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PrescQIPP Community Interest Company

Polypharmacy and deprescribing I

This is the first of two PrescQIPP bulletins on polypharmacy and deprescribing; it considers national and international resources that help support the understanding of polypharmacy and safe deprescribing, the evidence base for deprescribing and the impact of frailty and multimorbidity on polypharmacy.

The second bulletin provides a practical guide to support deprescribing; it covers agreeing treatment goals, shared decision making, patient decision aids and tools to support medication review.

Background

Medication is by far the most common form of medical intervention for many acute and chronic conditions. Medicines 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 clinical complexity found in individuals. For complex patients with multiple conditions, frailty 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 reactions (ADRs) and may not align with the patient's preferences.[1]

The term polypharmacy just means "many medications" and is recognised as two distinct types:

- Appropriate polypharmacy, where patient benefit outweighs harms. For example, secondary prevention of myocardial infarction requires the use of at least four different classes of drugs (antiplatelets, statin, ACE inhibitor, beta blocker).
- Problematic (or inappropriate) polypharmacy, when one or more medicines are prescribed that are no longer needed, either because: (a) there is no evidence based indication or the dose is unnecessarily high; (b) one or more medicines fail to achieve the intended therapeutic objectives; (c) one, or the combination of several drugs cause unacceptable ADRs, or put the patient at an unacceptably high risk of such ADRs, or because (d) the patient is not willing or able to take one or more medicines as intended.[1]

National and international polypharmacy resources

There are a number of national and international reports and guidelines to help support the understanding of polypharmacy and safe deprescribing. These include:

The World Health Organisation (WHO) Third Global Patient Safety Challenge, Medication Without Harm

The WHO Third Global Patient Safety Challenge, Medication Without Harm, 2017, has included the appropriate management of polypharmacy as a key flagship area to address.[2] Medication Without Harm aims to reduce severe avoidable medication-related harm by 50%, globally in the next five years.

To support this work, in 2019 the WHO produced a set of three technical reports – Medication safety in high-risk situations,[3] Medication safety in polypharmacy[4] and Medication safety in transitions of care[5] – to facilitate early priority actions and planning by countries and key stakeholders to address each of these areas. The technical reports are intended for all interested parties, particularly to inform

national health policy-makers and encourage appropriate action by ministries of health, health care administrators and regulators, organisations, professionals, patients, families and caregivers, and all who aim to improve health care and patient safety.

The report 'Medication safety in polypharmacy'[4] outlines the problem, current situation and key strategies to reduce medication-related harm in polypharmacy. It should be considered along with the companion technical reports on Medication safety in high-risk situations[3] and Medication safety in transitions of care.[5] For more information refer to the PrescQIPP resource 252. Medication Without Harm https://www.prescqipp.info/our-resources/bulletins/bulletin-252-medicines-without-harm/

National Institute for Health and Care Excellence (NICE). Key Therapeutic Topic 18: Multimorbidity and polypharmacy

This document, updated in 2019, summarises the evidence base on multimorbidity and polypharmacy.[6] It is a Key Therapeutic Topic that has been identified by NICE to support medicines optimisation. It signposts to other polypharmacy and deprescribing resources and provides case studies and shared learning examples.

Scottish Polypharmacy Guidance

Polypharmacy Guidance was first produced by NHS Scotland in 2012. This document provided a national approach to address the issues resulting from the use of multiple medicines in the frail and elderly population in Scotland, although the principles can be applied elsewhere. The aim was to improve therapeutic care by reducing the risk of ADRs associated with polypharmacy. An updated version was produced in 2015 and the 3rd update in 2018.[1]

In the 2018 update, greater emphasis has been placed on shared decision making to actively engage the patient with the 7-Steps medication review. Drug efficacy 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 identify patients at increased risk of drug related harm (case finding), understand prevalence and monitor clinical outcomes. The Sick Day Rule guidance has been modified to allow patients and clinicians to highlight additional medications that may cause acute kidney injury during episodes of illness with dehydration.[1]

All Wales Medicines Strategy Group. Polypharmacy: Guidance for Prescribing

The Welsh guidance[7] was published in 2014 and aims to address some of the problems associated with the management of polypharmacy, particularly in the frail elderly, taking into consideration that:

- Clinical guidelines usually focus on single conditions and often do not address how the risk/benefit ratio changes over time, as the patient ages.
- Healthcare professionals are frequently required to balance the recommendations of multiple guidelines in people who have numerous conditions.
- Recommendations often focus on starting treatments (particularly those used for preventing conditions that have not occurred) and are not balanced by guidance on when it might be appropriate to stop medication or reduce the dose.
- Patients may experience side effects (potentially leading to unscheduled care) from medicines providing little or no benefit, or where the risk of harm outweighs any possible benefit.
- Ongoing need for each medicine may not routinely be considered during medication reviews by GPs and other healthcare professionals.

The King's Fund. Polypharmacy and medicines optimisation: Making it safe and sound

This report,[8] published in 2013, proposes a pragmatic approach and coined the terms 'appropriate' and 'problematic' polypharmacy to help define when polypharmacy can be beneficial and when it can potentially cause harms. Drawing on literature from predominantly Western countries, the report traces the occurrence of polypharmacy in primary and secondary care, and in care homes. It explores systems for managing polypharmacy and considers it in the context of multi-morbidity and older people, offering recommendations for improving care in both cases.

Royal Pharmaceutical Society. Polypharmacy: Getting our medicines right

The theme of this guidance[9] is that polypharmacy and actions to identify and address the problems that it causes, are everyone's responsibility. It sets out a series of aspirational best practice statements that may not necessarily reflect the current arrangements in healthcare but aim to set out a picture of what good systems could (and should) have in place and how healthcare professionals could behave in order to address the problems that can arise from polypharmacy.

The supporting evidence base for deprescribing

Polypharmacy in older adults is correlated to poor health outcomes, although the evidence base to support deprescribing as an intervention to reduce the harm associated with polypharmacy is currently limited.

A 2016 systematic review and meta-analysis of the feasibility and effect of deprescribing in older adults on mortality and health concluded that although non-randomised data suggested that deprescribing reduces mortality, deprescribing was not shown to alter mortality in randomised studies. However, mortality was significantly reduced in subgroups where patient-specific deprescribing interventions were applied in randomised trials. The authors concluded that deprescribing appears to be feasible and generally safe.[10]

A further systematic review of the effects of discontinuation of chronic medication in primary care published in 2018 concluded that only a few studies have examined the success rate and safety of discontinuing medication in primary care, and these studies are very heterogeneous. Most studies show that deprescribing and cessation of long-term use seem safe; however, there is a risk of relapse of symptoms. More research is needed to advise physicians in making evidence-based decisions about deprescribing in primary care settings.[11]

The scope for the NICE guideline on multimorbidity (NG56), published in 2016, included reviewing evidence for the effect of stopping medicines. However, although the NICE guideline development group was able to make recommendations about stopping bisphosphonates, there was insufficient evidence about stopping other treatments, such as statins and antihypertensives.[12]

The EU funded project SIMPATHY[13] studied polypharmacy management in Europe. The SIMPATHY literature review (2017) confirmed that there is evidence to support the principle that medication reviews reduce inappropriate polypharmacy. Recent research has also begun to show improvement in outcomes due to polypharmacy management, including a reduction in hospital admissions.

The SIMPATHY authors concluded that there remains an evidence gap, whilst research catches up with this fundamental shift in healthcare priority. Safety is a major concern in modern healthcare and addressing issues related to inappropriate polypharmacy should form part of this. The literature review supports the principle that it is important to adopt an evidence-based approach, but with a bias towards action where the evidence is limited. It should also be recognised that there is further emerging evidence to support polypharmacy management and knowledge of research that is in process, and yet to publish.[13]

Frailty

Frailty is a distinct health state related to reduced function across multiple physiological systems that develops as part of the ageing process. Frailty means that even minor events can trigger disproportionate changes in health status after which the patient fails to recover to their previous level of health. Frailty is a spectrum condition from mild to severe frailty.[14]

It is thought that 10% of people aged over 65 years and 25 to 50% of those aged over 85 years have frailty. Younger patients, particularly those with multiple co-morbidities, may also have frailty.

NICE recommend assessing frailty in patients with multimorbidity in primary care and community settings.[12] One of the following diagnostic tests should be considered:

- Informal assessment of gait speed (e.g. time taken to walk from waiting room)
- Formal assessment of gait speed (more than 5s to walk 4m indicating frailty)
- PRISMA 7 tool (consists of 7 questions with scores of 3 or above indicating frailty)
- Self-reported health status (e.g. 'how would you rate your health status on a scale from 0 to 10?', with scores of 6 or less indicating frailty)

An electronic frailty index (eFI) has been developed and validated. It uses data in primary care electronic health records on 36 conditions associated with frailty, such as fragility fracture, weight loss, mobility and polypharmacy. The tool helps GPs identify mild, moderate and severe frailty and was found to be a robust predictor of nursing home admission, hospitalisation and mortality. The eFI is recommended for identifying people with multimorbidity who are at risk of unplanned hospital or care home admission.[15-17]

The British Geriatric Society guidelines recommend medication reviews as part of a holistic medical review of older people with frailty.[18,19] Factors to consider in a medicines review include:

- Drugs associated with adverse outcomes in frailty may still be needed and can be used safely with careful monitoring
- Consider dosages as the metabolism changes with age
- Possibility of lower overall benefit of continuing treatments that aim to offer prognostic benefit
- National guidelines for single long-term conditions should be interpreted on an individualised basis
- Medicines or non-pharmacological treatments that might be started as well as stopped

The following medicines require more frequent review than usual in people with frailty:[1]

- Non-steroidal anti-inflammatory drugs (NSAIDs)
- Diuretics
- Angiotensin-converting enzyme inhibitors
- Angiotensin II receptor blockers
- Beta blockers
- Medicines that affect the central nervous system, e.g. antidepressants (particularly tricyclic antidepressants), antipsychotics, benzodiazepines, opioids and other analgesics
- Dihydropyridines, e.g. nifedipine
- Digoxin in doses over 125 micrograms daily
- Anticholinergics and medicines with anticholinergic side effects, e.g. bladder antimuscarinics such as oxybutynin
- Phenothiazines, e.g. prochlorperazine

Healthcare professionals can use one of the evidence -based tools, e.g. the PrescQIPP IMPACT tool, the STOPP/START Guidelines, Beers criteria or NO TEARS to help in the evaluation of medicine safety, particularly in older patients. They can be used for any patient with frailty, particularly where there is polypharmacy. The criteria in each tool should not serve as a substitute for professional judgement. The information presented in each tool should serve only as a guide, with care tailored to each individual patient's needs.

See the PrescQIPP bulletin "A practical guide to deprescribing" for more information on the use of these tools https://www.prescqipp.info/our-resources/bulletins/bulletin-254-polypharmacy-and-deprescribing/

Life expectancy and prescribing

Approximately 1% of the population die each year; therefore in an average-sized GP's list of around 2,000 patients, about 20 will be coming towards the end of their life.[20] Care has extended beyond anticipatory prescribing for patients with cancer (only 25% of all deaths) to those with other diagnoses who are living longer and may have very complex health needs at this time.

The simple question: "Would I be surprised if this person were to die in the next 12 months?" ('The surprise' question) is one trigger that suggests that patients are nearing the end of life.[20]

If a patient is moving towards end of life consider the harm to benefit profile of each medicine. It may not be appropriate to start some medicines, or to continue others. The PrescQIPP IMPACT tool can be used to help prescribers understand which medicines should be continued and those that can be considered for stopping at this time.[21]

Multimorbidity

NICE NG56 covers optimising care for adults with multimorbidity (multiple long-term conditions) by reducing treatment burden (polypharmacy and multiple appointments) and unplanned care.[12] The guideline sets out which people are most likely to benefit from an approach to care that takes account of multimorbidity, how they can be identified and what the care involves.

According to NICE NG56, multimorbidity refers to the presence of two or more long term health conditions, which can include:

- Defined physical and mental health conditions such as diabetes or schizophrenia
- Ongoing conditions such as learning disability
- Symptom complexes such as frailty or chronic pain
- Sensory impairment such as sight or hearing loss
- Alcohol and substance misuse

In the UK, there is relatively little published information on the scale of multimorbidity and associated polypharmacy. Research from Scotland has shown that, in older people, multimorbidity is common and more than 70% of people had at least one condition by the time they reached the age of 60 years. Other studies from Scotland have demonstrated the rapid growth in prescribing over the last decade (a threefold increase in the number of patients receiving 10 or more items) and examined the relationship between age and multimorbidity. In one study, 17% of the adults assessed received four to nine medicines, and 5% per cent received 10 or more. The number of prescribed items increased with age and was directly related to the number of morbidities. In patients with six or more comorbidities, 42% received 10 or more medicines.[22]

It is important to consider the following factors for people with multimorbidity:

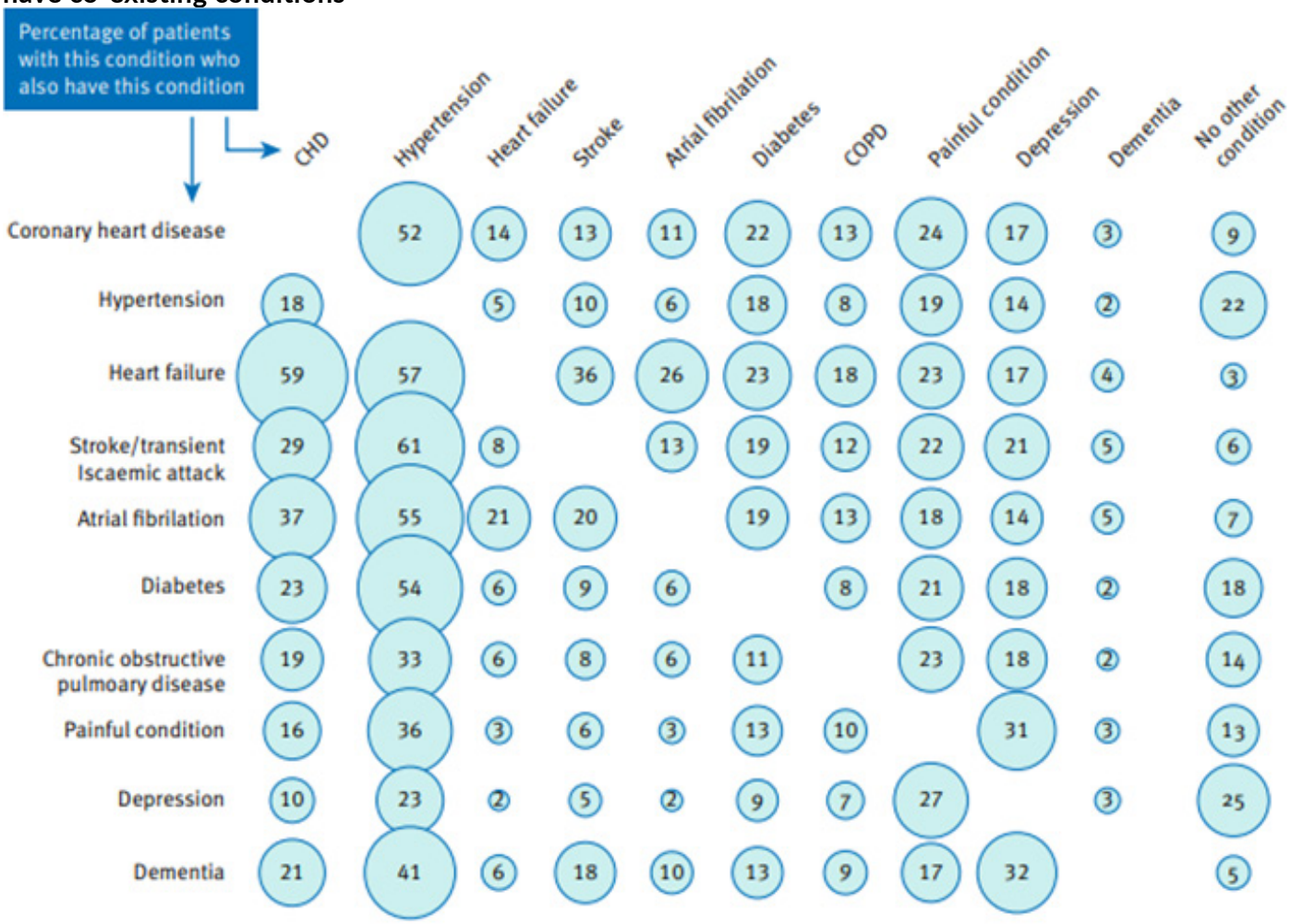
- Guidelines on single health conditions may not be applicable.

- Aggressive management of risk factors for future disease is often a major treatment burden and can be inappropriate.
- Assess whether patients may benefit from an approach to care that takes account of their multimorbidity.
- Consider all conditions and treatments simultaneously.
- Easier access to data about the absolute benefit of commonly prescribed treatments is needed.

NICE NG56 recommends that patients taking more than 15 medicines should be prioritised for review. Patients taking 10 to 14 regular medicines and those on less than 10 medicines but at particular risk of adverse events should also be considered for review.[12]

Together, multimorbidity and polypharmacy are among the biggest risk factors for reduced quality of life, higher mortality, higher use of unplanned health care, inappropriate medication and ADRs, leading to patient harm. Those with multimorbidity frequently receive care from primary care and multiple specialists, who may not be communicating effectively with each other. Guidelines are usually disease-specific without evidence of effects on the older, frailer, multimorbid patient. The communication between different clinicians treating patients with multimorbidity needs to improve to ensure that clinicians are treating patients holistically and not just the individual conditions of the patient with multimorbidity, according to single-disease guidelines.[12] Figure 2 illustrates the percentage of patients that have co-existing morbidities.[23]

Figure 2: Adapting clinical guidelines to take account of multimorbidity; percentage of patients that have co-existing conditions[23]



Summary

- Many national and international guidelines now recognise polypharmacy as a major patient safety issue which needs to be addressed.
- There is evidence that deprescribing appears to be feasible and generally safe and that medication reviews can reduce inappropriate polypharmacy.
- Recent research has also begun to show improvement in outcomes due to polypharmacy management, including a reduction in hospital admissions.
- Conduct holistic, personalised medication reviews more regularly than normal for patients with frailty and/or multimorbidity, considering the number and type of medicines they are prescribed or may buy, using an evidence-based review tool.
- Ensure appropriate polypharmacy towards the end of life; consider the harm to benefit profile of each medicine, particularly those for long term prevention where the time to reach benefit may be many years ahead.

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Additional PrescQIPP resources

Briefing	https://www.prescqipp.info/our-resources/bulletins/bulletin-254-polypharmacy-and-deprescribing/
Implementation tools	

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