

Managing multimorbidity in people with type 2 diabetes

Clinical context

Multimorbidity is defined as the co-existence of two or more chronic conditions in the same patient.¹ About half of the patients seen by general practitioners (GPs) in Australia meet this definition.²

Multimorbidity increases the risk of premature death, hospitalisation, functional impairment and deterioration in quality of life, in addition to increasing healthcare use and associated cost, polypharmacy and the complexity of self-care.^{3,4}

Type 2 diabetes is associated with multimorbidity, which increases in prevalence and changes in composition over time. More than 80% of people with type 2 diabetes will have multimorbidity within 16 years of being diagnosed, and 47.6% have two or more conditions other than diabetes.⁵ The number of associated conditions increases with age, as people with diabetes live longer, partly as a consequence of improved treatment.⁶

Other well established determinants of multimorbidity include socioeconomic status and gender (higher prevalence in females).³ The prevalence of multimorbidity among Australian Aboriginal and Torres Strait Islander peoples is 2.59 times that of non-Indigenous Australians, a factor that contributes significantly to higher mortality.^{4,7}

Multimorbidity in people with type 2 diabetes can lead to:^{8,9}

- premature mortality
- reduced quality of life
- increased healthcare use
- high burden of treatment
- loss of physical functioning
- increased mental health problems
- polypharmacy, with increased risk of drug interactions and adverse drug events
- fragmentation of care.

Multimorbidities may or may not be diabetes-related, and can be either concordant or discordant with diabetes care.⁶

Concordant conditions have a similar risk profile to type 2 diabetes and share the same management goals. They are usually incorporated in the single-disease guidelines.

Discordant conditions are not related in pathogenesis to type 2 diabetes and do not share similar management goals. This may impact on quality of care.^{10–12}

Common multimorbidity clusters found in people with type 2 diabetes are shown in Figure 1. Because of the complex relationships between co-existing conditions, guidelines based on single diseases may not provide evidence for optimal care.^{13–15} While many conditions have a concordant treatment focus (eg hypertension, dyslipidaemia, cardiovascular disease [CVD] and renal disease), others, such as depression, chronic obstructive pulmonary disease and painful conditions, may be discordant.^{14,16}

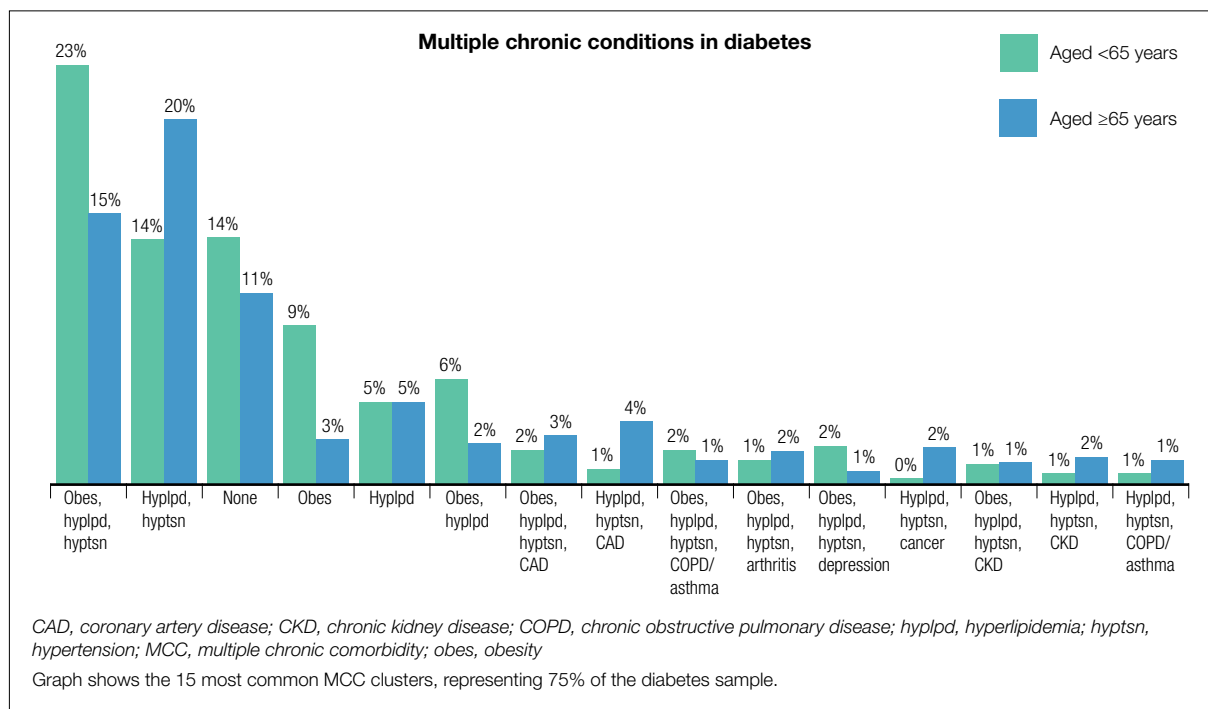
Few studies have examined the effectiveness of specific interventions to improve outcomes in people with multimorbidity. Findings have been mixed, but suggest there is an improvement in health outcomes when interventions target specific risk factors for the comorbid conditions (eg CVD and depression) or areas of functional difficulty.⁸

On an individual level, multimorbidity can have a profound effect on a patient's ability to self-care and balance different treatment needs across multiple conditions.^{6,14} In particular, people with discordant comorbidities will likely require extra support to prioritise goals of care and to self-manage diabetes.¹⁷

The literature suggests that care for multimorbidity should be person-centred, promoting achievement of agreed goals through self-management and focusing on quality of life.

The challenge for general practice is to optimise the care for these patients, taking into account co-existing physical or mental health disorders, age, and socioeconomic and cultural issues.

Figure 1. Prevalence of the 15 most common comorbidity clusters in type 2 diabetes¹⁸



Adapted with permission from Lin P, Kent D, Winn A, Cohen J, Neumann P. Multiple chronic conditions in type 2 diabetes mellitus: Prevalence and consequences. *Am J Manag Care* 2015;21(1):e23–e34.

Common comorbidities with diabetes

Be aware of the following common comorbidities with type 2 diabetes.

- Macrovascular disease
 - Includes coronary artery disease, hypertension, chronic heart failure and cerebrovascular disease
- Obesity
- Painful conditions (acute and chronic)
 - Common in patients with type 2 diabetes. Peripheral neuropathies and arthritis account for most causes of pain. Tendinopathy is also a common cause

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- Arthritis
 - Arthritis is particularly problematic, as it can reduce capacity for self-management
 - Fractures
 - Research has shown that overall fracture risks are significantly higher for men and women with type 2 diabetes
 - Obstructive sleep apnoea (OSA)
 - OSA or sleep deprivation from any cause can aggravate insulin resistance, hypertension and hyperglycaemia
 - Cancer
 - Diabetes is associated with increased cancer risk, including substantially elevated risks of pancreatic and liver cancer, and moderately increased risk of ovarian, cervical, breast, kidney, bladder and colorectal cancer¹⁹
 - Renal impairment
 - Diabetes-related kidney disease is one of the most frequent complications of diabetes. It is the leading cause of end-stage renal disease, accounting for approximately 50% of cases in the developed world.²⁰ Refer also to the section [‘Microvascular complications: Nephropathy’](#)
 - Cognitive impairment
 - Type 2 diabetes is associated with cognitive impairment^{21,22} and higher rates of dementia²³
 - Mental health issues
 - Conditions such as diabetes-related distress, depression and anxiety can adversely affect practitioner–patient communication and the patient’s ability to live and apply the principles of a diabetes management plan and glycaemic control. They can also add to the burden of disease and reduce quality of life. Depression and diabetes are also associated with a significantly increased all-cause and CVD-related mortality
 - Some antipsychotic medications can increase the risk of developing diabetes. Olanzapine and clozapine are associated with higher rates of diabetes compared with other antipsychotic agents²⁴
 - Dental problems
 - Dental problems such as periodontitis (ie localised inflammation of the supporting structures of the teeth due to a chronic bacterial infection) are more common in patients with diabetes. Periodontitis can result in tooth loss and other dental complications that can interfere with the diet
 - There is a two-way relationship between diabetes and periodontitis – the management of periodontitis may lead to a modest reduction in glycated haemoglobin (HbA1c) of approximately 0.4%.^{25–28} Inversely, improving glycaemic management may also improve the severity and complications associated with periodontitis
 - Early prevention and intervention may prevent permanent dental loss and aid in glycaemic control
 - Oral and periodontal health reviews should be incorporated into the systematic individualised care of patients with diabetes. GPs should ask patients about

smoking status, pain, swelling or bleeding in the gums, and loose teeth. Examination of the gums should include looking for signs of inflammation, such as swelling and redness, recession of the gums and build-up of plaque/tartar

- Information about dental health and diabetes can be found on the [Diabetes Australia](#) website

In practice

Approach to managing multimorbidity

Given the lack of clear evidence for specific multimorbidity interventions and the difficulty with following individual clinical guidelines, the following clinical principles are suggested to guide general practice management of multimorbidity in patients with type 2 diabetes.

Refer also to the chapter on ‘Multimorbidity’ in the *RACGP aged care clinical guide (Silver Book)*.

Recognise clinical context and prognosis

Consider clinical management decisions within the context of risks, burdens, benefits, and prognosis of a patient’s life (eg remaining life expectancy, functional status, quality of life).^{29–31}

Promote person-centred care

Focus on outcomes that matter most to the individual. Shared decision-making with patients is vital to ensure care is aligned with their values and preferences.^{6,31–34}

Recognise and manage mental health issues, cognitive decline and socioeconomic deprivation.

Recognise the limitations of the evidence base

Many of the patterns of multimorbidity have similar pathogenesis and therapeutic management strategies (eg diabetes, hypertension, coronary artery disease). Focus on functional optimisation and on shared (concordant) risk factors.

Clinical guidance regarding discordant conditions, such as steroid-dependent conditions (which destabilise glycaemic control), or conditions that alter medication pharmacokinetics (eg renal disease, cardiac failure, liver disease, malabsorptive states), is often lacking or sparse.

A degree of clinical judgement and a ‘best care given the circumstances’ is required in these situations.⁹

Manage medication

Adherence to therapy can be much more difficult for patients taking numerous medications for multiple conditions. De-prescribing and reviewing medications, where indicated, may reduce medication burden.

Important drug interactions and side effects

People with diabetes may be taking multiple glucose-lowering medications in addition to other prescription and non-prescription agents. Some drug interactions are dangerous, and special care is required in older patients and patients with comorbidities such as renal impairment and autonomic neuropathy.

Polypharmacy

Polypharmacy (taking >5 medications) is one consequence of following single-disease guidelines in people with multimorbidity.^{15,31,35-37}

Polypharmacy can be appropriate and has been said to be the price of success in creating effective treatments. However, it is also associated with higher rates of adverse drug events and hospitalisation, and is often particularly problematic in people who are physically frail³⁸ or have cognitive impairment.

Use strategies for choosing therapies that optimise benefit, minimise harm and enhance quality of life, particularly in older adults with multimorbidity.

Plan regular (at least annual) reviews of medications.

Coordinate care

Provide continuity of care, preferably through a single healthcare provider.

Ensure adequate time for consultations and set up practice systems to ensure regular review and best use of practice resources (eg scheduling concurrent practice nurse and doctor consultations) to address problems and develop patient-oriented solutions. This should allow adequate time for reaching management decisions.⁹

Use a coordinated, multidisciplinary team approach where appropriate.

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