

Multimorbidity and polypharmacy

Key therapeutic topic

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[nice.org.uk/guidance/ktt18](https://www.nice.org.uk/guidance/ktt18)

Options for local implementation

- Multimorbidity is associated with reduced quality of life, higher mortality, polypharmacy and high treatment burden, higher rates of adverse drug events, and much greater health services use (including unplanned or emergency care).
- Polypharmacy in people with multimorbidity is often driven by the introduction of multiple medicines intended to prevent future morbidity and mortality in individual health conditions. However, the absolute benefit gained from each additional medicine is likely to reduce when people are taking multiple preventative medicines but the risk of harms increases. [Resources and screening tools](#) are available to help guide decision-making about the appropriateness of prescribing and stopping medicines (deprescribing).
- Develop and agree an action plan for multimorbidity and polypharmacy to inform local medicines optimisation strategic and operational plans. [Shared learning case studies](#) are available showing how NICE guidance and standards have been put into practice by a range of NHS organisations.
- Develop an individualised, person-centred approach to reviewing people with multimorbidity and polypharmacy, in line with the NICE guideline on [multimorbidity](#). This may be included in local education and support initiatives to assist shared decision making in individualising care.
- When discussing the risks and benefits of treatment, the law now requires healthcare professionals to take reasonable care to ensure that the patient is aware of any material risks involved in any recommended treatment, and of any reasonable alternative or variant treatments. NICE has produced several patient decision aids to help healthcare professionals

explain the risks and benefits of treatments (see the [shared decision-making page](#) on the NICE website).

Evidence context

Multimorbidity

The NICE guideline on [multimorbidity](#) explains that multimorbidity refers to the presence of 2 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.

All recent studies show that multimorbidity is common, becomes more common as people age, and is more common in people from less affluent areas. In older people multimorbidity is largely due to higher rates of physical health conditions, whereas in younger people and people from less affluent areas, it is often due to a combination of physical and mental health conditions (notably depression).

Multimorbidity is associated with reduced quality of life, higher mortality, polypharmacy and high treatment burden, higher rates of adverse drug events, and much greater health services use (including unplanned or emergency care). A particular issue for health services and healthcare professionals is that treatment regimens (including non-pharmacological treatments) can easily become very burdensome for people with multimorbidity, and care can become uncoordinated and fragmented.

The NICE guideline on [multimorbidity](#) recommends considering an approach to care that takes account of multimorbidity in circumstances outlined in the guideline. This approach to care involves personalised assessment and the development of an individualised management plan. The aim should be to improve quality of life by reducing treatment burden, adverse events, and unplanned or uncoordinated care. The approach takes account of the person's individual needs, preferences for treatments, health priorities and lifestyle. It aims to improve coordination of care

across services, particularly if this has become fragmented. Medicines are likely to be just one aspect of a person's care and should not be considered in isolation.

The guideline has [recommendations](#) on how to identify adults with multimorbidity who are at risk of adverse events, and how to assess frailty. Guidance and resources to support the GP core contract (2017-18) regarding frailty are available on the [NHS England website](#). The British Medical Association has also published advice for clinicians on [identifying and helping people with frailty](#).

Polypharmacy

Polypharmacy in people with multimorbidity is often driven by the introduction of multiple medicines intended to reduce the risk of future morbidity and mortality in specific health conditions. However, the evidence for recommendations in NICE guidance on single health conditions is often drawn from people without multimorbidity who are participating in studies and who are taking fewer regular medicines. The absolute benefit made by each additional medicine is likely to reduce when a person is taking multiple preventative medicines; often referred to as the law of diminishing returns. However, the risk of harms is likely to increase with additional medicines being taken.

[The King's Fund report \(2013\)](#), [All Wales Medicines Strategy Group \(AWMSG\) guidance \(2014\)](#) and [NHS Scotland guidance \(2015\)](#) on polypharmacy recognise that not all polypharmacy is inappropriate. The King's Fund proposed a classification where treatment with multiple medicines may be either 'appropriate' or 'problematic':

Appropriate polypharmacy

Prescribing for a person for complex conditions or for multiple conditions in circumstances where medicines use has been optimised and where the medicines are prescribed according to best evidence.

Problematic polypharmacy

The prescribing of multiple medicines inappropriately, or where the intended benefit of the medicines are not realised.

Problematic polypharmacy may arise if medicines are used without a good evidence base for doing so, or if (taking into account the person's views and preferences) the risk of harm from treatments is likely to outweigh the benefits, or where one or more of the following apply:

- the medicine combination is hazardous because of interactions

- the overall demands of medicine-taking, or 'pill burden', are unacceptable to the person
- these demands make it difficult to achieve clinically useful medicines adherence
- medicines are being prescribed to treat the side effects of other medicines, but alternative solutions are available to reduce the number of medicines prescribed.

The risks associated with medicines with anticholinergic effects in polypharmacy are highlighted in polypharmacy resources such as [NHS Scotland guidance \(2015\)](#) and [All Wales Medicines Strategy Group \(AWMSG\) guidance \(2014\)](#). A systematic review and meta-analysis ([Ruxton et al. 2015](#)) reported that use of such medicines was associated with an increased risk of cognitive impairment and all-cause mortality in older people, and some medicines were associated with an increased risk of falls. This is discussed further in NICE's [eyes on evidence commentary on drugs with anticholinergic effects and risk of cognitive impairment, falls and all-cause mortality](#). Other medicines optimisation: key therapeutic topics discuss the risks associated with medicines, see especially:

- [Anticoagulants, including non-vitamin K antagonist oral anticoagulants \(NOACs\)](#).
- [Acute kidney injury \(AKI\): use of medicines in people with or at increased risk of AKI](#).
- [Psychotropic medicines in people with learning disabilities whose behaviour challenges](#).
- [Non-steroidal anti-inflammatory drugs](#).
- [Safer insulin prescribing](#).
- [Medicines optimisation in long-term pain](#).

Person-centred care

The NICE guideline on [medicines optimisation](#) recommends that all people are offered the opportunity to be involved in making decisions about their medicines. NICE guidelines should be understood as 'guidelines, not tramlines': every guideline states clearly that although healthcare professionals are expected to take it fully into account when exercising their judgement, they should do so alongside the individual needs, preferences and values of their patients or service users. The application of the recommendations in NICE guidelines is not mandatory and the guideline does not override the responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient or their carer or guardian.

When discussing the risks and benefits of treatment, the ruling by the UK Supreme Court in the case of *Montgomery versus Lanarkshire Health Board* has important implications for prescribers ([Sokol 2015](#)). The law now requires healthcare professionals to take reasonable care to ensure that the patient is aware of any material risks involved in any recommended treatment, and of any reasonable alternative or variant treatments. The test of materiality is:

- a risk to which a reasonable person in the patient's position would be likely to attach significance or
- a risk that the healthcare professional knows – or should reasonably know – would probably be deemed of significance by this particular patient.

NICE has produced several patient decision aids to help healthcare professionals explain the risks and benefits of treatments: these are published alongside the guideline to which they relate and are also available from the [shared decision-making page](#) on the NICE website. Shared decision-making does not only entail providing the best information available (to prevent decisions being made 'in the face of avoidable ignorance'). Equally important is clarifying the person's preferences and priorities, and supporting them in choosing the most compatible option with these ([Elwyn et al. 2012](#)).

The NICE guideline on [multimorbidity](#) recommends that clinicians think carefully about the risks and benefits of individual treatments recommended in guidance for single health conditions. This should be discussed with the person alongside their preferences for care and treatment. The guideline also recommends using a tailored approach to care that takes account of multimorbidity for people of any age who are prescribed 15 or more regular medicines, and that this approach is considered for people of any age who:

- are prescribed 10 to 14 regular medicines
- are prescribed fewer than 10 regular medicines but are at particular risk of adverse events.

Reviewing polypharmacy and deprescribing

The NICE guideline on [medicines optimisation](#) recognises that optimising a person's medicines can support the management of long-term health conditions, multimorbidity and polypharmacy. Deprescribing is the complex process needed to ensure the safe and effective withdrawal of inappropriate medicines ([A patient centred approach to polypharmacy](#) NHS Specialist Pharmacy Service 2017). Resources have been developed to support healthcare professionals who are reviewing people with polypharmacy to help guide decision-making about the appropriateness of prescribing and deprescribing (see table 1). These resources include case examples and practical

tools, such as the [STOPP/START](#) and [NO TEARS](#) tools. The NICE guideline on [multimorbidity](#) recommends that the use of a screening tool is considered (for example, the STOPP/START tool in older people) to identify medicine-related safety concerns and medicines the person might benefit from but is not currently taking. Several published examples highlight the importance of identifying underuse and overuse of medicines. For more information see the following NICE medicines evidence commentaries:

- [Medicines optimisation: adverse outcomes from potentially inappropriate prescribing in older people living in the community.](#)
- [Medication underuse in older people: pharmaceutical care interventions.](#)
- [Primary prevention of stroke and transient ischaemic attack: UK observational study suggests under-prescribing of prevention medicines.](#)
- [Medicines optimisation: impact of inappropriate prescribing on mortality and hospitalisation in older people.](#)

The [scope](#) for the NICE guideline on multimorbidity included reviewing evidence for the effect of stopping drugs. 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). A number of resources are available to help healthcare professionals approach the challenges of inappropriate polypharmacy, see table 1.

Table 1 Polypharmacy resources

<p>A patient centred approach to polypharmacy. NHS Specialist Pharmacy Service 2017.</p> <p>Polypharmacy guidance. NHS Scotland and the Scottish Government 2015.</p> <p>Polypharmacy: guidance for prescribing. All Wales Medicines Strategy Group 2014.</p> <p>Polypharmacy Supplementary Guidance - BNF Sections to Target. All Wales Medicines Strategy Group 2014.</p> <p>Polypharmacy and medicines optimisation: making it safe and sound. The King's Fund 2013.</p> <p>Personalised care and support planning handbook: the journey to person-centred care. NHS England 2016.</p> <p>The challenge of polypharmacy: from rhetoric to reality. Royal Pharmaceutical Society 2016.</p> <p>Responding to the needs of patients with multimorbidity: a vision for general practice. Royal College of General Practitioners 2016.</p> <p>PrescQipp have published a number of resources around polypharmacy and deprescribing.</p>

Addressing inappropriate polypharmacy is a medicines optimisation priority that is supported by the work of the [Regional Medicines Optimisation Committees \(RMOCs\)](#).

Practice examples and shared learning

Primary Care Commissioning has published a [collection of case studies](#) from the clinical pharmacists in general practice programme, illustrating the benefits gained by some of the nearly 600 practices taking part.

The medicines use review (MUR) is a structured review that is undertaken by a community pharmacist to help patients manage their medicines more effectively. MURs are nationally commissioned as an Advanced Service by NHS England; the service is also commissioned in Wales, but with differences in service requirements. The document [PSNC Briefing 038/17: A summary of literature relating to Medicines Use Reviews](#) highlights how MURs are being used nationally to improve medicines optimisation in polypharmacy.

There are several NICE [shared learning examples](#) relating to multimorbidity and polypharmacy, showing how NICE guidance and standards have been put into practice by some NHS organisations:

- [Evidencing best practice against NICE quality standards across geographically dispersed care homes and using the standards to encourage iterative improvement.](#)
- [Improving medicines optimisation for care home residents and providing medicines management support to care homes - the Wigan Borough CCG approach.](#)
- [Medicines optimisation for older people in care homes and the intermediate care setting: developing and reproducing new models of care.](#)
- [Neighbourhood integrated medicines optimisation team: improving medicines use at home.](#)
- [Refer-to-pharmacy and medicines optimisation.](#)
- [Implementing NICE's medicines management in care homes guidance in Plymouth.](#)
- [Patient led clinical medicines reviews.](#)
- [Integrated care clinical pharmacist for frail older people: case management and enhanced rapid response.](#)
- [Integrated Medicines oPtimisAtion on Care Transfer \(IMPACT\) project.](#)

- [Peer support meetings for pharmacists undertaking medication reviews for older people in care homes and domiciliary settings.](#)
- [A medicines optimisation service.](#)

Prescribing data, metrics or supporting resources

The selection of metrics to support key therapeutic topics is overseen by the NHS England Medicines Optimisation Intelligence Group, and work is ongoing in this area. At this point, the following metrics have been identified by this group to support this topic.

[Medicines optimisation polypharmacy prescribing comparators](#) have been developed by the NHS Business Services Authority in conjunction with Wessex Academic Health Science Network, and are available on ePACT2. In June 2017, the Medicines Optimisation Intelligence Group approved the addition of these comparators to the [medicines optimisation dashboard](#), and these will be added in due course.

Update information

February 2018: This topic was retained for the 2018 update of medicines optimisation: key therapeutic topics. The evidence context has been updated in the light of new guidance and important new evidence.

About this key therapeutic topic

This document summarises the evidence base on this key therapeutic topic which has been identified to support medicines optimisation. **It is not formal NICE guidance.**

For information about the process used to develop the key therapeutic topics, see the [integrated process statement](#).

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