Reviewing Medicines for People at Risk of Falls

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Dedication to Nina Barnett

This webinar is dedicated to our much loved and much missed colleague, Nina

- An inspirational innovator and compassionate leader
- An amazing advocate for
  - person-centred care
  - multi-professional and cross-sector collaboration
- Coach and mentor to so many
- Co-chair of national Consultant Pharmacist group

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Outline of the webinar

- Why is falls prevention important?
- Importance of medication review and the Pharmacy contribution
- Evidence base
- Tools and resources to support
- Top tips
- Case-based discussion

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Why is falls prevention important?

- Around a third of people aged 65 and over, and around half of people aged 80 and over, fall at least once a year
- Emergency admissions for falls in people aged 65 have increased over the last 10 years, from 185,000 in 2010/11 to 223,000 in 2020/21 (England)
- Prevention and management of falls is a critical global challenge due to fall-related negative effects on:
  - functional independence
  - quality of life (distress, pain, injury and loss of confidence)
  - morbidity
  - mortality
  - health-related costs

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Importance of medication review and Pharmacy contribution

Falls often result from interacting risks, and one of the prominent risk factors is fall-risk-increasing drugs (FRIDs) use

Medication review with the aim of deprescribing of FRIDs is an important component of a multifactorial falls prevention intervention

FRID review should be conducted as part of a comprehensive geriatric assessment to produce a personalised and patient-centred assessment

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Evidence base Medicines and Falls

Most evidence is for:

Antidepressants

Antiepileptics

Antipsychotics

Diuretics

Opioids

Sedatives/ hypnotics including benzodiazepines

Antihypertensives- conflicting, some evidence after initiation/ dose increases

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https://www.jamda.com/article/S1525-8610(17)30784-3/fulltext
https://www.jamda.com/article/S1525-8610(17)30785-5/fulltext
https://www.jamda.com/article/S1525-8610(17)30698-9/fulltext

Evidence base
Medication Review and Falls

Not much evidence as single intervention

Some evidence for:

- psychotropic withdrawal
- GP education with med review and withdrawal
- Med review in hospitalised frail older people with polypharmacy (FORTA and STOPPFrail)

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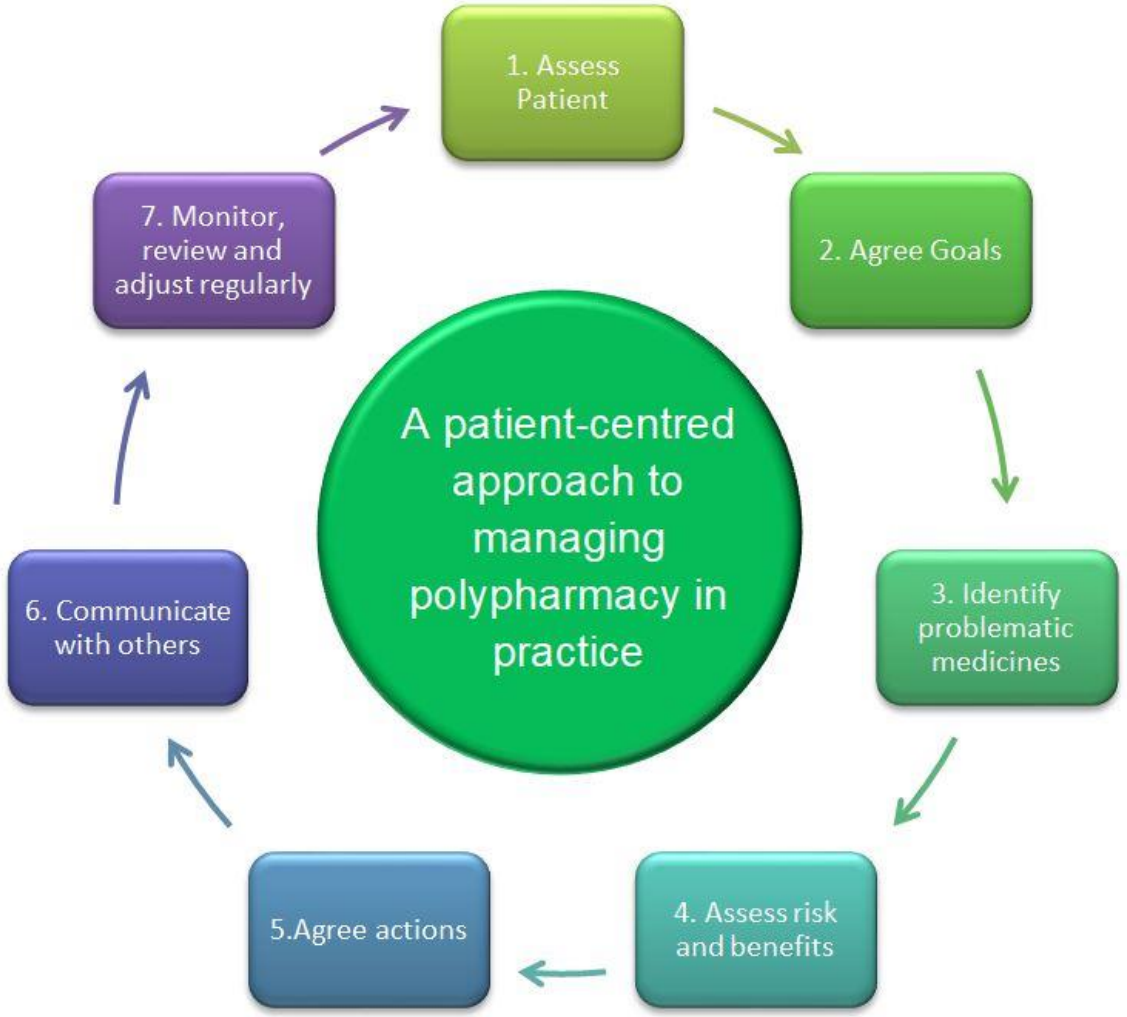
https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD007146.pub3/full

https://agsjournals.onlinelibrary.wiley.com/doi/10.1111/jgs.16278

https://link.springer.com/article/10.1007/s00228-014-1731-9

Resources to Support



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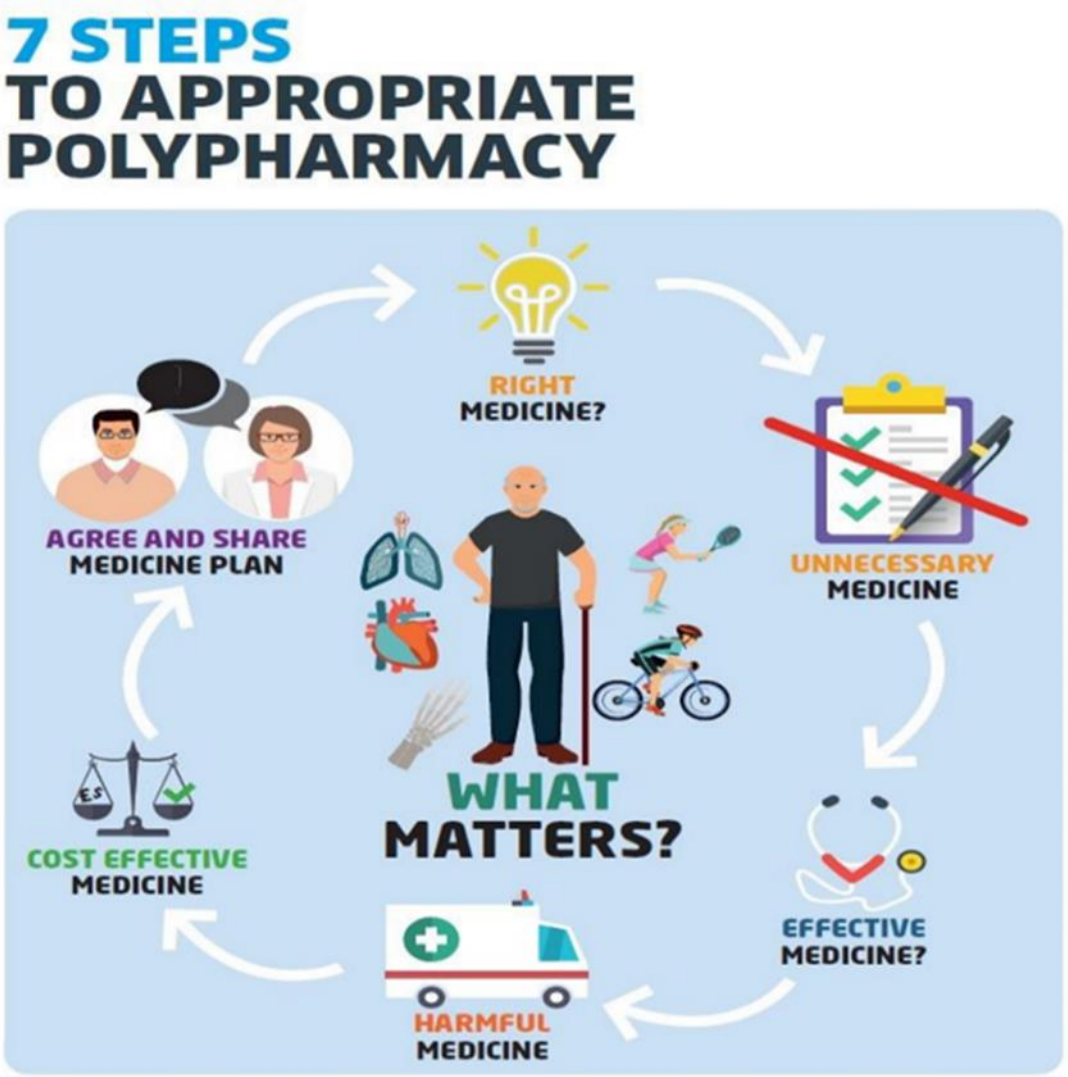
https://www.sps.nhs.uk/articles/taking-a-person-centred-approach-to-managing-polypharmacy/

Resources to Support



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https://managemeds.scot.nhs.uk/

Resources to Support

World Falls Guideline

https://www.bgs.org.uk/resources/world-guidelines-for-falls-prevention-and-management-for-older-adults-a-global-initiative

STOPPFall (Screening Tool of Older Persons Prescriptions in older adults with high fall risk)

https://academic.oup.com/ageing/article/50/4/1189/6043386

STEADI (STopping Elderly Accidents, Deaths & Injuries)

https://www.cdc.gov/steadi/index.html

Medicines and Falls

https://www.rpharms.com/Portals/0/RPS%20document%20library/Open%20access/Pharmacy%20guide%20docs/Medicines%20and%20falls%209%2023%20(RPSendorsed).pdf?ver=kHy696ZEbkwR7eopGgbkFw%3d%3d

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Full information for this guidance can be found by scanning the QR code with your smart device

NFPCG
National Falls Prevention Coordination Group

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Medicines and Falls

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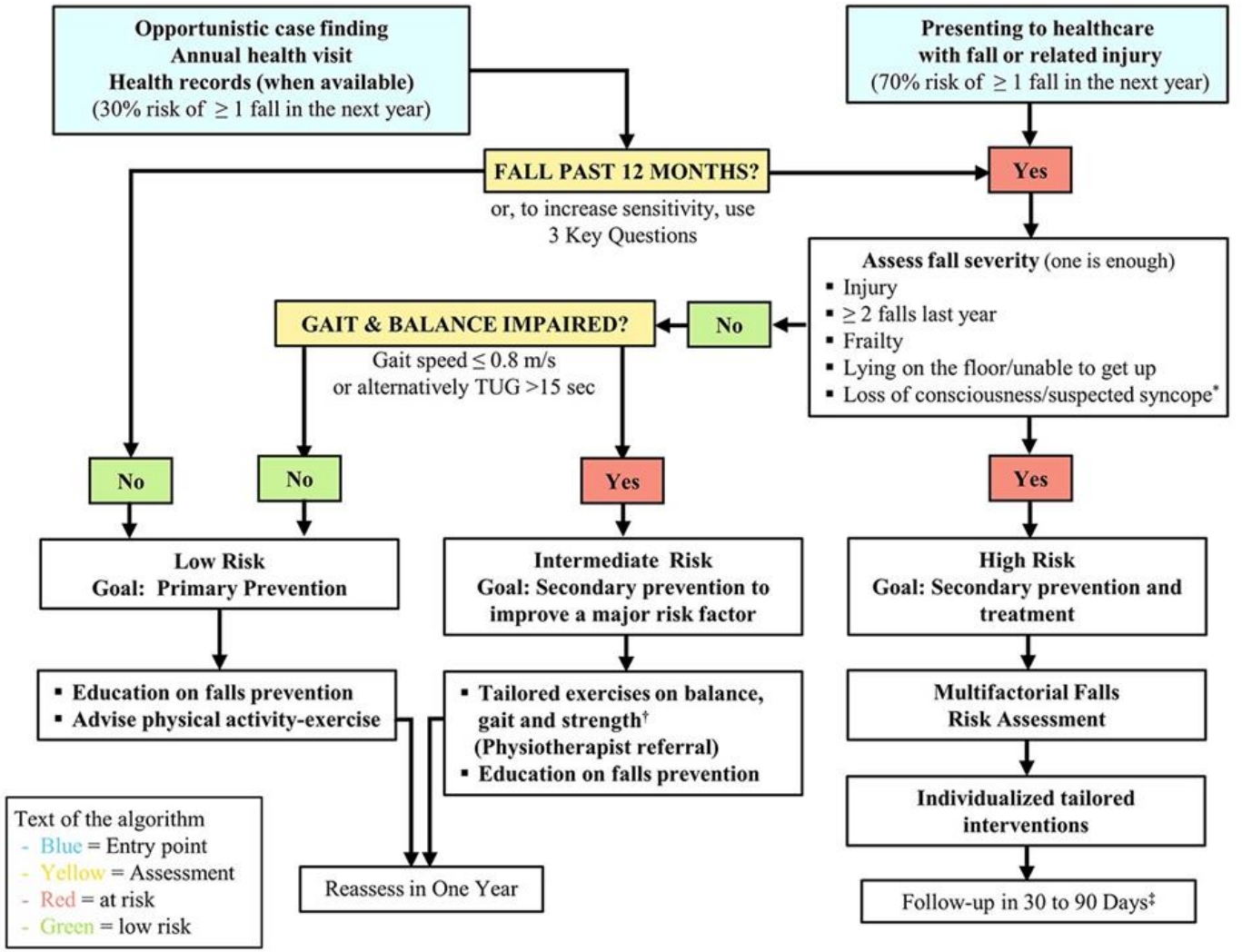
https://www.rpharms.com/Portals/0/RPS%20document%20library/Open%20access/Pharmacy%20guide%20docs/Medicines%20and%20falls%209%2023%20(RPSendorsed).pdf?ver=kHy696ZEbkwR7eopGgbkFw%3d%3d

World Falls Guideline

https://www.bgs.org.uk/resources/world-guidelines-for-falls-prevention-and-management-for-older-adults-a-global-initiative

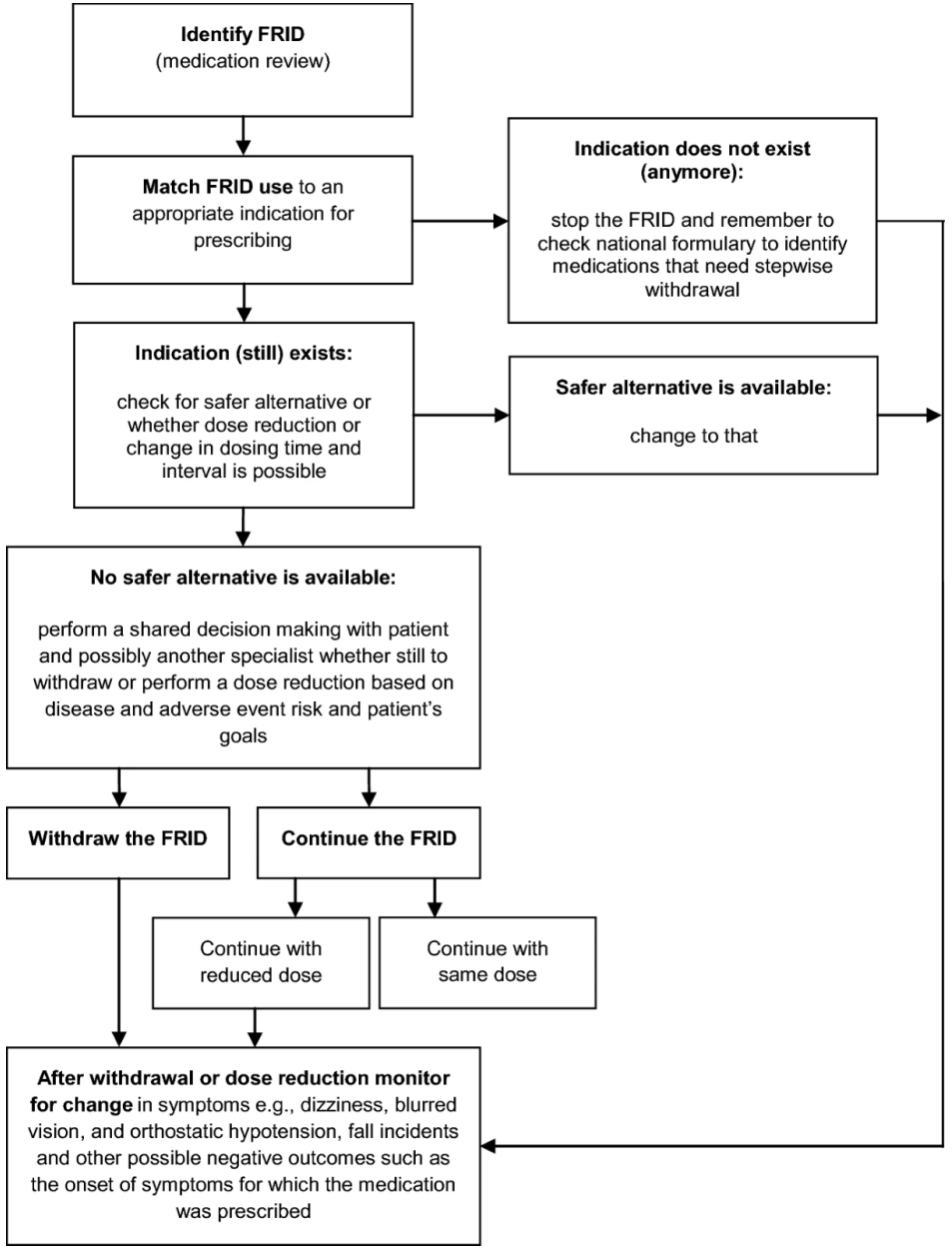


Notes: 3 Key Questions (3KQ) any positive answer to a) Has fallen in the past year? b) Feels unsteady when standing or walking? or c) Worries about falling? prompts to "fall severity" step. **Fall severity**: fall with injuries (severe enough to consult with a physician), laying on the ground with no capacity to get up, or a visit to the emergency room, or loss of consciousness/suspected syncope. **Frailty.** Commonly used frailty assessment tools include the Frailty Phenotype and the Clinical Frailty Scale.

*Syncope suspicion should trigger syncope evaluation/management. †Exercises on balance/leg strength should be recommended for the intermediate group. Evidence shows that challenging balance exercises are more effective for fall prevention. In several settings, this intermediate group is referred to a physiotherapist. ‡ High risk individuals with falls can deteriorate rapidly, and close follow up is recommended and should be guided on the frequency of consequent health service utilization. **TUG:** timed up and go test

Medicines and Falls

Seppala, L. J. et al EuGMS Special Interest Group on Pharmacology (2019). EuGMS Task and Finish group on Fall-Risk-Increasing Drugs (FRIDs): Position on Knowledge Dissemination, Management, and Future Research. *Drugs & aging*, *36*(4), 299–307. https://doi.org/10.1007/s40266-018-0622-7



Falls Risk Increasing Drugs (FRID) evidence summary

Full information for this guidance can be found by scanning the QR code with your smart device

Box 1: Falls Risk Increasing Drugs List – Extended information in Appendix 1

To obtain further information on each medicine, click into the hyperlink to see extended information:

Name of medication	Name of medication	Name of medication
ALFUZOSIN	FENTANYL	OXYCODONE
ALIMEMAZINE	FLECAINIDE	PAROXETINE
AMIODARONE	FLUOXETINE	PERINDOPRIL
AMISULPRIDE	FLUPHENAZINE	PHENELZINE
AMITRIPTYLINE	FLURAZEPAM	PHENOBARBITAL
AMLODIPINE	FOSINOPRIL	PHENYTOIN
ARIPIPRAZOLE	FUROSEMIDE	PRAZOSIN
ATENOLOL	GABAPENTIN	PREGABALIN
BACLOFEN	GALANTAMINE	PROCHLORPERAZINE
BENDROFLUMETHIAZIDE	GLYCERYL TRINITRATE	PROMAZINE
BETAHISTINE	HALOPERIDOL	PROMETHAZINE
BISOPROLOL	HYDROXYZINE	PROPRANOLOL
BUMETANIDE	HYOSCINE BUTYLBROMIDE	QUETIAPINE
BUPRENORPHINE	HYOSCINE HYDROBROMIDE	QUINAPRIL
CANDESARTAN	IMIPRAMINE	RAMIPRIL
CAPTOPRIL	INDAPAMIDE	RISPERIDONE

STOPPFall
https://academic.oup.com/ageing/article/50/4/1189/6043386

Medicines that increase the risk of fracture

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Antiepileptics

e.g. carbamazepine, phenytoin, primidone, valproate

Antipsychotics

e.g. haloperidol, chlorpromazine

Aromatase inhibitors

e.g. anastrozole

Gonadotrophin releasing hormone analogues

e.g. goserelin

Immunosuppressants

e.g. ciclosporin, tacrolimus

Levothyroxine

Loop diuretics

Medroxyprogesterone

Proton pump inhibitors

SSRIs

Steroids

Thiazolidinediones

e.g. pioglitazone

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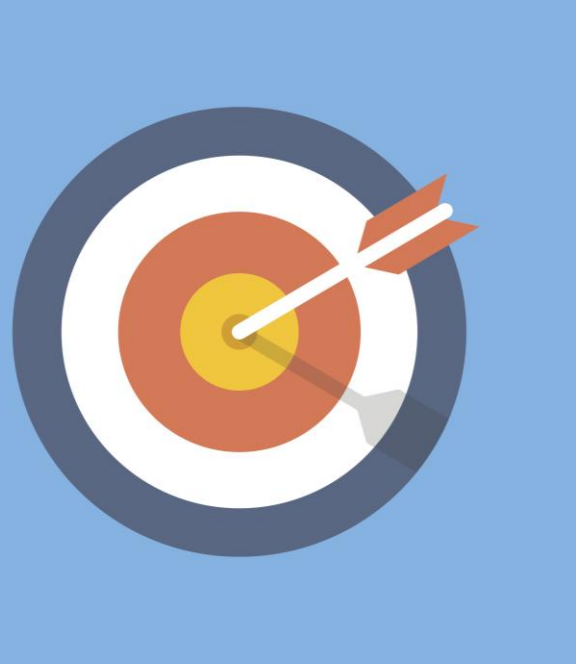
Full information for this guidance can be found by scanning the QR code with your smart device



- Osteoporosis - link to NOGG
- Orthostatic Hypotension
- Targets e.g. BP, HbA1c

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Patient Perspective

- High degree of variability in older patients' individual care goals, values, and preferences
- Higher importance assigned to maintaining independence and improving quality of life over quantity
- In general, prioritisation of care goals can be used as a starting point for discussing what matters most to older adults with multimorbidity
- Patients may have strong fears of stopping medications that have been beneficial in the past and may not perceive themselves to be at increased risk for falls, not recognising the changing risks associated with ageing or their growing risk and serious consequences of a fall
- Building relationships and trust with patients is important when undertaking medication reviews

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Fried TR, Tinetti ME, Iannone L, O'Leary JR, Towle V, Van Ness PH. Health outcome prioritization as a tool for decision making among older persons with multiple chronic conditions. *Arch Intern Med.* 2011;171(20):1854–1856. doi: 10.1001/archinternmed.2011.424.

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Top Tips

- Understand the person's perspective- what matters to you?
- Obtain an accurate picture of what medicines the person is taking
- Identify any FRIDs (use tools/ resources to support)
- Weigh up risks, benefits of FRIDs e.g. indication, if meeting therapeutic/ personal goals, alternatives and consider
  - Is the medicine necessary?
  - Can the medicine be stopped?
  - Is there a safer alternative?
  - Can the medicine be switched to an alternative?
  - Can the dose of the medicine be reduced?
- SDM conversation
- MDT discussion and implementation as part of overall falls prevention interventions
- Change/ stop FRID if appropriate
- Follow up person if medicine changes made and re-assess e.g. falls, changes in symptoms, withdrawal effects
- Always make just one medication change at a time so you can assess impact of each change

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Case Study: Meet Christiana

78 years old

Recent falls, dizzy on standing- shaky/ pale. Has bumped head a few times but hasn't been to hospital

What matters to Christiana?

Mood low and sight impacts on this
Worried about falls, injuring herself and being a burden- doesn’t want to go to hospital- "hates that place"

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Case Study: Meet Christiana

PMH
Moderate frailty
Severe sight impairment
Age-related macular degeneration
Diabetic retinopathy
Hypothyroidism
T2DM
Cerebral hypertension
Osteoarthritis knees
Hypotension
Menieres Disease
Diabetic neuropathy

Na 139 mmol/L

K+ 4.4 mmol/L
Ur 8.1 mmol/L
Cr 67 micromol/L
eGFR 76
Chol 5.9 mmol/L (declined statin)
LDL Chol 3.1 mmol/L

Medicines
Allergies/ intolerances: amoxicillin

Amitriptyline 10-20mg nocte
Amlodipine 5mg od
Azarga® eye drops RE bd
Canagliflozin 300mg od
Carmellose 1% preserv free LE x 6/day
Flexitol® 10% urea heels and feet od
Fluoxetine 20mg od
Hylo night® preserv free on
Glimepiride 1mg od
Levothyroxine 50micrograms od
Pioglitazone 30mg od

Wt= 92kg Ht= 163 cm

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Case Study: Meet Christiana

- Fall on holiday when turning and had facial injury. 3 falls in last month- now has fear of falling
- Bruise over R eye and R hand side of face- did not attend ED after any falls
- Manages medicines herself monitors CBG- 12mmol/L 2 hours after breakfast
- Admits to missing a few tablets recently- doesn't think fluoxetine is helping, becomes tearful when discussing this

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Sitting BP	128/91 mmHg	HR 86 bpm
SBP_1	76/60	78
SBP_3	unable to obtain reading and unable to stand for > 3 mins	

Slido question 3 – What would you do for Christiana today?

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slido

Join at

slido.com

#Twirl

Passcode: fjnpea

Case Study: Meet Christiana

2 weeks after stopping amlodipine

Sitting BP	142/95 mmHg	HR 84	
SBP_1	128/75	72	Dizzy on standing but better

Annual review 4 weeks later

Latest HbA1c reduced from previous readings- HbA1c 46 mmol/mol- no hypos when checking at home

Sitting BP	125/80 mmHg	HR 82	
SBP_1	tripping out machine		Very dizzy on standing

Refer to community falls service

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Case Study: Meet Christiana

Community Falls Service MDT

- 20 falls in last 6 months- first fall after turning
- Several episodes LOC when walking around, shaky and pale- L arm shakes prior to fall
- Hx intracranial hypertension but feels different to this
- Mood low
- Advised to stabilise self after changing position and before walking
- Advised to increase fluid intake- currently inadequate
- Advised re. pacing activities in standing
- Advice/ info on falls management and coping strategies
- Declined pendant alarm and 2nd handrail on internal stairs
- FRAX score- intermediate risk- DXA requested- GP to consider further osteoporosis risk assessment

LBP	173/90 mmHg	HR 80bpm	
SBP_1	93/62	87	Very dizzy on standing
SBP_3	85/61	89	

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Case Study: Meet Christiana

6 weeks later- falls service review

LBP	148/88 mmHg	HR 81	
SBP_1	91/53	88	Dizzy on standing
SBP_3	84/60	83	

Had another fall- sitting in kitchen and walked to hall- felt weak- was dizzy in the kitchen

Average BP waking 126/70 mmHg
Average BP sleeping 113/59 mmHg
Systolic BP max 160 min 76
Diastolic BP max 86 min 48

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Case Study: Meet Christiana

2 weeks later- falls service review

LBP	179/95 mmHg	
SBP_1	108/81	Dizzy on standing but less than before
SBP_3	107/71	

Further check 2 weeks later

LBP	166/83 mmHg	
SBP	123/70	Dizzy on standing but symptoms less than before and fewer falls

Still not drinking enough- advised to increase fluid intake to 1.5-2L non-caffeinated drinks/day

DXA- osteoporosis- GP to review bone protection therapy- advised to check Vitamin D levels first and cortisol

Cortisol normal
25 OH Vit D (Total) 38nmol/L

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Case Study

How to check L&S BP
https://www.rcplondon.ac.uk/projects/outputs/measurement-lying-and-standing-blood-pressure-brief-guide-clinical-staff

Orthostatic hypotension guideline
http://www.lhp.leedsth.nhs.uk/detail.aspx?id=7735#:~:text=Pharmacological%20Treatment-,Definition,systolic%20BP%20below%2090mm%20Hg

Stopping/ switching antidepressants
https://www.sps.nhs.uk/articles/deprescribing-of-antidepressants-for-depression-and-anxiety/#:~:text=As%20part%20of%20implementing%20the,and%20planning%20an%20antidepressant%20withdrawal

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Medicines and Falls

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Introduction

This document is intended to provide information and guidance on medication review for people at risk of falls.

A number of medicines can cause or contribute to falls and these are sometimes referred to as falls risk increasing drugs (FRIDs). This document highlights FRIDs and also highlights medicines that cause or contribute to fractures. Therefore, effective medication review is essential for people who are at risk of falls or fractures.

Medication review in people at risk of falls is often not straight forward as people will have multiple co-morbidities, be older and/or be living with frailty hence medicines use in this population requires a balance between the risks and benefits of multiple treatments.

Therefore, this document suggests a process and areas that anyone reviewing medicines for people at risk of falls might want to think about as part of this review.

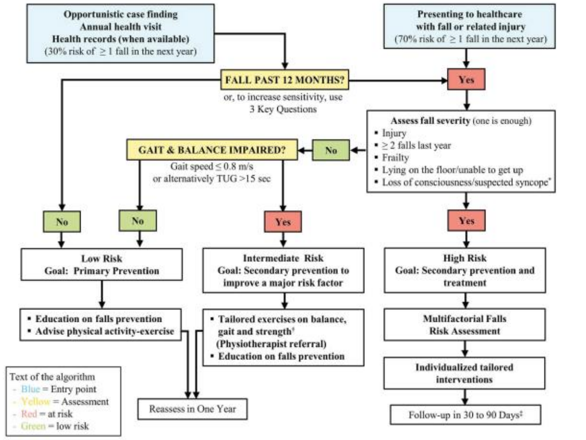
Falls Assessment & Tests

Falls assessment and relevant tests are beyond the scope of this document but in general should be performed as recommended by the World guidelines for falls prevention and management for older adults: a global initiative (community dwelling adults summary below).[1]

This paper aims to summarise effective strategies on how this can be achieved in clinical practice.

https://www.bgs.org.uk/resources/world-guidelines-for-falls-prevention-and-management-for-older-adults-a-global-initiative

World guidelines for falls prevention and management for older adults



Notes: 3 Kev Ouestions (3KO) any positive answer to (a) Has fallen in the past year? (b) Feels unsteady when standing or walking? or (c) Worries about falling? prompts to "fall severity step.

Fall severity: fall with (injuries severe enough to consult with a physician), laying or the ground with no capacity to get up. or a visit to the emergency room. or loss of consciousness suspected syncope.

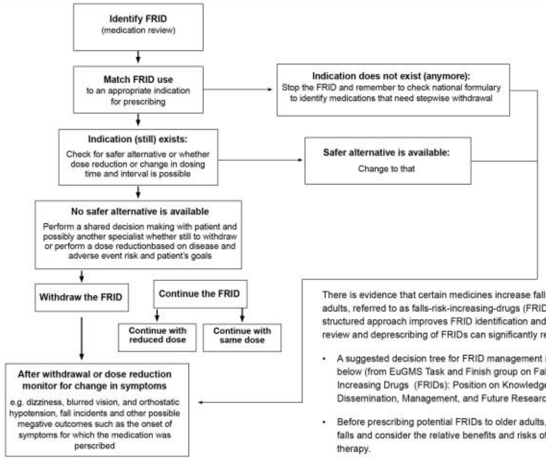
Frailty. Commonly use frailty assessment tools include the Frailty Phenotye and the Clinical Frailty Scale.

*Syncope suspicion should trigger svncope evaluation/management. †Exercises on balance/leg strength should be recommended for the intermediate group. Evidence shows that challenging balance exercises are more ettective for fall prevention. In several settings, this intermediate group is referred to a physiotherapist.

§ High risk individuals with falls can deteriorate rapidly, and close follow up is recommended and should be guided on the frequency of consequent health service utilization. **TUG:** timed up and go test.

a. All patient's presenting to healthcare with a fall or related injury and therefore deemed high risk of further fall should have a medication review as part of a multifactorial assessment.

b. When prescribing a falls risk increasing drug (FRID) to older adults this should be accompanied by an assessment of falls risk.



There is evidence that certain medicines increase falls risk in older adults, referred to as falls-risk-increasing-drugs (FRIDs), that a structured approach improves FRID identification and that medication review and deprescribing of FRIDs can significantly reduce falls risk.

- A suggested decision tree for FRID management is displayed below (from EuGMS Task and Finish group on Fall-Risk-Increasing Drugs (FRIDs): Position on Knowledge Dissemination, Management, and Future Research)
- Before prescribing potential FRIDs to older adults, enquire about falls and consider the relative benefits and risks of initiating therapy.

Medication Review Process

Medication review should be formulated in line with an established structure – an example is the Seven Steps method:

Step 1: (Aim) What matters to the patient.

Step 2: (Need) Identify essential drug therapy.

Step 3: (Need) Does the patient take unnecessary drug therapy?

Step 4: (Effectiveness) Are therapeutic objectives being achieved?

Step 5: (Safety) Is the patient at risk of Adverse Drug Reaction (ADR) or suffers actual ADR?

Step 6: (Efficiency) Is drug therapy cost-effective?

Step 7: (Patient-Centred) Is the patient willing and able to take drug therapy as intended?

Even if adult lacks capacity, adults with Incapacity Act still requires that the adult's views are sought. "Adults with Incapacity Documentation" in place.

The Brief Adherence and Concordance Tool (BACAT) questions can be helpful in exploring and assessing adherence:

1. Do you have difficulty getting the medicines from the doctor or pharmacy?
2. Do you have difficulty in opening boxes, using creams, eye drops etc, reading labels?
3. Do you think you have missed or forgotten any medicines in the last week?
4. Have you needed to take any extra doses of your medicines - more than your doctor prescribed?
5. Do you have any concerns about your medicines? Do your medicines give you side effects or upset you?
6. Do you worry your medicines aren't working? Do you think you need something else?

For more detailed information on medication review in older people with polypharmacy see Polypharmacy: Manage Medicines (scot.nhs.uk)

Full information for this guidance can be found by scanning the QR code with your smart device

Falls Risk Increasing Drugs (FRID) evidence summary

The table below provides an evidence summary on medicines which can contribute to falls risk.

Relevant treatments have been graded using a traffic light system according to their potential to cause a fall – you will be able to see colour grading when you click into the hyperlink:

- Red – **High risk –** consider referral for medication review
- Amber – **Medium risk –** consider referral for medication review after consideration of other risk factors which may have contributed to a fall

Anticholinergic burden of medication also increases falls risk – information in the table below is based upon data on Medichec online calculator.

All patients with Parkinson's Disease are at risk of falls due to their condition and medication used to manage it – individualised falls risk assessment is part of standard care.

N.B. No list can be comprehensive and the reviewer's clinical judgement and experience continues to be essential in tailoring the advice given to the needs of an individual patient and to identify other additional medication-related problems.

Falls Risk Increasing Drugs List –

Name of Medication	Name of Medication	Name of Medication
ALFUZOSIN	FELODIPINE	OXAZEPAM
ALIMEMAZINE	FENTANYL	OXYBUTYNIN
AMIODARONE	FLECAINIDE	OXYCODONE
AMISULPIRIDE	FLUOXETINE	PAROXETINE
AMITRIPTYLINE	FLUPHENAZINE	PERINDOPRIL
AMLODIPINE	FLURAZEPAM	PHENELZINE
ARIPRIPAZOLE	FOSINOPRIL	PHENOBARBITAL
ATENOLOL	FUROSEMIDE	PHENYTOIN
BACLOFEN	GABAPENTIN	PRAZOSIN
BENDROFLUMETHIAZIDE	GALANTAMINE	PREGABALIN
BETAHISTINE	GLYCERYL TRINITRATE	PROCHLORPERAZINE
BISOPROLOL	HALOPERIDOL	PROMAZINE
BUMETANIDE	HYDROXYZINE	PROMETHAZINE
BUPRENORPHINE	HYOSCINE BUTYLBROMIDE	PROPRANOLOL
CANDESARTAN	HYOSCINE HYDROBROMIDE	QUETIAPINE
CAPTOPRIL	IMIPRAMINE	QUINAPRIL
CARBAMAZEPINE	INDAPAMIDE	RAMIPRIL
CARVEDILOL	INDORAMIN	RISPERIDONE
CHLORDIAZEPOXIDE	IRBESARTAN	RIVASTIGMINE
CHLORPHENAMINE	ISOCARBOXAZID	SERTRALINE
CHLORPROMAZINE	ISOSORBIDE MONONITRATE	SODIUM VALPROATE
CHLORTHALIDONE	LACIDIPINE	SOLIFENACIN
CINNARIZINE	LAMOTRIGINE	SOTALOL
CITALOPRAM	LERCANIDIPINE	SULPIRIDE
CLOMIPRAMINE	LEVETIRACETAM	TAMSULOSIN
CLONAZEPAM	LISINOPRIL	TELMISARTAN
CLONIDINE	LOFEPRAMINE	TEMAZEPAM
CLOZAPINE	LORAZEPAM	TERAZOSIN
CODEINE	LORMETAZEPAM	TIMOLOL EYEDROPS
DANTROLENE	LOSARTAN	TOLTERODINE
DIAZEPAM	METOLAZONE	TOPIRAMATE
DIGOXIN	METOPROLOL	TRAMADOL
DIHYDROCODEINE	MIANSERIN	TRANDOLAPRIL
DIPHENHYDRAMINE	MIRTAZAPINE	TRANYLCYPROMINE
DILTIAZEM	MORPHINE	TRAZODONE
DONEPEZIL	MOXONIDINE	TRIFLUPERAZINE
DOSULEPIN	NICORANDIL	TRIHEXYPHENIDYL
DOXAZOSIN	NIFEDIPINE	TRIMEPRAZINE
DOXEPIN	NIRTAZEPAM	TRIMIPRAMINE
DULOXETINE	NORTRIPTYLINE	VALSARTAN
ESCITALOPRAM	OLANZAPINE	VENLAFAXINE
ENALAPRIL	OLEMSARTAN	VERAPAMIL
EPROSARTAN	ORPHENADRINE	ZOLPIDEM
		ZOPICLONE

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Thank you for listening.

Questions?