

Reducing Falls and Injuries from Falls Getting Started Kit: Evidence Update

BACKGROUND

ABOUT THIS EVIDENCE UPDATE

In 2013, the Canadian Patient Safety Institute (CPSI), in partnership with the Registered Nurses' Association of Ontario (RNAO) and with the support of the Canadian Falls Intervention Faculty, released a second edition of the Canadian publication, [*Reducing Falls and Injury from Falls Getting Started Kit*](#) (hereafter referred to as Falls GSK). The Falls GSK was developed as part of the Canadian Patient Safety Institute's signature program, *Safer Healthcare Now!* The Falls GSK was developed to engage interdisciplinary teams in a dynamic approach for improving quality and safety on the topic of falls prevention.

Since 2008, RNAO has been the lead for the *Safer Healthcare Now!* National Falls Prevention Intervention and has collaborated on a variety of initiatives to prevent falls and injury from falls, including leading the development of previous editions of the Falls GSK and facilitating several quality improvement collaboratives. Although the *Safer Healthcare Now!* program was discontinued in 2016, the Canadian Patient Safety Institute and RNAO identified that the Falls GSK remains a valuable resource and should be updated to reflect current evidence.

About the Canadian Patient Safety Institute

The Canadian Patient Safety Institute is a national organization that works with governments, health organizations, leaders, and healthcare providers to inspire extraordinary improvement in patient safety and quality. In 2016, the Canadian Patient Safety Institute launched a new strategic direction: *Shift to Safety*. Recently, the Canadian Patient Safety Institute has introduced two initiatives across Canada: the Measurement and Monitoring of Safety Framework, designed to change the way people think about safety; and TeamSTEPPS, which is a strategy and series of tools to improve teamwork and intra-team communication. Both strategies are being implemented organization-wide at participating sites, from the "frontline" to the board of directors, in a concerted effort to influence a culture of safety. The Canadian Patient Safety Institute recruits experts from across Canada, representing various disciplines, to support patient safety initiatives. For a list of Falls Faculty and Expert Consultants supporting this Evidence Update, see [page 3](#).

About the Registered Nurses' Association of Ontario

The Registered Nurses' Association of Ontario (RNAO) is the professional body representing registered nurses, nurse practitioners and nursing students in Ontario. RNAO advocates for healthy public policy, promotes excellence in nursing practice, and empowers nurses to actively influence and shape decisions that affect the profession and the public they serve. RNAO's best practice guideline program is a signature program of RNAO. These guidelines are

developed using a rigorous methodology in accordance with international guideline development standards. Recommendations in the *Preventing Falls and Reducing Injury from Falls* (4th ed.) guideline (hereafter referred to as the Falls BPG), were developed based on a systematic literature review and other evidence-based guidelines that were critically appraised by a research team. An expert panel was engaged throughout the guideline development process and the guideline underwent external stakeholder review prior to publication. The Falls BPG, and details about the RNAO's guideline systematic review and development process, can be found at (RNAO.ca/bpg/guidelines/prevention-falls-and-fall-injuries).

PROCESS FOR EVIDENCE UPDATE

The following methodology was utilized to develop this Evidence Update:

- 1) The Canadian Patient Safety Institute and RNAO recruited experts in falls prevention to support the Evidence Update.
- 2) RNAO developed an evidence-based guideline, *Preventing Falls and Reducing Injury from Falls* (4th ed.) based on established guideline development methodology.
- 3) RNAO, in consultation with the Canadian Patient Safety Institute, compared the Falls GSK content to current evidence from the Falls BPG. Key content within the Falls GSK requiring update and evidence to support these content areas was identified.
- 4) Canadian Patient Safety Institute Falls Faculty and expert consultants were invited to identify any other aspects of the Falls GSK that were no longer current and to recommend additional evidence, particularly in content areas beyond the scope of the Falls BPG, and therefore not included in the systematic review.
- 5) Draft versions were reviewed by the Falls Faculty, and their feedback was incorporated into the final Evidence Update.
- 6) The Evidence Update was approved by RNAO and the Canadian Patient Safety Institute.

SCOPE OF EVIDENCE UPDATE

This Evidence Update is focused on the main findings from the systematic review conducted for the Falls BPG (including peer-reviewed literature published between January, 2011-August, 2016). For detailed information about the evidence used to inform the development of this Evidence Update, please refer to the [Falls BPG](#). It is beyond the scope of this Evidence Update to confirm that all content in the 2013 GSK remains supported by evidence.

HOW TO USE THIS EVIDENCE UPDATE

This Evidence Update is to be used in conjunction with the 2013 Falls GSK. Healthcare providers should review the Evidence Update to identify new resources that are available to support their practice and content that has changed since the 2013 Falls GSK.

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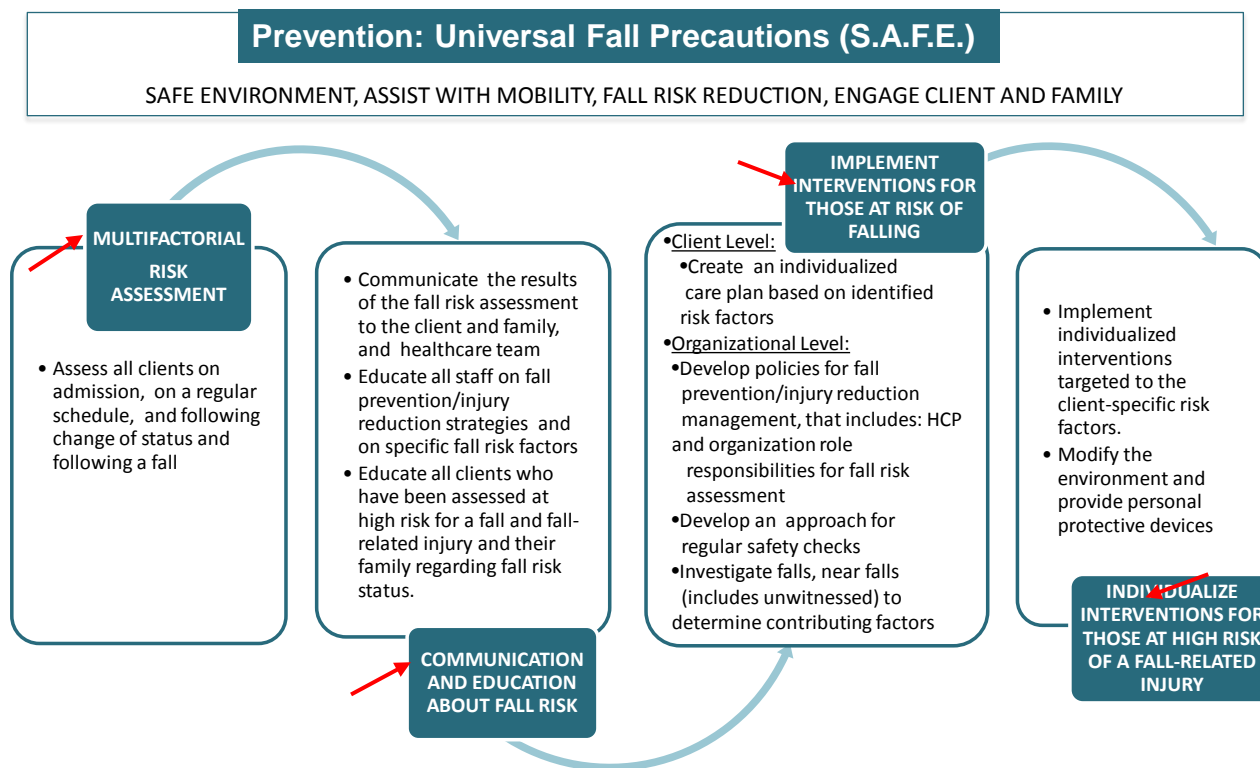
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For enquiries about this Evidence Update, contact: [RNAO.ca/contact](https://rnao.ca/contact)

FALL PREVENTION/INJURY REDUCTION INTERVENTION MODEL

The Fall Prevention/Injury Reduction Intervention Model (Figure 1) is used as the organizing framework in the Falls GSK. The red arrows indicate elements in the model where new evidence exists that may lead to practice changes. The new evidence is described in the tables below (see pages 6-20).

Figure 1: Fall Prevention/Injury Reduction Intervention Model



EVIDENCE UPDATE

The following tables outline new evidence and resources that may be used, in conjunction with the Falls GSK, to improve quality and safety on the topic of reducing falls and injury from falls. The tables are organized according to components in the Fall Prevention/Injury Reduction Intervention Model.

Prevention : Universal Fall Precautions (S.A.F.E.)

SAFE ENVIRONMENT, ASSIST WITH MOBILITY, FALL RISK REDUCTION, ENGAGE CLIENT AND FAMILY

Topic: Engagement of client and family

Settings: Applicable to all settings. Family members or substitute decision-makers may be involved.

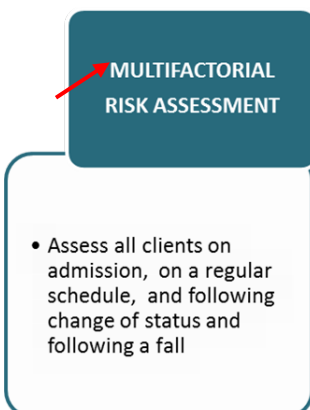
Evidence Update

The label “at risk” is associated with stigma, frailty, and loss of independence (McInnes, Seers & Tutton, 2011). Because of this, it is recommended that healthcare providers talk about risk for falls or fall injury with sensitivity and use positive messaging (College of Occupational Therapists [COT], 2015; National Institute for Health and Care Excellence [NICE], 2013). The benefits of interventions (e.g., being able to actively participate in daily activities) should be emphasized (COT, 2015).

A collaborative, person-centred approach is recommended when determining how to prevent falls (COT, 2015). For example, the healthcare provider can discuss options with the person, seek an understanding of their perception of risk and their preferences to determine which interventions are most appropriate (McInnes et al., 2011; Turner et al., 2011). This may include helping the person to determine the best ways to minimize risk, versus eliminating risk (COT, 2015).

New Resources

- Accreditation Canada, Omentum Accreditation Program, Client- and Family-Centred Care. See: <https://www.accreditation.ca/client-and-family-centred-care>
- Registered Nurses' Association of Ontario. (2015). *Person- and family-centred care*. See: www.RNAO.ca/bpg/guidelines/person-and-family-centred-care



Topics: Identifying people at risk for falls; “multifactorial assessment”; assessment tools update

Identifying people at risk for falls

Settings: Community, hospital, and long-term care; setting specific evidence indicated below.

Evidence Update

Multiple tools have been developed to identify people at risk for falls. This Evidence Update did not identify any particular tools that can be used to consistently or reliably identify falls risk (Callis, 2016; Cumbler, Simpson, Rosenthal, & Likosky, 2013; Matarese, Ivziku, Bartolozzi, Piredda, & De Marinis, 2015; NICE, 2013; U.S. Preventive Services Task Force, 2012). Overall, tools may be used to support assessments but should not be relied upon, as a stand-alone determination of falls risk (Registered Nurses’ Association of Ontario [RNAO], 2017).

In the hospital setting, risk prediction tools that aim to calculate a person’s risk of falling, in terms of ‘at risk/not at risk’ or ‘low/medium/high risk’ are not recommended (NICE, 2013). According to NICE (2013), risk prediction tools that provide a score or rating oversimplify the complexity of falls risk and may lead to ineffective interventions (NICE, 2013).

Clinical judgment has been identified, particularly in hospital and long-term care settings, as an important part of identifying which individuals are at risk for falls, (da Costa, Rutjes, Mendy, Freund-Heritage, & Vieira, 2012; NICE, 2013; Wallis & Campbell, 2011). In a review of studies conducted in geriatric rehabilitation hospitals, clinical judgement was found to be just as effective as risk prediction tools in determining a person’s risk for falls (da Costa et al., 2012). Although the literature does not explicitly highlight clinical judgement in other settings, healthcare providers should always apply their knowledge and critical thinking skills to make sound judgements about falls risk (RNAO, 2017).

A history of previous falls is a strong indicator of risk (Ambrose, Cruz, & Paul, 2015; Ambrose, Paul, & Hausdorff, 2013; Boelens, Hekman, & Verkerke, 2013; Callis, 2016; Deandrea et al., 2013; Vieira, Freund-Heritage, & da Costa, 2011; Zhao & Kim, 2015) and should be used to identify which people are at risk for falls (COT, 2015; NICE, 2013; U.S. Preventive Services

Task Force, 2012; Wallis & Campbell, 2011).

Further exploration of falls history (e.g., what was happening at the time of the fall and what factors may have contributed to the fall) can provide important information about the individual's risk for falls and inform effective interventions to prevent future falls (Ambrose et al., 2015; COT, 2015; NICE, 2013; U.S. Preventive Services Task Force, 2012).

Impairments of gait, balance and mobility are also highly associated with falling and should be identified by healthcare providers (Ambrose et al., 2015; Ambrose et al., 2013; Boelens et al., 2013; Callis, 2016; NICE, 2013; U.S. Preventive Services Task Force, 2012; Wallis & Campbell, 2011; Zhao & Kim, 2015). See New Resources below for link to further information.

Multifactorial assessment

Settings: Community, hospital, and long-term care; setting specific evidence indicated below.

Evidence Update

The term multifactorial assessment is interpreted in different ways in the literature. Examples of a multifactorial assessment include: assessment of gait, balance and mobility, muscle weakness, osteoporosis risk, functional ability, fear of falling, visual impairment, cognitive impairment, neurological examination, urinary incontinence, home hazards, cardiovascular examination, medication review (NICE, 2013).

Evidence to support the effectiveness of multifactorial assessments is unclear (DiBardino, Cohen, & Didwania, 2012; Gillespie et al., 2012; Papaioannou et al., 2015; U.S. Preventive Services Task Force, 2012). In-depth, multifactorial assessments may not be necessary for all people at risk for falls or fall injury (NICE, 2013; U.S. Preventive Services Task Force, 2012). The National Institute for Health and Care Excellence (2013) recommends multifactorial assessments for:

- (1) older people who present for medical attention because of a fall;
- (2) people who have had recurrent falls in the past year; and
- (3) those with abnormalities of gait and/or balance.

Furthermore, in hospital settings, they recommend that multifactorial assessments focus primarily on factors that can be "treated, improved or managed during their expected stay" (NICE, 2013, p. 15).

Assessment tools

Settings: settings where tools are already in use; setting specific evidence indicated below.

Updates to information about tools

- The Mini-Mental Status Exam (MMSE), used to screen for cognitive impairment is now proprietary (i.e., there are licensing requirements and costs associated).
- The Canadian WHO Fracture Risk Assessment Tool (FRAX), and the Canadian Association of Radiologist and Osteoporosis Canada tool (CAROC), used to screen for osteoporosis, have

not been validated in long-term care (Papaioannou et al., 2015).

- The Canadian Nutrition Screening Tool (CNST) is a new tool used to screen for malnutrition in hospitals. It is based on two simple questions about weight change and food intake. It is available at: nutritioncareincanada.ca

New Resources

- Appendix F: Summary of Findings-Approaches and Tools for Assessing Falls Risk, in: Registered Nurses' Association of Ontario. (2017). *Preventing Falls and Reducing Injury from Falls* (4th ed.) Toronto, ON: Author.
- Laporte, M., Keller, H., Payette, H., Allard, J.P., Duerksen, D.R., Bernier, P., Jeejeebhoy, K., Gramlich, L., Davidson, B., Vesnaver, E. & Teterina, A. (2015). Validity and reliability of the new Canadian nutrition screening tool in the 'real-world' hospital setting. *European Journal of Clinical Nutrition*, 69(5), 558-564.

- Communicate the results of the fall risk assessment to the client and family, and healthcare team
- Educate all staff on fall prevention/injury reduction strategies and on specific fall risk factors
- Educate all clients who have been assessed at high risk for a fall and fall-related injury and their family regarding fall risk status

COMMUNICATION AND EDUCATION ABOUT FALL RISK

Topic: Communication and education with client and family

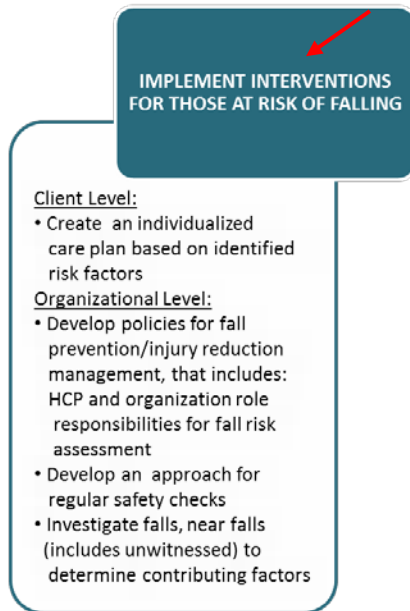
Settings: Applicable to all settings; community (where specified)

Evidence Update

Providing educational materials without other interventions has *not* been proven effective at reducing falls among older people living in the community (Gillespie et al., 2012). Education should be offered in different formats, including oral, written, and electronic (e.g., web resources, printed materials, etc.), and in a language that the person understands (COT, 2015; NICE, 2013).

See section, Engagement of client and family above ([page 6](#)) for additional information about discussing risk for falls and taking a person-centred, collaborative approach.

<p>New Resources</p> <ul style="list-style-type: none"> • See resources in Engagement of client and family
<p>Topic: Communication between providers</p>
<p>Setting: Community, hospital, and long-term care</p> <p>Evidence Update</p> <p>Since the publication of the 2013 Falls GSK, there has been greater emphasis across different healthcare settings on the importance of communication during care transitions. The Falls BPG includes the following recommendation that was developed by an expert panel, and endorsed by the Canadian Patient Safety Institute Falls Faculty. The recommendation states: Communicate the person's risk for falls and related plan of care/interventions to the next responsible healthcare provider and/or the interprofessional team at all care transitions to ensure continuity of care and to prevent falls or fall injuries (RNAO, 2017, p. 33).</p> <p>The 2013 Falls GSK recommends the use of a visual identifier (e.g., a logo, symbol, or wrist band) to indicate falls risk. This remains a common practice in many healthcare settings. However, no evidence was found to indicate whether or not a visual identifier is an effective means of communicating falls risk. Further research is needed.</p>
<p>New Resources</p> <ul style="list-style-type: none"> • Registered Nurses' Association of Ontario. (2014). <i>Care transitions</i>. See: www.RNAO.ca/bpg/guidelines/care-transitions
<p>Topic: Staff education</p>
<p>Settings: Community, hospital, and long-term care</p> <p>Evidence Update</p> <p>Staff education should be implemented <i>as one component of</i> a fall prevention initiative, and not offered in isolation (Goodwin, Jones-Hughes, Thompson-Coon, Boddy, & Stein, 2011; Hempel et al., 2013; Low et al., 2015; Miake-Lye et al., 2013; Stalpers, de Brouwer, Kaljouw, & Schuurmans, 2015; Vlaeyen et al., 2015).</p>
<p>New Resources</p> <ul style="list-style-type: none"> • Canadian Fall Prevention Education Collaborative (CFPEC) and Canadian Fall Prevention Curriculum (CFPC). See: http://canadianfallprevention.ca/ <p>Note: costs associated with resources</p>



Topic: Exercise (client level intervention)

Setting: Research conducted primarily in community settings

Evidence Update

Comprehensive exercise programs focused on fall prevention, balance, and muscle strengthening improve fall risk factors and help to prevent falls and reduce injury from falls (El-Khoury et al., 2013; Gillespie et al., 2012; NICE, 2013; Stubbs, Brefka, et al., 2015; U.S. Preventive Services Task Force, 2012).

New Resources

- The Canadian Society for Exercise Physiology: Physical Activity Guidelines. See: <http://www.csep.ca/home>
- The Canadian Centre of Activity and Aging. See: <http://www.uwo.ca/ccaa/>
- Sherrington, C., Michaleff, Z. A., Fairhall, N., Paul, S. S., Tiedemann, A., Whitney, J., & Lord, S. R. (2016). Exercise to prevent falls in older adults: An updated systematic review and meta-analysis. *British Journal of Sports Medicine*, bjsports-2016.
- Appendix H: Exercise and Physical Training Interventions, in: Registered Nurses' Association of Ontario. (2017). *Preventing Falls and Reducing Injury from Falls* (4th ed.) Toronto, ON: Author.

Topic: Medications (client level intervention)

Settings: Community, hospital, and long-termcare

Evidence Update

Polypharmacy is an important risk factor for falls (Ambrose et al., 2015; Ambrose et al., 2013; Callis, 2016; Zia, Kamaruzzaman, & Tan, 2015). Polypharmacy refers to when a person is taking a high number of medications, having medications prescribed by many practitioners, or taking various medications that are not coordinated well (Rambhade, Chakaraborty, Shrivastava, Patil, & Rambhade, 2012).

Medications from specific classes are associated with an increase in falls risk. Evidence is provided below specific to psychotropic medications, analgesics and cardiovascular medications. The way the medication affects the body and how the body responds to them are cause for concern related to falls risk (Boparai & Korc-Grodzicki, 2011). Further information on potentially inappropriate medications for older adults is listed in the Beers Criteria (see Resources below).

Psychotropic medications (e.g., medications for improving sleep, reducing anxiety, and treating depression) are of particular concern in relation to falls risk (Bunn et al., 2014; Changqing et al., 2015; Vieira, Freund-Heritage & da Costa, 2011).

Some evidence suggests that analgesics are associated with an increased risk for falls (Lo-Ciganic et al., 2017; Rolita, Spegman, Tang & Cronstein, 2013; Söderberg, Laflamme & Möller, 2013).

Evidence for cardiovascular medication (e.g., medications used to treat high blood pressure, heart failure, and other disorders of the heart and blood vessels) is not definitive, but does indicate there may be risks associated with falling (Butt & Harvey, 2015; Jansen et al., 2016; Lipsitz et al., 2015; Marcum et al., 2015; Peeters et al., 2017; Shimbo et al., 2016). New evidence about medications to treat blood pressure indicates that there may be an increased risk of falls when the dosages of these medications are adjusted, when new medications are added, or when multiple cardiovascular medications are used in combination (Butt & Harvey, 2015, Peeters et al., 2017, Shimbo et al., 2016).

Reducing, gradually withdrawing, or discontinuing medications associated with falls risk continues to be recommended (Changqing et al., 2015; Gillespie et al., 2012; NICE, 2013). However, there is mixed evidence related to this practice (Darowski & Whiting, 2011; U.S. Preventive Services Task Force, 2012; Zia et al., 2015). Before adjusting medications associated with falling, healthcare providers need to consult prescribing practitioners to weigh benefits and harms and to avoid under treatment (RNAO, 2017).

New Resources

- *American Geriatrics Society Updated Beers Criteria for Potentially Inappropriate Medication Use in Older Adults (2015)*. See: <https://www.guideline.gov/content.aspx?id=49933>
Note: the Beers Criteria is updated every three years (next update anticipated in 2018).
- Canadian Deprescribing Network. See: <http://deprescribing.org/caden/>

- Canadian Patient Safety Institute (2017). *Medication Reconciliation (Med Rec) Getting Started Kit*. Available for acute care, long-term care and home care. See: <http://www.patientsafetyinstitute.ca/en/toolsResources/Pages/Med-Rec-resources-getting-started-kit.aspx>
- Denis O'Mahony, David O'Sullivan, Stephen Byrne, Marie Noelle O'Connor, Cristin Ryan, Paul Gallagher; STOPP/START criteria for potentially inappropriate prescribing in older people: version 2, *Age and Ageing*, Volume 44, Issue 2, 1 March 2015, Pages 213-218, <https://doi.org/10.1093/ageing/afu145>

Topic: Nutrition and vitamin D (client level intervention)

Settings: Applicable to all settings; long-term care (where specified)

Evidence Update

A large body of evidence is available that examines the use of vitamin D supplementation for falls and fracture prevention; overall, results are inconsistent and inconclusive (Gillespie et al., 2012; NICE, 2013; Stubbs, Brefka, et al., 2015; Zheng, Cui, Hong, & Yao, 2015).

Some evidence supports the use of vitamin D to prevent falls for people living in the community (Gillespie et al., 2012; U.S. Preventive Services Task Force, 2012; Verheyden et al., 2013) and to reduce fracture among people living in long-term care (Gillespie et al., 2012; Murad et al., 2011; NICE, 2013; Papaioannou et al., 2015; Stubbs, Brefka, et al., 2015; Verheyden et al., 2013; Workgroup of the Consensus Conference on Vitamin D for the Prevention of Falls and their Consequences, 2014).

Vitamin D supplementation appears to be most beneficial among people who have vitamin D deficiency and those living in long-term care homes (Gillespie et al., 2012; Murad et al., 2011; Papaioannou et al., 2015; Stubbs, Brefka, et al., 2015; Verheyden et al., 2013; Workgroup of the Consensus Conference on Vitamin D for the Prevention of Falls and their Consequences, 2014).

A high-quality diet, including lean protein, vegetables, fruits, and whole grains promotes overall health, muscle strength and mass, and physical function in older adults (Benetou et al., 2013; Kelaiditi et al., 2016; Perala et al., 2017).

New Resources

- Artaza-Artabe, I., Sáez-López, P., Sánchez-Hernández, N., Fernández-Gutierrez, N., & Malafarina, V. (2016). The relationship between nutrition and frailty: Effects of protein intake, nutritional supplementation, vitamin D and exercise on muscle metabolism in the elderly. A systematic review. *Maturitas*, 93, 89-99.
- Beaudart, C. Dawson, A., Shaw, S.C., Harvey, N.C., Kanis, J.A., Binkley, N., ... & Rizzoli, R. (2017). Nutrition and physical activity in the prevention and treatment of sarcopenia: Systematic review. *Osteoporosis International*, 1-17.

- Papaioannou, A., Santesso, N., Morin, S. N., Feldman, S., Adachi, J. D., Crilly, R., ... Cheung, A. M. (2015). Recommendations for preventing fracture in long-term care. *Canadian Medical Association Journal, 187*(15), 1135-1144.
- Workgroup of the Consensus Conference on Vitamin D for the Prevention of Falls and their Consequences (2014). *American Geriatrics Society consensus statement: Vitamin D for prevention of falls and their consequences in older adults*. New York, NY: American Geriatrics Society.

Topic: Hip protectors (client level intervention)

Setting: Long-term Care

Evidence Update

Hip protectors have the potential to reduce the risk of hip fracture, however, in long-term care settings evidence is mixed (Combes & Price, 2014) and results are modest (Santesso et al., 2014). Benefits of using hip protectors among people living in the community have not been proven (Santesso et al., 2014). Acceptance and adherence are important challenges to the use of hip protectors (Combes & Price, 2014; Santesso et al., 2014; Wallis & Campbell, 2011).

Hip protectors are most appropriate for people living in long-term care that are mobile and at high risk of fracture (Neyens et al., 2011; NICE, 2013; Papaioannou et al., 2015; Wallis & Campbell, 2011).

It is recommended to consider the benefits and barriers to the use of hip protectors to support decision-making about this intervention (RNAO, 2017).

New Resources

- Table 4: Hip Protectors—Potential Benefits, Harms, and Barriers to Adherence, in: Registered Nurses' Association of Ontario. (2017). *Preventing Falls and Reducing Injury from Falls* (4th ed.). Toronto, ON: Author.

Topic: Rounding (organizational level Interventions)

Setting: Hospital

Evidence Update

Regular rounding can be used in hospital settings to reduce falls (Hicks, 2015; Mitchell, Lavenberg, Trotta, & Umscheid, 2014). Rounding involves checking in on patients on a regular basis (e.g., hourly) to proactively meet their needs. Other benefits include: reduced pressure injuries (Hicks, 2015), reduced call-light use, and improved patient satisfaction/staff responsiveness to needs (Mitchell et al., 2014). Potential harms included: disrupted sleep or meals (Manojlovich, Lee, & Lauseng, 2016).

If rounding is implemented, a regular schedule is recommended to establish trust between the patient and the interprofessional team (Manojlovich et al., 2016).

Topic: Bed alarms

Setting: Hospital or long-term care

Evidence Update

There is a lack of evidence demonstrating clear benefit for the use of bed exit alarms in hospital or long-term care settings. Reported challenges include: false alarms, staff desensitization to alarms, and staff relying too heavily on alarms (Anderson, Boshier, & Hanna et al., 2012; Kosse, Brands, Bauer, Hortobagyi, & Lamoth, 2013).

In settings where alarms are used, healthcare organizations should ensure that staff are appropriately trained on how to use the alarms and respond promptly (Kosse et al., 2013).

Topic: Implementation science

Settings: Community, hospital, and long-term care

Evidence Update

Since the 2013 Falls GSK edition, there has been greater emphasis on the application of implementation science approaches in healthcare organizations to promote the systematic uptake and sustainability of best practices. Implementation science includes methods to promote the systematic uptake of proven clinical treatments, practices, organizational, and management interventions into routine practice to improve health (BioMed Central, 2017).

It is important for leaders and healthcare teams to apply implementation science approaches, which include identifying barriers and establishing formalized supports and structures within the organization (COT, 2015; DiBardino et al., 2012, Giles et al., 2015; Goodwin et al., 2011, Low et al., 2015; Hempel et al., 2013; Miake-Lye et al., 2013, Spoelstra et al., 2012, Stalpers et al., 2015).

New Resources

- Canadian Patient Safety Institute. (2015). *Improvement Frameworks Getting Started Kit*. See: <http://www.patientsafetyinstitute.ca/en/toolsResources/ImprovementFramework/Pages/default.aspx>
- Table 5: Supports and Structures Associated with Successful Implementation and Sustainability of Falls Prevention Initiatives in Hospitals, in: Registered Nurses' Association of Ontario. (2017). *Preventing Falls and Reducing Injury from Falls* (4th ed.) Toronto, ON: Author.

- The Center for Research in Implementation Science and Prevention online database. See: <http://dissemination-implementation.org/content/resources.aspx>
- The National Implementation Research Network's Active Implementation Hub. See: <http://implementation.fpg.unc.edu/>



Topic: Osteoporosis

Settings: Long-term care (may also apply to frail older adults living in the community)

Evidence Update (Guideline Summary):

The guideline, *Recommendations for Preventing Fracture in Long-Term Care* (Papaioannou et al., 2015) aims to minimize the risk of fractures among frail older adults living in long-term care. It outlines osteoporosis assessment and identification of residents at high risk of fracture. Treatment options are individualized and take into consideration fracture risk, quality of life, life span, co-morbidities, renal impairment and ability to swallow. Guidelines recommendations address calcium and vitamin D supplementation, hip protectors, exercise, multifactorial interventions, and osteoporosis medications. See guideline for evidence and specific recommendations.

See section Hip Protectors above ([page 14](#)) for additional information about the use of hip protectors for people at high risk of fracture.

New Resources

- Geriatric Education and Research in Aging Sciences (GERAS Centre) Osteoporosis Long-Term Care Fracture Prevention Toolkit. See: <http://www.gerascentre.ca/fracture-prevention-toolkit>

- Ioannidis, G., Jantzi, M., Bucek, J., Adachi, J. D., Giangregorio, L., Hirdes, J., ... & Papaioannou, A. (2017). Development and validation of the Fracture Risk Scale (FRS) that predicts fracture over a 1-year time period in institutionalised frail older people living in Canada: an electronic record-linked longitudinal cohort study. *BMJ open*, 7(9), e016477.
- Osteoporosis Canada website (updated recommendations and resources on exercise, nutrition and overall bone health). See: <http://www.osteoporosis.ca>
- Papaioannou, A., Santesso, N., Morin, S. N., Feldman, S., Adachi, J. D., Crilly, R., ... Cheung, A. M. (2015). Recommendations for preventing fracture in long-term care. *Canadian Medical Association Journal*, 187(15), 1135-1144.

ADDITIONAL UPDATE

Measuring the Success of Fall Prevention/Injury Reduction Programs

The Canadian Patient Safety Institute's Patient Safety Metrics (PSM) system was discontinued in July 2016. PSM was the digital database to which teams submitted all their *Safer Healthcare Now!* data up to 2016. It remains important for organizations to measure the success of their fall prevention/injury reduction programs. Measurement resources within the Falls GSK may still be used to support these efforts. Sections in the Falls GSK associated with measuring the success of fall prevention/injury reduction programs were last revised in April 2015 and are available at the following link:

<http://www.patientsafetyinstitute.ca/en/toolsresources/pages/falls-resources-getting-started-kit.aspx>

The Canadian Patient Safety Institute is available to answer questions regarding data collection and auditing. Contact alexandru.titeu@utoronto.ca for more information.

ADDITIONAL RESOURCES

Accreditation Canada:

- Required Organizational Practice, fall prevention. See: <https://www.accreditation.ca/rop-handbooks>

Falls Statistics:

- Parachute. (2015). *The Cost of Injury in Canada*. See: http://www.parachutecanada.org/downloads/research/Cost_of_Injury-2015.pdf
- Public Health Agency of Canada. (2014). *Seniors' falls in Canada: Second report*. See: http://www.phac-aspc.gc.ca/seniors-aines/publications/public/injury-blessure/seniors_falls-chutes_aines/assets/pdf/seniors_falls-chutes_aines-eng.pdf

Falls BPG:

- Appendix L: Resources, in: Registered Nurses' Association of Ontario. (2017). *Preventing Falls and Reducing Injury from Falls* (4th ed.). Toronto, ON: Author.

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