing outcomes and nursing interventions related. To educate nurses of the IMU and ICU on the use of the electronic documentation system of the nursing process with the new features available 	<ul style="list-style-type: none"> Computers with intranet access to the electronic documentation system of the nursing process PowerPoint presentation Training room with multimedia resources and computers with intranet access 	<ul style="list-style-type: none"> Electronic documentation system of the nursing process updated 100% of the nursing staff of IMU and ICU trained
Absence of a standardization of criteria for the reassessment of the risk of falls in patients admitted	<ul style="list-style-type: none"> To establish in the ‘Falls Prevention Protocol’ that patient risk of falls must be assessed by the nurse upon patient transfer to another unit if there are clinical changes or if patients suffer a fall. Patients with a medium or high risk of falls should be reassessed every 72 hours. To educate nurses of the IMU and ICU on the ‘Falls Prevention Protocol’ 	<ul style="list-style-type: none"> PowerPoint presentation Training room with multimedia resources and computers with intranet access 	<ul style="list-style-type: none"> ‘Falls Prevention Protocol’ updated and available to all nursing staff 100% of the nursing staff of the IMU and ICU trained
Absence of an standardized and validated instrument for assessment of the risk of falls	<ul style="list-style-type: none"> To include the Morse Fall Scale in the ‘Falls Prevention Protocol’ and in the electronic documentation system of the nursing process To educate nurses of the IMU and ICU on the use of the Morse Fall Scale 	<ul style="list-style-type: none"> Computers with intranet access to the electronic documentation system of the nursing process PowerPoint presentation Training room with multimedia resources and computers with intranet access 	<ul style="list-style-type: none"> Updated ‘Falls Prevention Protocol’ available to all nursing staff Electronic documentation system of the nursing process with the Morse Fall Scale available for use by nursing staff 100% of the nurses of the IMU and ICU trained
Lack of updated information on falls preventions aimed at the nursing staff	<ul style="list-style-type: none"> To update the ‘Falls Prevention Protocol’, including the eight criteria, based on evidence To make available the ‘Falls Prevention Protocol’ on the intranet, using a desktop icon for quick access To educate nursing staff of the IMU and ICU concerning best practices on falls prevention 	<ul style="list-style-type: none"> Computers with intranet access at the IMU and ICU PowerPoint presentation Training room with multimedia resources 	<ul style="list-style-type: none"> ‘Falls Prevention Protocol’ updated and available to all nursing staff 100% of the nursing staff of the IMU and ICU trained
Lack of information for the patient and family about the prevention of falls	<ul style="list-style-type: none"> To produce a leaflet with information regarding falls prevention to be delivered to the patients and families To educate nursing staff of the IMU and ICU on how to use this new educational resource to educate patients and families and to register on nursing notes into the patient’s records 	<ul style="list-style-type: none"> Visual and graphic design tools used by the Communication team of the HU-USP Printing equipment and materials to make leaflets for distribution among patients admitted to the IMU and ICU PowerPoint presentation Training room with multimedia resources 	<ul style="list-style-type: none"> Leaflet available to be delivered to patients and family 100% of nursing staff of the IMU and ICU trained
Absence of updates to target interventions per individual patient risk factors	<ul style="list-style-type: none"> To include the main nursing interventions, per patient levels of risk of falls and risk factors, in the ‘Falls Prevention Protocol’ To include the intervention “Protocol for Falls” in the electronic documentation system of the nursing process with the main activities performed for patients at the IMU and ICU, according to risk factors and the risk of falls To educate nurses of the IMU and ICU on the ‘Falls Prevention Protocol’ 	<ul style="list-style-type: none"> Computers with intranet access to the electronic documentation system of the nursing process PowerPoint presentation Training room with multimedia resources and computers with intranet access 	<ul style="list-style-type: none"> ‘Falls Prevention Protocol’ and electronic documentation system of the nursing process updated and available to the nursing staff 100% of the nursing staff of IMU and ICU trained

Figure 2. Strategies for Getting Research into Practice

Phase 3 – Follow-up audit

The follow-up audit results were satisfactory as all best practice audit criteria showed an improvement as an aggregated result in the IMU and ICU. There was an increase in compliance rates for all best practices criteria. Specifically, there was 100% compliance with the criteria relating to the following: training of staff on the assessment and prevention of falls in the IMU and ICU; identification of high risk patients presenting a former or current history of falls in the IMU and ICU; and falls risk assessment during transfer to another unit in IMU. Also, the criteria showed 75% or more compliance with best practices in all teams: assessing the risk of falls on admission (75%), use of accurate instrument for the assessment of the risk of falls (77%), and implementation of targeted interventions according to the relevant risk factors (78%). These results suggest that the measures taken to implement the criteria in clinical practice were adequate and were able to overcome the barriers identified.

The criterion that showed a low compliance in the IMU (45%) and ICU (53%) was the education of patients and their families on the prevention of falls. This criterion was considered valid if the oral and written information provided to the patients at risk of falls was registered in their chart, while just delivering the informative leaflet was not enough. It should be noted that the compliance with this criterion in the initial audit was only 5% and 17% in IMU and ICU, respectively, showing a significant improvement, although such compliance is still less than adequate. For this criterion, it will be necessary to reinforce the available documentation with preventive guidelines or to establish that the patient or family member should sign a form when receiving the leaflet.

The rate of falls at the IMU, during the period following the implementation the falls prevention strategy, gradually decreased until no falls were recorded in the month of February. Patients who fell during this period suffered no further harm. These results are preliminary and may be affected by the recent changes introduced by the project. It is important to reassess this trend over the following months to determine whether this pattern is sustainable.

Ploeg et al., 2018

Ploeg et al., (2018) implemented a falls prevention program in included three community hospitals in Ontario: two medium-sized hospitals and one small (based on number of beds and admissions). The aim of the study was to assess the impact of a mentored falls prevention guideline implementation focused on enhancing sustainability in reducing fall rates and numbers of serious falls and the experience of participating staff in three acute care hospitals.

Implementation strategy

In this study, the Registered Nurses Association of Ontario Guideline for Prevention of Falls and Fall injuries in Older Adults was implemented (2011). To ensure the prevention program was sustainable, the National Health Service (NHS) model for sustainability of healthcare innovations (Maher et al., 2007) tool was used. The prevention program was a mentored program, that aimed at reducing falls by: (a) enhancing sustainability action planning; (b) providing on-going feedback to implementation teams about patient outcomes through collection and analysis of quantitative data; (c) identifying barriers and supports that occurred in the implementation of the guideline through collection and analysis of qualitative data; and (d) providing education and networking opportunities for project leaders at the three participating hospital sites.

Results of the falls prevention program

Sustainability

Overall, the sustainability scores for each factor did not change from the intervention to post-intervention period. With respect to staff and their confidence in their involvement and training to sustain the process of implementation of the fall prevention guideline, this too did not change.

Falls Rates and Serious Falls

There were no differences in fall rates between pre-intervention, intervention or, post-intervention time points.

Quantitative findings

Staff reported that senior leaders need to take a highly visible and active roles in keeping falls prevention an organisational priority, and to recognise the accomplishments of staff in falls prevention. Staff members are sensitive to feeling supported by senior management when making practice changes opportunities for staff and leaders to dialog are necessary. The importance of increasing the attendance of staff at senior leader forums and staff meetings and formally engaging point-of-care staff as champions were stressed by participants. This sharing of ideas and discussion routinely during change cycles is needed to facilitate staff perseverance and sustain the gains. It is important that clinical leaders have resources to sustain fall prevention awareness for all staff, including the need to provide relief hours for ongoing education, feedback, and audit activities.

Other implementation frameworks

One study (Maia et al. (2018) trialed and evaluating the implementation plan and impact of a falls prevention strategy using the Joanna Briggs Institute Practical Application of Clinical Evidence System (JBI-PACES) and Getting Research into Practice (GRiP) audit and feedback tool (Joanna Briggs Institute, no date). However, there are other implementation science frameworks that have been used in falls prevention that might also be useful. The Iowa Model of Evidence Based Practice (Iowa Model Collaborative, 2017), as suggested here https://www.myamericannurse.com/wp-content/uploads/2015/07/ant7-Falls-630_FULL.pdf), has been employed in the falls prevention context but limited details are provided.

Further, the Fall Prevention Program Implementation Guide (ARHQ, 2017) has also been used to guide implementation. However, we did not find any studies that implemented and evaluated the use of this guide. The guide provides assistance for the following steps:

1. Are you ready for change
2. How will you manage change?
3. Which fall prevention practices do you want to use?
4. How do you implement the Fall Prevention Program in your organization?
5. How do you measure fall rates and fall prevention practices?
6. How do you sustain an effective Fall Prevention Program?

Conclusions

There is a general paucity of evidence that describes and evaluates the implementation of a falls prevention strategy in the inpatient hospital setting. There is more evidence from the community sector with evidence of some success however, there are nuances related to the setting which may mean replication to achieve similar findings would not be possible. It is suggested that a valid and reliable implementation framework be employed, regardless of the strategy, to maximise the efficacy of rolling out a new clinical practice intervention.

References

Maia, M., Shimoda, T., Sichieri, K., & Iida, S. (2018). Falls prevention strategies for adult inpatients in a university hospital of São Paulo, Brazil: a best practice implementation project. *JBI Database of Systematic Reviews and Implementation Reports*, 16(8), 1720-1736.

Ploeg, J., Ireland, S., Cziraki, K., Northwood, M., Zecevic, A. A., Davies, B., ... & Higuchi, K. (2018). A Sustainability Oriented and Mentored Approach to Implementing a Fall Prevention Guideline in Acute Care Over 2 Years. *SAGE Open Nursing*, 4.

Agency for Healthcare Research and Quality (ARHQ). (2017). Fall Prevention Program Implementation Guide. Rockville, United States of America. <https://www.ahrq.gov/professionals/systems/hospital/fallpxtraining/implguide.html> Accessed 23/01/2020.

Joanna Briggs Institute. Joanna Briggs Institute Practical Application of Clinical Evidence System (JBI-PACES) and Getting Research into Practice (GRiP) audit and feedback tool. <http://know.lww.com/JBI-resources/tools.html> Accessed 10/01/2020.

Registered Nurses Association of Ontario. (2011, 2017). Prevention of falls and falls injuries in the older adult. Toronto, Canada. <https://www.rnao.org/bestpractices/> Accessed 23/01/2020

Maher, L., Gustafson, D., & Evans, A. (2007). Sustainability model and guide. NHS Institute for Innovation and Improvement. www.institute.nhs.uk/sustainability Accessed 23/01/2020.

Iowa Model Collaborative, Buckwalter, K. C., Cullen, L., Hanrahan, K., Kleiber, C., McCarthy, A. M., ... & Authored on behalf of the Iowa Model Collaborative. (2017). Iowa model of evidence-based practice: Revisions and validation. *Worldviews on Evidence-Based Nursing*, 14(3), 175-182.

Appendix

Table 2. Search terms

1. implement*.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
2. translat*.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
3. exchange.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
4. 1 or 2 or 3
5. #22.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
6. limit 5 to (humans and yr="2011")
7. falls prevention.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
8. fall prevention.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
9. prevention of falls.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
10. prevent falls.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
11. prevents falls.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
12. prevent patient falls.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
13. prevents patient falls.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
14. preventing fall.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
15. preventing falls.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
16. falls reduction.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading

word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
17. fall reduction.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
18. reduction of falls.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
19. reduce falls.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
20. reduces falls.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
21. reducing fall.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
22. reducing falls.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
23. improve fall.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
24. improve falls.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
25. improves fall.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
26. improves falls.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
27. improving fall.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
28. improving falls.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
29. 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28
30. Accidental Falls.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
31. fall.tw.
32. falls.tw.
33. faller\$.tw.

34. fallen.tw.
35. fall-related.tw.
36. near-fall\$.tw.
37. 30 or 31 or 32 or 33 or 34 or 35 or 36
38. exp Adult/
39. hospital.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
40. hospitals.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
41. hospitali*.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
42. 39 or 40 or 41
43. 29 and 37 and 42
44. 38 and 43