



Irish
Medication
Safety
Network

Briefing Document on Medication Use and Falls Risk

This document is intended as a “briefing document” and is not to be regarded as a document offering definitive legal advice in relation to the subject matter.

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About the IMSN

The Irish Medication Safety Network (IMSN) is an independent group of pharmacists and other specialists working in the acute sector, whose principal aim is to improve patient safety, with regard to the use of medicines through collaboration, shared learning and action.

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Definitions

Fall: A fall has been defined as: “a sudden, unintentional change in position causing an individual to land at a lower level, on an object, the floor, or the ground, other than as a consequence of sudden onset of paralysis, epileptic seizure, or overwhelming external force”.(1)

Deprescribing: “Deprescribing is the process of tapering, stopping, discontinuing, or withdrawing drugs, with the goal of managing polypharmacy and improving outcomes”.(2)

Polypharmacy: The exact definition for polypharmacy is a topic currently under debate. The regular use of 5 or more medications is an acceptable numerical definition for polypharmacy. (3, 4) The number of medicines can be a good starting point, however, it is important to consider the “appropriateness” or “inappropriateness” of medicines. This depends on a number of factors including whether there is a clear clinical requirement for all prescribed medications and whether the risk of associated adverse effects are minimised. (5, 6)

Abbreviations

ACB	Anticholinergic burden.
ADL	Activities of Daily Living
FallSafe	A Royal College of Physicians (UK) delivered quality improvement project (2010-2012) which focused on prevention and management of falls in clinical hospital wards in Southern England. (7)
FRIDs	Fall-Risk Increasing Drugs.
NICE	National Institute for Health and Care Excellence (UK)
START	Screening Tool to Alert doctors to Right Treatment.(8)
STOPP	Screening Tool of Older People’s Prescriptions.(8)
STOPPFall	Screening Tool of Older Persons Prescriptions in older adults with high fall risk.(9)
STOPPFrail	Screening Tool of Older Persons Prescriptions in Frail adults with limited life expectancy.(10)

Purpose

The purpose of this IMSN briefing document is to highlight the impact certain medications can have on increasing risk of falls and to provide information on considerations and tools available that can be used to investigate and identify falls risk.

It is important to note that this document **does not** replace clinical judgement.

The approach to falls management and prevention must be **individualised** to each person.

Introduction

Falls are the leading cause of both fatal and non-fatal injury for older adults, with the National Office for Clinical Audit (NOCA) reporting up to 82% of major traumas between the years 2017 -2021 in the older adult occurring due to a low fall. (11, 12) Such is the prevalence and potential harm from falls that the HSE's Patient Safety Strategy 2019-2024 recognises falls as a common cause of harm and a priority area for patient safety improvement. (13)

Falls and fall-related injuries are common in older adults, have negative effects on functional independence and quality of life and are associated with increased morbidity, mortality and health related costs (14)

This understandably results in a large burden on healthcare utilisation with the World Health Organisation estimating the cost of falls to be in excess of over €400 billion each year. (15) In terms of an Irish context, there were 34,114 falls reported in 2021 within HSE and HSE-funded services, of which 18,023 were from acute hospitals and 15,958 from community services, and harm resulted in 19% of cases in acute services and 16% in community services. (15)

As people get older, the risk of falling, and of injury or harm from falls, increases. One in three older people fall every year and two-thirds of them fall again within six months. As Ireland's population ages, the burden of falls and related injuries is predicted to double over the next 25 years. (16)

Falls and harm from falls can be **predicted** and **prevented**. (16)

Many factors contribute to why older adults experience more falls, which may include more concurrent illnesses i.e. multi-morbidity, being prescribed more medications (polypharmacy) and suffering more adverse drug events than younger people (a phenomenon linked with increasing frailty). (17, 18) The world guidelines for falls prevention and management for older adults recommends that older adults characteristics including frailty status, polypharmacy, co-morbidities, amongst others, should be considered when performing a medication review as part of shared decision-making approach.(14) Some medicines predispose older people to adverse drug events, such as falls and cognitive impairment, thus increasing morbidity and health resource utilisation. (8) Medications which increase the risk of a person having a fall are known as falls risk increasing drugs (FRIDs) and encompass a wide breadth of medication classes, including but not limited to, psychotropics, some cardiovascular medications, and analgesia. (19, 20)

The World guidelines for falls for falls prevention and management for older adults and NICE 2025 Falls guidance, emphasises the importance of medication review, as part of a multifactorial approach to falls prevention.(14, 21)

The following **ABCs** mnemonic may prove to aid in identifying people at a particular risk of injury following a fall, but clinical judgement should also be employed, when assessing the potential for injury in a patient with a high falls risk. (22, 23)

Age >85

Bones – orthopaedic conditions / osteoporosis

Anti-**C**oagulation – or bleeding disorders

Post-**S**urgical patients – especially lower limb amputation or recent major abdominal or thoracic surgery.(24, 25)

Causes of Falls

Risk factors for falls are **multifactorial** and thus any assessment of falls risk **must** be multifactorial in nature. (14, 16, 21, 26)

Table 1 addresses some of the intrinsic, extrinsic, environmental and medication risk factors to falls.

Please note that this is not an exhaustive list and that **clinical judgment** must be applied to ensure a person-centred approach to falls prevention.

Table 1: Risk Factors for Falls and Fractures adapted from The Service User Falls A Practical Guide for Review (15), Lamis et al. (27) and HSE 2008 Strategy (16)

Intrinsic	Extrinsic	
	Environmental	Medication
<ul style="list-style-type: none"> • Muscle weakness • History of falls • Gait and balance deficit • Movement disorders • Visual deficit • Arthritis • Depression • Cognitive impairment • Age > 80yrs • Urinary incontinence • Orthostatic/Postural hypotension • Dizziness • Fear of falling • Poor safety awareness • Limited activity 	<ul style="list-style-type: none"> • Environmental hazards • Home hazards • Use of assistive devices • Impaired activities of daily living (ADL) • High level of activity (community setting) 	<ul style="list-style-type: none"> • Polypharmacy (≥ 5 medicines daily)(28) • Drugs which affect Central Nervous System(29) • Anticonvulsants • Antidepressants • Antihistamines (sedating) • Parkinson's medication • Antipsychotics • Anxiolytics, Sedatives and Hypnotics • Opioid analgesics • Class 1a antiarrhythmics* • Antihypertensives • Diuretics • Laxatives • Hypoglycemics(30)

*Examples of class 1a antiarrhythmics include quinidine, disopyramide, procainamide, lidocaine, mexiletine, flecainide, and propafenone

The Service User Falls A Practical Guide for Review document, published by the National Quality and Patient Safety Directorate in October 2022 also provides further guidance on falls prevention and how to approach the management of a fall, should it occur. (15)

Frailty

Frailty is an independent risk factor for falls. (31) It can be viewed as a distinctive health state, related to the ageing process, in which multiple body systems gradually lose their in-built reserves.(32) Various assessment tools exist to measure the degree of frailty, such as the Clinical Frailty Scale (33), the Edmonton Frailty Scale (34), Frail Scale (35) and SOF Index.(36) Medication review and deprescribing is a priority in these people.

Bone Protection

Consideration should be given to bone health and bone protection for all those at risk of falls, especially those with a degree of frailty and those with suspected or diagnosed osteoporosis. (14, 21, 37)

Further guidance on the pharmacological management of bone protection in people at risk of developing or with established osteoporosis can be found numerous international guidelines however review of the National Osteoporosis Guideline Group UK (NOGG) should be considered. (38)

- <https://www.nogg.org.uk/full-guideline>

Resources

Medicines optimisation in people receiving FRIDs can prove challenging due to multiple barriers such as competing clinical priorities, incomplete medical records and perceived lack of time and knowledge to deprescribe outside of one's clinical area. (39, 40) Differences in study methods, setting, power and definitions of a fall have made it difficult to draw firm conclusions regarding the impact of various medicines on falls risk.(41, 42)

Despite these barriers it is important to recognise that while FRIDs encompass a wide range of medication classes, antipsychotics, antidepressants and benzodiazepines are consistently associated with a higher risk of falls and should be prioritised for review. (43)

The importance of medication review in at risk persons is recommended by many patient safety organisations, when utilised as **part** of a multi- factorial falls prevention policy. (14)

The World guidelines for falls for falls prevention and management for older adults recommend using a validated, structured screening and assessment tool to identify FRIDs when performing a general medication review or medication review targeted to falls prevention.(14)

Below are a number of tools that may **aid** in guiding clinical judgement where the need for optimisation of FRIDs is required.

STOPPFall

The Screening Tool of Older Persons Prescriptions in older adults with high fall risk (STOPPFall) criteria were developed to support clinicians in the management and deprescribing of fall- risk increasing drugs (FRIDs) following the success of STOPP/START. Developed in 2021, the criteria consist of 13 domains, each with guidance on when to consider deprescribing a particular medicine, whether a down titration approach is needed and also further monitoring guidance during the deprescribing process. (9)

- Given that the focus of this tool is aimed at high fall risk older adults STOPPFall is **one** of the preferred tools for identifying potential FRIDs and should be **one** of the first resources to be consulted in those without prior experience on the topic of falls prevention.
- <https://academic.oup.com/ageing/article/50/4/1189/6043386?login=false>

STOPP/START

The Screening Tool of Older Person's Prescriptions (STOPP) / Screening Tool to Alert doctors to Right Treatment (START) guidelines are a staple reference source for identifying potentially inappropriate medications and potential omissions in the older adult. (8, 44, 45)

- <https://link.springer.com/article/10.1007/s41999-023-00777-y> (Appendix 1) (45)
- While not explicitly dealing with falls prevention as its primary focus, its success as a widely cited deprescribing tool gave rise to the following iterations of STOPPFall and STOPPFrail.

STOPPFrail

Originally developed in 2017, the Screening Tool of Older Persons Prescriptions in Frail adults with limited life expectancy (STOPPFrail) criteria were devised to guide prescribers in the deprescribing of medications for the older adult with limited life expectancy. Since their development, the criteria have undergone revision, resulting in the development and publication of STOPPFrail V2. (10)

- Given the large proportion of the older adult population meeting the clinical criteria of **frailty** in our health care system, these criteria can help identify non-essential medications potentially contributing to ADRs, such as falls.
- <https://pubmed.ncbi.nlm.nih.gov/32997135/>

MedStopper

MedStopper is an online deprescribing tool that pulls deprescribing information from Beers Criteria and the STOPP/START deprescribing tools and scores frailty using The Edmonton Frail Scale. (46)

- While not explicitly aimed at reducing falls risk, when used in combination with other tools detailed below, MedStopper can be a useful tool to aid in the deprescribing of FRIDs.
- <https://medstopper.com/>

ANTICHOLINERGIC BURDEN CALCULATOR (ACB CALCULATOR)

High anticholinergic burden (ACB) has been linked with an increase in falls risk in the older adult. (47)

Despite a large number of varying assessment tools being available to calculate individual ACB scores, the ACB calculator remains an accessible tool for use in clinical practice. This tool pulls from two separate scales the Anticholinergic Cognitive Burden Scale 2008 (48) and German Anticholinergic Burden score. (49)

Medications are awarded a score between 0 and 3 depending on their degree of anticholinergic activity, with higher scores suggestive of a high anticholinergic burden and thus a higher falls risk, which may assist in prioritising medicines for deprescribing.

- Given the high prevalence of polypharmacy and anticholinergic burden in the older adult, it would be advised that in patients that are suspected to be at high falls risk that their anticholinergic burden be calculated and reduced as much as clinically possible.
- Please note that due the broad nature of anticholinergic medications some high scoring medications may not be subject to deprescribing, such as antipsychotics used for the management of psychiatric

conditions such schizophrenia or bipolar affective disorder, thus it is **crucial** that clinical judgment be applied to all decisions regarding deprescribing on the grounds of a high anticholinergic burden.

- <https://www.acbcalc.com/>

FALLSAFE

The Royal College of Physicians (UK) led on a quality safety initiative - the Fallsafe project – which focused on prevention and management of falls in clinical hospital wards in Southern England from 2010- 2012. (7) Recommendations from this project centre around establishing the reason a medicine was prescribed, when it was commenced, whether it is effective and what its side effects have been. Following this an attempt should be made to reduce the number and dosage of medications, and ensure they are appropriate and not causing undue side effects with respect to falls risk. Night sedation was found to be a key contributor to falls in this study. Other medications which contribute to increased risk of falls are subdivided into medicines that affect the brain, heart and circulatory system respectively.

- FallSafe uses a visual traffic light colouring system to highlight the intensity to which certain drugs impact falls risk, thus potentially making this of use to those **learning** about falls prevention, with no prior experience on the topic.
- <https://www.bgs.org.uk/resources/fallsafe>

NFPCG Medicines and Falls Document

The Medicines and Falls document produced by the National Falls Prevention Coordination Group (NFPCG) in 2023 is a document that outlines the preferred procedure undertaken in the NHS for the review of medication for people at risk of falls. (50)

- Of particular interest is the extensive appendix of this document which details the falls risk associated with each medicine in the form of a traffic light system while also providing information on the class of drug, the effect on falls risk, anticholinergic burden, as well as some additional considerations to be made when reviewing that particular medicine.
- <https://www.rpharms.com/Portals/0/RPS%20document%20library/Open%20access/Pharmacy%20guide%20docs/Medicines%20and%20falls%209%2023%20%28RPSendorsed%29.pdf>

Conclusion

Falls in both the inpatient and community settings often result in injury, prolonged hospital stays, higher medical costs and increased mortality rates.(11, 16, 27) There are many risk factors for falls and fall related harm of which medications play a substantial role.(15, 27) Certain medication classes, such as those outlined in *Table 1*, can increase a person's risk of falling, in addition to contributing to polypharmacy which is an additional risk factor.(15, 27)

The World guidelines for falls for falls prevention and management for older adults and the NICE 2025 Falls guidance, re-iterates the importance of medication review, as part of a multifactorial approach to falls prevention.(14, 21)

In practice, even where medications that can cause risk of falls are identified, there may be challenges in changing or stopping them as the clinical benefit may outweigh the risk of falls in certain situations.

The IMSN recommends that, a hospital's falls risk policy should include;

- 1) A specific section on medications and falls risk
- 2) Reference useful tools for frontline staff to identify risk to patients,

AND

- 3) Be developed in collaboration with the MDT, including a pharmacist

The IMSN acknowledges the volume of work being completed in this area nationally, with particular thanks to our colleagues in Community Services Cavan, Donegal, Leitrim, Monaghan and Sligo whose work on developing their Falls prevention Framework in 2025 contributed significantly to the update of this document.
(51)

The IMSN also recognises the substantial pharmacist resourcing required in order to perform and manage the complexity of in-depth falls medication reviews as outlined in this document. It acknowledges the current limited capacity in the Irish Health Service to meet this growing need and recommends that specific protected pharmacist resourcing be provided for this role in order to meet the needs of our aging population and help **prevent** hospital readmissions.

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