

Management of type 2 diabetes in older people and residential aged care facilities

Recommendations

Recommendation	Reference	Grade*
Consider the assessment of medical, psychological, functional (self-management abilities) and social geriatric domains in older adults to provide a framework to determine targets and therapeutic approaches for diabetes management	1 American Diabetes Association, 2019	C
Overtreatment of diabetes is common in older adults and should be avoided	1 American Diabetes Association 2019	B
De-intensification (or simplification) of complex regimens is recommended to reduce the risk of hypoglycaemia in older adults, if achievable within the individualised HbA1c target	1 American Diabetes Association 2019	B
For older adults in residential aged care facilities, individualised care plans should be developed and agreed upon by the individual, their GP and facility staff. This will provide clarity regarding aims of care and metabolic targets, and facilitate screening for diabetes-related complications and annual reviews	RACGP Diabetes Handbook working groups, 2020	Consensus

*Refer to '[Explanation and source of recommendations](#)' for explanations of the levels and grades of evidence.

Clinical context

The number of Australians aged ≥ 65 years in 2016 was 3.7 million, and this number is expected to more than double by 2057.² Approximately 15% of this population have type 2 diabetes.² Every year, around 280,000 Australians receive residential aged care,² and 10–20% of these residents have diagnosed type 2 diabetes.³

The 'older' or 'elderly' age group is often defined administratively and in clinical studies as ≥ 65 years; however, there is movement to raise this definition to ≥ 75 years, as the physical and mental functioning of the ageing population is improving.⁴ The status of 'elderly' might be better defined based on function, cognition, ability to self-care and quality of life. Therefore, the principle of individualised care still applies to older people with type 2 diabetes, and people in this group who are otherwise well and functionally independent should be treated in the same way as any other patient.⁵

There are, however, differences that GPs must consider in older patients, regarding the signs and symptoms of type 2 diabetes in older people and the goals of treatment. These may be particularly relevant to residents of aged care facilities, where management of diabetes can be inadequate or inappropriate.

In practice

Diagnosing type 2 diabetes in older people

Many of the symptoms of type 2 diabetes in older people are the same as in younger people; however, they can often be overlooked or mistakenly attributed to 'old age'. It is important to be alert to the clinical features of diabetes in older patients, such as:

- lethargy
- urinary incontinence as part of polyuria
- recurrent infections
- slow wound-healing
- cognitive changes.

GPs should also be aware that type 1 diabetes does occur in older people; clear identification of diabetes type is therefore vital.

For more information, refer to [The McKellar guidelines for managing older people with diabetes in residential and other care settings](#).⁶

Assessment

The following additional assessment should be undertaken in elderly patients with type 2 diabetes:¹

- full assessment of physical, mental and social health, including falls risk, nutrition and immunisation status
- careful screening and monitoring for cognitive impairment.

Information about frailty screening, assessment and management can be found in:

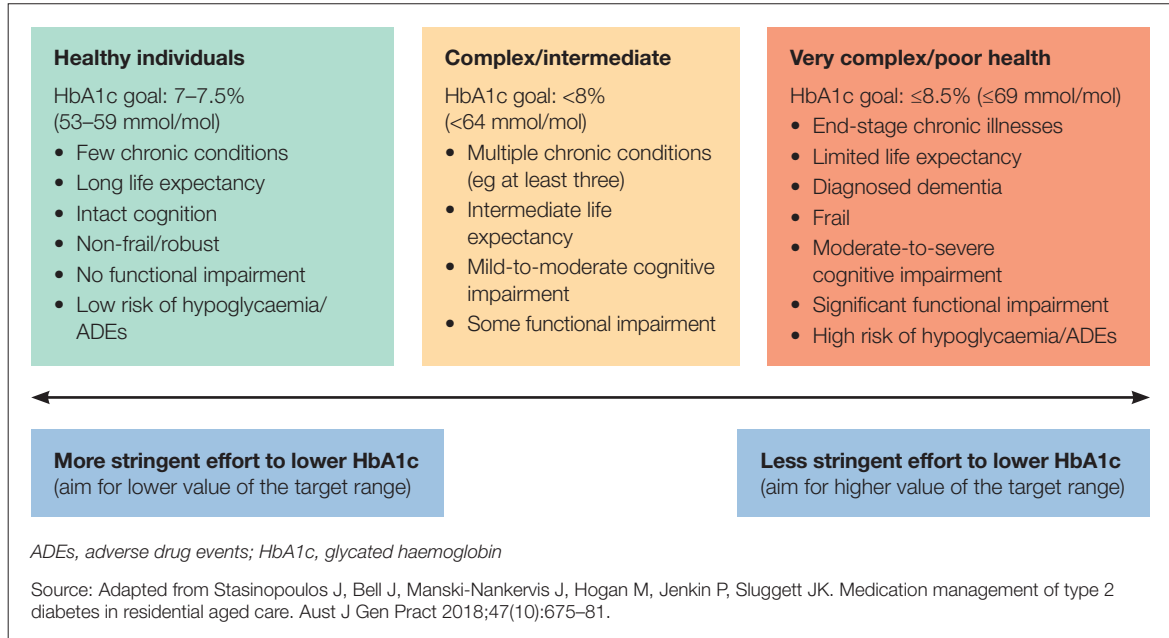
- ['Frailty' in the RACGP aged care clinical guide](#)
- [Identifying frailty](#) (State Government of Victoria)
- ['Diabetes in long-term care'](#) in *Diabetes in older people* (Diabetes Canada)
- a [statement of key principles](#) from Diabetes UK.

Management and care planning

Care planning is vitally important in older people with diabetes. It can provide clarity regarding aims of care and help avoid reactive management to problems. Care planning should include up-to-date care plans, regular reviews, documented sick day management plans, and hyper- and hypoglycaemia risk assessment.

Management of diabetes in elderly patients should take into account quality of life, life expectancy and functioning (Figure 1). In some patients, glycaemic control may be less important than risk minimisation and maintaining quality of life. Blood glucose targets may therefore be higher than for younger adults with type 2 diabetes (refer to ['Medical considerations'](#), below).

Figure 1. Consensus framework for individualising targets and therapeutic approach to glycaemic management across the continuum of care for older people with type 2 diabetes mellitus⁷



Older people with diabetes have higher rates of conditions that might impair ability to self-manage diabetes compared with younger people. These include functional disability, accelerated muscle loss, osteoporosis, cognitive impairment, urinary incontinence, injurious falls and persistent pain.¹

Refer to the section ‘[Managing multimorbidity in people with type 2 diabetes](#)’ for approaches to managing comorbidities.

Medical considerations

Older people are at higher risk of hypoglycaemia, so medication regimens should aim to avoid hypoglycaemia.¹ Where needed, individualised targets should be redefined, and treatment regimens de-intensified (if possible) to reduce the risk of hypoglycaemia and avoid polypharmacy.¹

Older people with diabetes should have an individualised hypoglycaemia management plan, which may need to include an order for glucagon.

Glycaemic targets for some elderly people may be higher than for the non-elderly (eg a glycated haemoglobin [HbA1c] target of 8% [64 mmol/mol], rather than 7% [53 mmol/mol]). Intensive glycaemic management reduces microvascular but not macrovascular complications, and may increase adverse events and mortality. However, optimising glycaemia might help prevent acute symptoms of diabetes such as polyuria, weight loss, confusion and falls.⁷ Note that HbA1c levels greater than 8–8.5% (64–69 mmol/mol) are associated with greater morbidity and mortality in older patients.^{8,9}

Refer to Figure 1 for suggested glycaemic targets in older people with diabetes.

Insulin can be used to reduce symptoms of hyperglycaemia in combination with oral glucose-lowering medications. Complex regimens should be avoided, and prefilled insulin pens can reduce dosing errors.¹⁰ Nursing or carer support may be needed to

administer injections; however, older people who have been self-injecting their insulin at home should be enabled to continue to do so in a residential aged care facility, subject to their capability.

Insulin regimens should be reviewed regularly, including review of doses and timing of administration relative to food intake, activity, frailty or clinical changes and glycaemic profile. There should not be a 'set and forget' approach.

Table 1 presents prescribing considerations of different glucose-lowering medications in elderly patients.

Table 1. Considerations for selecting, monitoring and de-intensifying glucose-lowering medications in elderly people with type 2 diabetes*	
Medication	Considerations for elderly populations
Metformin	<ul style="list-style-type: none"> • May cause weight loss and gastrointestinal upset • Cease if diarrhoea continues for a few days after starting, even after dose reduction • Extended-release form has fewer gastrointestinal side effects and may reduce regimen complexity • In renal impairment, cease if at risk of further decline in renal function
Sulfonylureas	<ul style="list-style-type: none"> • Efficacy may reduce over time as β-cell function is lost • Long-acting sulfonylureas (glimepiride, glibenclamide and slow-release gliclazide) have a higher risk of hypoglycaemia. Avoid in frail people or when eating patterns are irregular
DPP-4i	<ul style="list-style-type: none"> • Given once daily, except vildagliptin (once or twice daily) • Dose reduction is required in renal impairment, except linagliptin (excreted unchanged in bile)
GLP-1 RAs	<ul style="list-style-type: none"> • May cause weight loss. Avoid in people who are frail and underweight • Gastrointestinal effects are more common in older people • Liraglutide is not recommended in people aged ≥ 75 years and in end-stage renal disease (no experience in these groups)
Acarbose	<ul style="list-style-type: none"> • Limited role because of gastrointestinal side effects and inferior glycaemic effect compared with metformin and sulfonylureas
Thiazolidinediones	<ul style="list-style-type: none"> • May worsen heart failure, oedema and bone fracture risk • Change in glycaemic control may take up to 12 weeks after initiation, dose changes or cessation
SGLT2 inhibitors	<ul style="list-style-type: none"> • Watch for increased urinary frequency or incontinence, genitourinary infections and dehydration, which can contribute to delirium • Not recommended with loop diuretics, due to volume depletion concerns • May be problematic in people with urinary incontinence and those who require assistance getting to the toilet • Care should be taken with use in people aged ≥ 75 years and in end-stage renal disease (limited experience in these groups)
Insulin	<ul style="list-style-type: none"> • Appropriate meal planning is essential • Basal insulin may have a lower hypoglycaemia risk than premixed insulin in some cases • Administration by syringe increases risk of overdose; a pen device is preferred in residential aged care facilities

DPP-4i, dipeptidyl peptidase-4 inhibitors; GLP-1 RAs, glucagon-like peptide-1 receptor agonists; SGLT2, sodium glucose co-transporter 2

Source: Adapted from Stasinopoulos J, Bell J, Manski-Nankervis J, Hogan M, Jenkin P, Sluggett JK. Medication management of type 2 diabetes in residential aged care. *Aust J Gen Pract* 2018;47(10):675–81.

Lifestyle interventions

Diet

Nutritional interventions can help reduce the risk of adverse diabetes events in older people, such as hypoglycaemia, undesired weight loss, frailty and falls.^{1,11} It is important to consider the different nutritional needs of elderly people compared with younger people, including the healthy weight range in people aged >65 years.

Elderly people may lack awareness of thirst, and can experience reduced appetite. Adequate hydration and nutrition can therefore be a problem. Other areas to assess and monitor include constipation, oral hygiene and the ability to cook or shop for food.

Refer also to the National Diabetes Services Scheme (NDSS) booklet *Healthy eating: A guide for older people living with diabetes*.

Physical activity

The Australian Government's [physical activity guidelines](#) recommend all people aged >64 years do at least 30 minutes of moderate-intensity physical activity (eg walking, dancing, mowing the lawn) a day and reduce sedentary behaviour as much as possible.

Even in older adults with multiple chronic diseases, the risks associated with exercise are considered to be less than those of inactivity. Targeted exercise programs (aerobic, resistance, balance training, or a combination) have been shown to provide clinically significant symptom relief for osteoarthritis, peripheral vascular disease, mobility impairment, peripheral neuropathy and elevated fall risk, depression and cognitive impairment.¹²

Therefore, exercise training is an essential component of any treatment plan for all elderly people who have, or are at risk of, type 2 diabetes.¹² An accredited exercise physiologist can safely prescribe exercise programs. Refer to the section '[Lifestyle interventions for management of type 2 diabetes](#)' for more information.

Sick day management

Sick days should be planned for as usual, with the additional inclusion of advice for nurses or carers. Refer to the section '[Managing risks and other impacts of type 2 diabetes](#)'.

Diabetes management in residential aged care facilities

The [McKellar guidelines](#) provide comprehensive and detailed information about managing older patients with type 2 diabetes in aged care facilities, including hyperglycaemia management guidelines (pages 25–28) and hypoglycaemia management guidelines and a risk tool (pages 29–33). Medical considerations for care plans are also presented in [Appendix 5](#).

The key considerations in residential care are the same as for other elderly patients; however, optimising care will necessarily involve collaboration with health professionals such as nurses, aged care staff, pharmacists, dietitians, diabetes educators and residential-based allied health teams.

Staff clinical knowledge and communication is critical. Page 15 of the McKellar guidelines outlines to residential care staff how to consult with GPs in terms of care context and preparation for a GP consultation. Refer to the 'Resources' list at the end of this section for links to guidebooks specifically for residential care staff.

In addition to the [considerations listed above](#), medication management in residential aged care facilities requires management of the complex processes that underpin prescription, supply, administration and monitoring of glucose-lowering medication in residential aged care facilities.

- Consider residents' goals of care and susceptibility to adverse drug events.⁷
- Aim for optimisation of care, de-prescribing, reducing polypharmacy and avoiding hypoglycaemia.
- Conduct medication reviews with facility pharmacists and nurses.⁷
- Appropriate training for nursing staff (preferably annually) will help with care, and should include safe management of insulin, understanding insulin profiles, monitoring blood glucose levels, and when to increase monitoring.

Refer also to the [RACGP aged care clinical guide](#) for more information about medicine management, de-prescribing and polypharmacy.

Resources

The **Royal Australian College of General Practitioners** provides general guidance on aged care in the [RACGP aged care clinical guide \(Silver Book\)](#).

Assessment and management

Diabetes UK has produced a [statement of key principles](#) of management, including the assessment of frailty, in older people with type 2 diabetes.

Lifestyle interventions

The **Australian Government** has developed [physical activity guidelines for older adults](#).

The **NDSS** has produced a [guide to healthy eating for older people living with diabetes](#).

Aged care facilities

Diabetes Australia has produced a [checklist for management of aged care residents](#).

Deakin University and Barwon Health have published [The McKellar guidelines for managing older people with diabetes in residential and other care settings](#), which includes tools for assessing the risk of adverse drug events from glucose-lowering medication.

The **NDSS** has developed a [handbook and fact sheet on diabetes management in aged care](#).

The **NDSS** has devised a [quality review tool for management of aged care residents with diabetes](#).

Palliative and end-of-life care for older people with diabetes

The **Centre for Quality and Patient Safety Research** has information on palliative and end-of-life care for [older patients](#), [families](#) and [healthcare professionals](#).

References

1. American Diabetes Association. Standards of medical care in diabetes: Older adults. *Diabetes Care* 2019;42 Suppl:S139–47.
2. Australian Institute of Health and Welfare. Older Australia at a glance: Web report. Canberra, ACT: Australian Institute of Health and Welfare, 2018.
3. Haines H, Bannon-Murphy H, Amos T, et al. Prevalence and management of diabetes in residential aged care facilities in north-east Victoria, Australia. *Aust Fam Physician* 2016;45:908–11.
4. Ouchi Y, Rakugi H, Araie H, et al. Redefining the elderly as aged 75 years and older: Proposal from the Joint Committee of Japan Gerontological Society and the Japan Geriatrics Society. *Geriatr Gerontol Int* 2017;17:1045–47.

5. Meneilly G, Knip A, Miller D, et al. 2018 Clinical practice guidelines: Diabetes in older people. *Can J Diabetes* 2018;42 Suppl:S283–95.
6. Dunning T, Duggan N, Savage S. McKellar guidelines for managing older people with diabetes in residential and other care settings. Geelong: Centre for Nursing and Allied Health, Deakin University and Barwon Health, 2014.
7. Stasinopoulos J, Bell J, Manski-Nankervis J, Hogan M, Jenkin P, Sluggett JK. Medication management of type 2 diabetes in residential aged care. *Aust J Gen Pract* 2018;47(10):675–81.
8. Forbes A, Murrells T, Mulnier H, et al. Mean HbA1c, HbA1c variability, and mortality in people with diabetes aged 70 years and older: A retrospective cohort study. *Lancet Diabetes Endocrinol* 2018;6:476–86.
9. Arnold L, Wang Z. The HbA1c and all-cause mortality relationship in patients with type 2 diabetes is J-shaped: A meta-analysis of observational studies. *Rev Diabet Stud* 2014;11:138–52.
10. Diabetes Canada Clinical Practice Guidelines Expert Committee. Diabetes Canada 2018 clinical practice guidelines for the prevention and management of diabetes in Canada. *Can J Diabetes* 2018;42 Suppl:S1–325.
11. Stanley K. Nutrition considerations for the growing population of older adults with diabetes. *Diabetes Spectr* 2014;27:29–36.
12. Hordern MD, Dunstan DW, Prins JB, et al. Exercise prescription for patients with type 2 diabetes and pre-diabetes: A position statement from Exercise and Sport Science Australia. *J Sci Med Sport* 2012;15:25–31.

Disclaimer

The information set out in this publication is current at the date of first publication and is intended for use as a guide of a general nature only and may or may not be relevant to particular patients or circumstances. Nor is this publication exhaustive of the subject matter. It is no substitute for individual inquiry. Compliance with any recommendations does not guarantee discharge of the duty of care owed to patients. The RACGP and its employees and agents have no liability (including for negligence) to any users of the information contained in this publication.

© The Royal Australian College of General Practitioners 2020

This resource is provided under licence by the RACGP. Full terms are available at www.racgp.org.au/usage/licence

We acknowledge the Traditional Custodians of the lands and seas on which we work and live, and pay our respects to Elders, past, present and future.