

# Addressing the global challenge of multimorbidity

## Academy of Medical Sciences

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### Definitions

**1. There is no standard definition of ‘multimorbidity’ – various different definitions are used. Which definitions (or aspects of definitions) do you think are most helpful to efforts to describe and understand multimorbidity?**

*Please provide references for any published research, and highlight any other initiatives related to multimorbidity that the Academy may be interested in.*

We find the expanded definition described by NICE in its recent guideline (published September 2016) helpful:

<https://www.nice.org.uk/guidance/ng56/resources/multimorbidity-clinical-assessment-and-management-1837516654789>

This defines multimorbidity as 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

<https://www.nice.org.uk/guidance/NG56/chapter/recommendations#multimorbidity>

*(last accessed 10/11/2016)*

However, we also note the difficulty in defining some diagnoses, which can lead to overdiagnosis of multimorbidity; good examples are the definition of chronic kidney disease based on estimated glomerular filtration rate (eGFR), and diagnoses such as “pre-diabetes”, the nature of which is controversial.

## Current knowledge base

*When answering these questions, please consider both national and international populations of high, middle, and low income countries. Please provide examples and case studies to illustrate your arguments where appropriate. Please provide references for any published research.*

### **2. What are the key data, and what data sources exist, on the prevalence, burden (including costs and impact on health systems) and determinants of multimorbidity? Are there significant gaps in such data and, if so, what are they?**

The evidence-base concerning prevalence and burden (including costs and impact on health systems) and determinants of multimorbidity in the United Kingdom has been comprehensively reviewed recently in the NICE guideline. It notes that multimorbidity becomes more common as people age, and is more common in people from less affluent areas. It is of concern to note that the report identified that two-thirds of people aged 65 years or over now have multimorbidity, and 47% have three or more conditions. NICE also noted that people living in the most deprived areas have double the rate of multimorbidity in middle age than those living in the most affluent areas.

Multimorbidity causes a significant burden on the NHS because of its association with reduced quality of life, increased incidence of inappropriate polypharmacy, and increased risk of adverse drug reactions. This can lead to increased need for health service resources and increased rates of hospitalisation (including emergencies).

The significant gaps in the data appear to be particularly around the assessment of the international impact of multimorbidity.

### **3. What are the key data, and what data sources exist, on the prevention of multimorbidity? Are there significant gaps in such data and, if so, what are they?**

Data are sparse in many areas, although perhaps greatest in the prevention of cardiovascular morbidity (e.g. hypertension and hyperlipidaemia). There is some evidence for a bidirectional link between mood disorders and cardiovascular diseases with some cardiovascular drugs (beta blockers) having an adverse effect on mood disorders. Given the high prevalence of cardiovascular disease and mental illness, more data is required to plan future interventions.

### **4. What are the key data, and what data sources exist, on the management of multimorbidity? Are there significant gaps in such data; if so, what are they?**

*The term 'management' here could refer to clinical interventions designed to specifically treat patients with multimorbidity as well as strategies for the delivery of healthcare services patients with multimorbidity. The term also refers to a wide range of management approaches that may differ by the specific diseases that co-exist.*

**See next page.**

The key data are well-described in the NICE report (2016). It is possible to address certain sequelae of multimorbidity such as inappropriate polypharmacy. As both generalists and specialists, clinical pharmacologists often work in multidisciplinary teams to provide continuing care for patients with long-term conditions, in which multimorbidity predisposes to inappropriate polypharmacy and thus an increased risk of drug-drug interactions and adverse drug reactions (ADRs). It is estimated that ADR-related admissions and ADRs occurring during hospitalisation in England lead to bed days equivalent to the occupancy of ten 800- bed hospitals at any one time, which is conservatively estimated to incur an annual cost greater than £637 million (Davies EC et al. 2009).

It is likely that the need for this expertise will increase as the population ages and as the prevalence of complex long-term conditions and co-morbidities rises: the number of older people with a long-term limiting illness or disability will increase from 4 million to 6 million by 2030 (Age UK 2014). The King's Fund has already highlighted the extent of inappropriate polypharmacy in primary care, secondary care, and care homes, and called for more involvement of clinical pharmacologists in supervising complicated drug treatments (The Kings Fund 2013).

Barnett and colleagues stated that "a complementary strategy is needed, supporting generalist clinicians to provide personalised, comprehensive continuity of care, especially in socioeconomically deprived areas" (Barnett et al. 2012). Clinical pharmacologists, who are mostly also general physicians on the emergency intake rota, and who also have training in pharmacology and an understanding of the mechanisms of ADRs and drug-drug interactions, can contribute positively to the prevention and management of inappropriate polypharmacy. However, more consultant and specialist registrar posts are needed throughout the UK to ensure that this is possible. The BPS report, "A Prescription for the NHS: recognising the value of clinical pharmacology and therapeutics (CPT)" has identified the need to increase the CPT workforce to 150 whole-time consultant equivalents by 2025, accompanied by a corresponding increase in the number of specialist registrar training posts.

#### References

- Age UK. *Later life in the United Kingdom*. 2016. Available at: [http://www.ageuk.org.uk/Documents/EN-GB/Factsheets/Later\\_Life\\_UK\\_factsheet.pdf?dtrk=true](http://www.ageuk.org.uk/Documents/EN-GB/Factsheets/Later_Life_UK_factsheet.pdf?dtrk=true) (Last accessed: November 2016).
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- The King's Fund. *Polypharmacy and medicines optimisation: Making it safe and sound*. 2013. Available at: [https://www.kingsfund.org.uk/sites/files/kf/field/field\\_publication\\_file/polypharmacy-and-medicines-optimisation-kingsfund-nov13.pdf](https://www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/polypharmacy-and-medicines-optimisation-kingsfund-nov13.pdf) (Last accessed: November 2016).

**5. What are the key sources of funding for research into multimorbidity? Are there gaps in funding and, if so, where?**

We are aware that NIHR issued a call for research into the evaluation of interventions or services delivered for older people with multimorbidity in 2015. We are not aware of any other key sources of funding.

## Looking forward

**6. What should the definition of 'multimorbidity' be? How would this definition improve research and/or treatment?**

We are satisfied with the definition outlined in the NICE report, and outlined in our response to question 1. We believe it to be broader than some previous definitions but nevertheless clinically relevant and applicable.

**7. What are the priorities for research about the prevalence, burden and determinants of multimorbidity?**

We believe that further work in this area should be directed towards the global aspects of the prevalence, burden and determinants of multimorbidity. Research funders and agencies, which tend to focus on a particular disease domain, will need to work together to strategically drive research and clinical translational activities into multimorbidity by collaborating on joint awards and fellowships. These awards will necessarily have to be interdisciplinary with clinicians, pharmacologists, clinical pharmacologists, pharmacists, social scientists and industry working together.

**8. What are the priorities for research about the prevention of multimorbidity?**

We endorse the research recommendation (number 1, pg 19) in the NICE Guideline (September 2016), exploring the possibility of analysing primary care data to identify characteristics that affect life expectancy, in order to develop algorithms and prediction tools for patients and healthcare providers to predict reduced life expectancy. These could then be used to target appropriate interventions.

<https://www.nice.org.uk/guidance/ng56/resources/multimorbidity-clinical-assessment-and-management-1837516654789>

**9. What are the priorities for research about the management (as defined above) of patients with multimorbidity?**

We endorse the relevant research recommendations (number 2-4, pg 20-22) in the NICE Guideline (September 2016), exploring the clinical and cost-effectiveness of certain interventions. Further research around the role of deprescribing (reducing the dosage and/or withdrawing medicines that may be causing harm, may no longer be providing benefit, or may be considered inappropriate) would be particularly valuable. The role of technology to facilitate these aspects and also to minimise risk is crucial and needs to be prioritised.

<https://www.nice.org.uk/guidance/ng56/resources/multimorbidity-clinical-assessment-and-management-1837516654789>

**10. What should be the strategic response of both national and international research funders and agencies be to multimorbidity?**

They should prioritise funding in this key area, since the challenge will continue to increase as all populations worldwide continue to have an increasing life expectancy.

We believe Clinical Pharmacologists will have a key role to play in assessing and resolving the safety, efficacy and cost issues related to polypharmacy and deprescribing.