Polypharmacy Guidance
Realistic Prescribing
Quick Reference Guide

Foreword

The care of patients with multi-morbidities (multiple medical conditions) is the greatest challenge now faced by the health service, as it can create overly complex health care for some of the most vulnerable in society. The vast majority of medical research, guidelines and contractual agreements have focussed on single targets for single disease states, whereas in reality most patients have multi-morbidities, requiring multiple treatments. The resulting polypharmacy (use of multiple medicines) can be appropriate or inappropriate and the key healthcare aim for the individual patient is to ensure the safe and effective use of their multiple medicines. Despite research into this area being in relative infancy there exists a requirement to produce guidance for both patients and healthcare providers, based on the best evidence to date.

Polypharmacy becomes inappropriate when the medication risks begin to outweigh benefits for an individual patient. The aim of addressing this is to identify those patients at greatest risk of harm and to agree a medication regimen that is tailored to their changing needs and expectations.

An important principle in improving the care of patients with multi-morbidities is to ensure minimised fragmentation of health and social services through improved integrated care, which can help address medication systems, processes or procedures that are flawed or dysfunctional. In addition, there is a need to address polypharmacy management as a public health issue, as multi-morbidities do not just affect the elderly. For example, 29% of people with multi-morbidities and are under the age of 65 years of age, and come from the most deprived communities

The case for effective polypharmacy management is quite clear, but in a complex healthcare setting with many competing priorities it is useful to outline the quality and economic reasons why it should be prioritised. We all have a role to play in driving the change to manage polypharmacy, whether patient, clinician, academic or policy maker. The combined knowledge and experience of physician, pharmacist, nurse and the patient are required to ensure their treatment is optimised to achieve their preferred outcomes.

Interest in the importance of polypharmacy management is now international, and the WHO Third Global Patient Safety Challenge, Medication without Harm, has included the appropriate management of polypharmacy as a key flagship area to address. The aim is to reduce severe avoidable medication related harm by 50% over 5 years. The guidance also addresses the use of high risk medicines and ensures that information on appropriateness of medicines is shared across transitions of care.

This quick reference guide accompanies the Polypharmacy Guidance, Realistic Prescribing 2018, which aims to provide guidance on preventing inappropriate polypharmacy at every stage of the patient journey. Greater emphasis has been placed on shared-decision making to actively engage the patient with the 7-Step medication review. The Drug Efficacy (NNT) tables help discussion with the patient regarding the relative potential benefits of a range of common therapeutic interventions. Polypharmacy Indicators have been developed through consensus to target case finding, understand prevalence and monitor clinical outcomes.

I would like to thank Jake Laurie for the work he has put into the development of this quick reference guide.

I hope you find this quick reference guide useful.

Alpana Mair, MRPharmS, IP, FFRPS
Head of Effective Prescribing and Therapeutics, Scottish Government
Chair of Polypharmacy Model of Care Group

Contents

The full version of the Polypharmacy Guidance, Realistic Prescribing 2018 can be found online at www.therapeutics.scot.nhs.uk/polypharmacy, along with other resources such as downloadable copies of the Sick Day Rule cards, patient information leaflet for medicines reviews and also details of the case finding and outcome indicators which have also been developed.

A revised Polypharmacy Mobile App has also been developed alongside the guidance for use by both patients and clinicians. Developed by the Scottish Government in collaboration with NHS Scotland and patients the refreshed app makes it easier for patients to understand what polypharmacy is, why it is important for it to be reviewed and what advice they can get online.
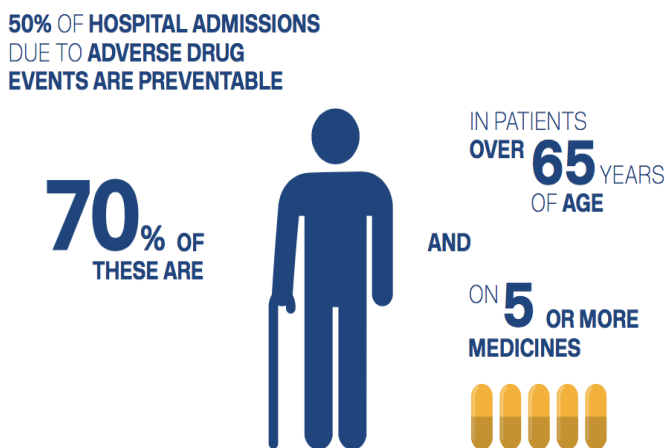
The app is available in the Apple App Store and Google Play Store, just search for 'Polypharmacy'.

1. What is polypharmacy and why is it important?

Medication is by far the most common form of medical intervention for many acute and chronic conditions. Drug therapy can be highly effective in preventing disease or slowing disease progression, with guidelines for single diseases recommending the use of a variety of evidence based drug treatments. However, there is often a mismatch between prescribing guidelines for specific medical conditions and the range of clinical complexity found in individuals. For complex patients with multiple conditions; frailty; a dominant condition (e.g. dementia) or approaching the end of their lives, the implementation of the sum of evidence based recommendations may not be rational, may increase the risk of adverse drug events and may not align with the patient's preferences.

The term polypharmacy itself just means "many medications" and is often defined to be present when a patient takes five or more medications. It is recognised that polypharmacy is often beneficial. For example, secondary prevention of myocardial infarction requires the use of at least four different classes of drugs (antiplatelets, statin, ACE inhibitor, beta blocker).

50% OF HOSPITAL ADMISSIONS DUE TO ADVERSE DRUG EVENTS ARE PREVENTABLE

70% OF THESE ARE

IN PATIENTS OVER 65 YEARS OF AGE

AND

ON 5 OR MORE MEDICINES

Appropriate polypharmacy requires consideration at any point of contact involving medication but there are five clear steps in a patient's journey which should be used as a trigger to do this:

1. Prescribing (and risk assessment)
2. Medication review
3. Dispensing and administration
4. Communication and patient engagement
5. Medication reconciliation (at care transitions)

Although Polypharmacy Guidance, Realistic Prescribing 2018 concentrates on the holistic patient-centred medication review, the principles, tools and recommendations can be used at any medication step or moment, especially at point of prescribing.

2. Which patients should be targeted for review?

Patients at highest risk of inappropriate polypharmacy are those with the greatest frailty, on the most medicines and taking high risk medicines. There has been a comprehensive review of the case finding criteria by which patients, who may benefit the most from a polypharmacy review are identified. In the previous version of this guideline, these criteria were based on age, residency in a care home, number of repeat medicines prescribed and at risk of admission to hospital using the Scottish Patients at Risk of Admission or Readmission (SPARRA) score.

Another important area is the effect of deprivation on rates of polypharmacy. The review of polypharmacy prescribing data (10+ BNF paragraphs plus a high risk medicine) by deprivation demonstrates that multi-morbidity, and its associated problems, presents 10-15 years earlier in more deprived communities.

The following revised case finding criteria are recommended as a way to prioritise patients for a polypharmacy medication review:
A.   Aged 50 years and older and resident in a care home, regardless of the number of medicines prescribed
B.   Approaching the end of their lives: adults of any age, approaching the end of their life due to any cause, are likely to have different medication needs, and risk versus benefit discussions will often differ from healthy adults with longer expected life spans. Consider frailty score (see section 1.6.1)
C.   Prescribed 10 or more medicines (this will identify those from deprived communities where the average age is lower when taking 10 or more medications)
D.   On high-risk medication (as defined by the Case Finding indicators, regardless of the number of medicines taken).

2.1. High Risk Medicines

During a study in 2004 carried out by Pirmohamed[1] into burden of Adverse Drug Reactions (ADRs) on hospital admissions, a number of high risk medicines were identified; they are:

BNF Section	Examples
2.1 Positive inotropic medicines	Diclofenac, digoxin
2.2 Diuretics	Bendroflumethiazide, spironolactone, furosemide
2.5 Hypertension / heart failure	Ramipril, enalapril, losartan
2.8 Anticoagulants and protamine	Warfarin, rivaroxaban, edoxaban, apixaban, dabigatran
2.9 Antiplatelets	Clopidogrel, dipyridamole
4.1 Hypnotics and anxiolytics	Benzodiazepines, Z-Drugs
4.2 Antipsychotic / antimanic drugs	Amisulpride, risperidone
4.3 Antidepressants	Amitriptyline, fluoxetine, paroxetine
4.7.2 Opioid analgesics	Tramadol, co-codamol, morphine, fentanyl
10.1 Rheumatic diseases and gout	NSAIDs, corticosteroids, methotrexate

The study concluded that while these drugs have proven benefit for patients, they still present a potential harm to the patient and measures should be put in place to reduce the burden of ADRs and further improve the benefit:harm ratio of the drugs.

---

[1] https://doi.org/10.1136/bmj.329.7456.15

3. Who is this guideline targeted at?

Everyone, including patients, policy makers and healthcare professionals, has a role to play in ensuring that when polypharmacy is used it is safe and appropriate. This guideline aims to provide resources, expertise and insight for all involved with polypharmacy management, despite the need for far more published research. It will take all members of the healthcare team to bring about significant improvement in this area, and utilising the multidisciplinary team for more complex patients should be considered.
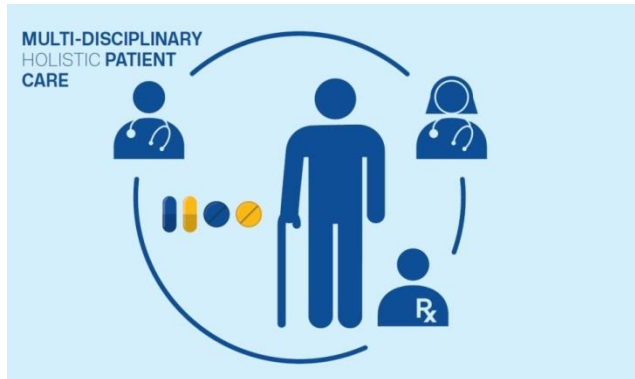
4. The 7-steps medicine review
The following 7-steps are intended as a guide to structure review process

Step 1: (Aim) What matters to the patient?
- Identify aims and objectives of drug therapy by asking the patient *what matters to you*?
- Explain any key information such as laboratory markers
- Establish treatment objectives with patient through shared decision making

Step 2: (Need) Identify essential drug therapy.
- Separate the list of medicines which the patient is taking
- Ensure patient understands the importance of essential drug therapy
- All medication whether herbal, prescribed or traditional remedies should be included

Step 3: (Need) Does the patient take unnecessary drug therapy?
- For the remaining drugs, it should be verified that each has a function in achieving the therapeutic goals or outcomes that matter most to the patient
- Review preventative treatment to ensure the patient is able to continue taking medicine for required time to gain benefit (*Drug Efficacy (NNT)* table).
- Can lifestyle changes replace any unnecessary drug therapy?

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

- Check treatment choice is the most effective to achieve intended outcomes
- If this is not the case, the possibility of patient non-adherence should be investigated as a potential explanation. Otherwise, the need for dose titration may also be considered. 50% of patients taking four or more medicines don't take them as prescribed (Medication Adherence: WHO Cares?).

Step 5: (Safety) Is the patient at risk of ADRs or suffers actual ADRs?

- The presence of ADRs can sometimes be identified from laboratory data (e.g. hypokalaemia from diuretic use)
- The patient may report such symptoms (including drug-drug and drug-disease interactions, but also the patient's ability to self-medicate)
- Ask the patient specific questions (e.g. about the presence of anticholinergic symptoms, dizziness or drowsiness). If patient is experiencing ADRs, use Yellow Card Reporting.
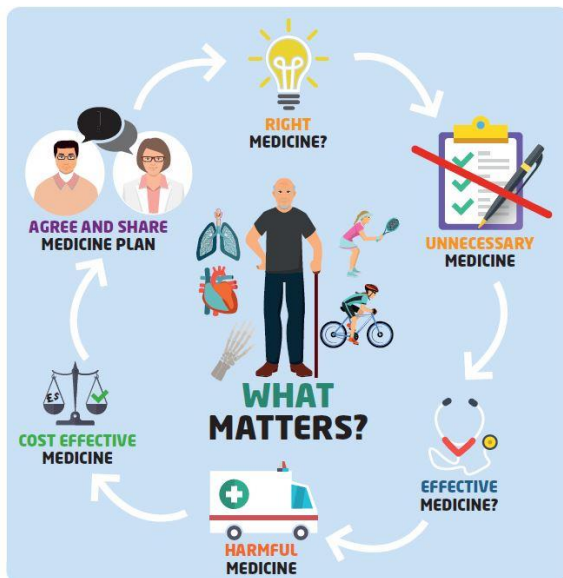
Step 6: (Efficiency) Is drug therapy cost-effective?

- Opportunities for cost minimisation should be explored, but changing drugs for cost reasons should only be considered if effectiveness, safety or adherence would not be comprised
- Ensure prescribing is in line with current formulary recommendations

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

- Does the patient understand the outcome of the review?
- Ensure drug therapy is tailored to patient preferences
- Agree and communicate plan with patient and/or carers/welfare proxy

4.1. 7-Steps key considerations

Domain	Steps		Process
Aims	**1.**	What matters to the patient	**Review diagnoses and identify therapeutic objectives with respect to:** • What matter to me (the patient)? • Understanding of objectives of drug therapy • Management of existing health problems • Prevention of future health problems
Need	**2.**	Identify essential drug therapy	**Identify essential drugs (not to be stopped without specialist advice):** • Drugs that have essential replacement functions (e.g. levothyroxine) • Drugs to prevent rapid symptomatic decline (e.g. drugs for Parkinson's disease, heart failure)
	3.	Does the patient take unnecessary drug therapy?	**Identify and review the (continued) need for drugs:** • With temporary indications • With higher than usual maintenance doses • With limited benefit in general for the indication they are used for • With limited benefit in the patient under review (See: *Drug Efficacy (NNT)* table)
Effectiveness	**4.**	Are therapeutic objectives being achieved?	**Identify the need for adding/intensifying drug therapy in order to achieve therapeutic objectives:** • To achieve symptom control • To achieve biochemical/clinical targets • To prevent disease progression/exacerbation
Safety	**5.**	Does the patient have ADR/Side Effects or is at risk of ADRs/Side Effects? Does the patient know what to do if they're ill?	**Identify patient safety risks by checking for:** • Drug-disease interactions • Drug-drug interactions (see *Cumulative Toxicity* tool) • Robustness of monitoring mechanisms for high-risk drugs • Drug-drug and drug-disease interactions • Risk of accidental overdosing (Yellow Card Scheme) **Identify adverse drug effects by checking for** • Specific symptoms/laboratory markers (e.g. hypokalaemia) • Cumulative adverse drug effects (see *Cumulative Toxicity* tool) • Drugs that may be used to treat ADRs caused by other drugs • Sick Day Rules Guidance
Cost-effectiveness	**6.**	Is drug therapy cost-effective?	**Identify unnecessarily costly drug therapy by:** • Consider more cost-effective alternatives (but balance against effectiveness, safety, convenience)
Patient centeredness	**7.**	Is the patient willing and able to take drug therapy as intended?	**Does the patient understand the outcomes of the review?** • Does the patient understand why they need to take their medication? • Consider Teach back **Ensure drug therapy changes are tailored to patient preferences** • Is the medication in a form the patient can take? • Is the dosing schedule convenient? • Consider what assistance the patient might have and when this is available • Is the patient able to take medicines as intended? **Agree and Communicate Plan** • Discuss with the patient/carer/welfare proxy therapeutic objectives and treatment priorities • Decide with the patient/carer/welfare proxies what medicines have an effect of sufficient magnitude to consider continuation or discontinuation • Inform relevant healthcare and social care carers change in treatments across the care interfaces Add the READ code **8B31B** to the patients record so that when they move across transitions of care it is clear their medication has been reviewed

5. Sick Day Rule guidance

The Sick Day Rules are a useful resource for patients, carers and health professionals as it promotes better management of long-term conditions through safer, more effective and person-centred use of medicines. The cards highlight the potential harms which could be caused if patients continue to take certain medicines whilst suffering from illnesses where dehydration can occur.

The Scottish Patient Safety Programme (SPSP) has produced a briefing for professionals and one for patients. The briefing leaflet for professionals provides some examples of what advice to give to patients to ensure that they understand the importance of stopping certain medicines when sick. An example of the Sick Day Rules Card is displayed below, copies of these can be downloaded from http://ihub.scot/spsp/primary-care/medicine-sick-day-rules-card/
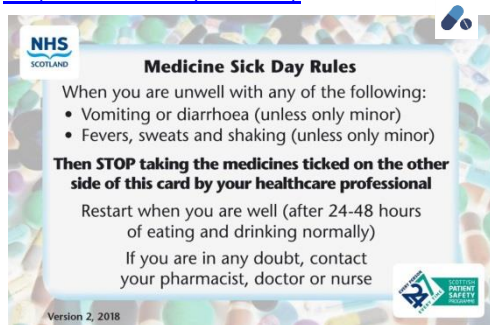
6. General Medicines Review Leaflet and App

Visiting the GP practice can be daunting for a patient, especially when they are unsure of what to expect. The leaflet below has been produced to help patients understand what happens during a polypharmacy review, why they need a review and it also highlights to patients that they can also use the review as an opportunity to ask any questions or share any concerns they have about their medicines. An app is also available for patients with clinical decision aids, which will also support shared decision making.

The leaflet is available to download from www.therapeutics.scot.nhs.uk/resources

Notes

| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |