# Assessing older people with diabetes in Australia

Trisha Dunning

**Diabetes management becomes increasingly complex as people age, and clinicians and people with diabetes can find it difficult to balance treatment benefits and risks. The Annual Cycle of Care (ACC) is a systematic approach that was designed to achieve optimal outcomes by providing a framework for multiple clinical assessments and checks to be completed. It has been part of diabetes management in Australia for many years and is supported through a series of fee-for-service payments to GPs and general practices that enable referral to diabetes educators and allied health professionals. This article will cover the role of the ACC for older people and the assessment and checks that are recommended for older people with diabetes, including how the Medicare Health Assessment for Older Persons (75+) encompasses key geriatric assessment to identify changes in the person's function and health trajectory.**

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## Article points

1. There are several guidelines and approaches in place to ensure that older people with diabetes are assessed for new comorbidities or worsening complications.
2. Clinicians should use the Annual Cycle of Care, the Medicare Health Assessment for Older Persons (75+) and consider other assessments during consultations with older people with diabetes.
3. The assessment of older people with diabetes must be holistic and person centred.

## Key words

- Annual Cycle of Care
- Assessment
- Older people

Current estimates suggest that in the US >14% of people aged 75 and older have diabetes and a further 13% are at risk but undiagnosed (Cowie et al, 2009). In Australia, approximately 50% of all Australians with diabetes are aged 65 years or older (National Diabetes Service Scheme [NDSS], Diabetes Australia, 2016). Based on analysis by the Australian Institute of Health and Welfare (AIHW) in 2011–12, the prevalence of all diabetes is highest in the 65–74 year olds group, closely followed by the over 75s; diabetes prevalence is 15.8% for men and 10.4% for women (AIHW, 2016).

Most older people with type 1 or type 2 diabetes have at least one other diabetes complication or other comorbidities; 40% have at least three comorbidities (Maddigan et al, 2005). Over a half of older people present with atypical symptoms of diabetes or are unaware they have the condition, so a diagnosis can be easily missed or attributed to "old age" (Meneilly and Tessier, 2001). That is why it is important to complete physical and cognitive assessments in older people.

Managing diabetes is a significant challenge for society, health services, health professionals, the individual with diabetes and their family carers. Family carers can often provide important information when they are involved in care decisions, provided the health professional asks appropriate questions. Managing older people with diabetes differs from managing younger people with the condition as with increasing age, management can become more complex with changing medical needs. Self-care can become more difficult as diabetes-related changes in physical and cognitive function develop. Sarcopaenia and frailty affect functional and self-care capacity and increase the risk of adverse events, such as falls and hospital admissions (Evans, 2010). Cognitive changes can be due to dementia, stress and dehydration, but changes in cognition are also associated with both high and low blood glucose (Frier et al, 2014). Regular health assessments are vital to support the individual and ensure that they can undertake usual activities of daily living and diabetes self-care tasks.

## The Annual Cycle of Care (ACC)

The diabetes ACC is a systematic approach that was designed to achieve optimal outcomes by providing a framework for multiple clinical assessments and checks to be completed. It is an important indicator for diabetes as it provides a

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1. One of the main aims of the Annual Cycle of Care (ACC) is to prevent and detect complications early in their development to maintain health, independence and wellbeing.
2. The ACC is a recommended tool for clinicians; however, it is not as comprehensive as commonly used guidelines, such the *General Practice Management of Type 2 Diabetes*.

measure of the clinical management of diabetes according to national guidelines. GPs provide care for people with diabetes throughout life, so are ideally placed to manage older people with diabetes. The ACC consists of 10 physical and biochemical parameters that need to be assessed and their respective frequency in testing (Diabetes Australia and Royal Australian College of General Practitioners [DA/RACGP], 2014). All 10 parameters must be assessed for the ACC to be considered complete, and, in 2009–10, 18% of Australians with diabetes completed an annual cycle of care (AIHW, 2009). The Australian Government supports the ACC through the Medicare benefits schedule (see *Table 1*).

One of the main aims of the ACC is to prevent and detect complications early in their development to maintain health, independence and wellbeing. The theory is that completing the ACC will reduce costs by preventing hospital and emergency department admission and other related costs. "Tight glycaemic control" is associated with fewer complications and is achieved through lifestyle measures and often glucose-lowering medicines. However, tight control is known to increase the risk of hypoglycaemia, especially in older people. Hypoglycaemia is associated with significant morbidity including dementia and mortality, and it has significant effects on cognitive functions such as problem-solving and decision-making (Frier et al, 2014). Tight glycaemic control has a limited effect on cardiovascular outcomes and life expectancy in the short term (3–5 years), so lowering blood pressure, total cholesterol and LDL-cholesterol may be more effective at reducing cardiovascular risk than reducing $HbA_{1c}$ (Yudkin et al, 2010), provided it does not cause hypotension and exacerbate falls risk. However, hyperglycaemia should also be avoided; identifying a safe $HbA_{1c}$ target and blood glucose range for the individual is important.

The ACC is a recommended tool for clinicians; however, it is not as comprehensive as commonly used guidelines, such the *General Practice Management of Type 2 Diabetes* (DA/RACGP, 2014). These guidelines recommend that diabetes management requires a co-ordinated multidisciplinary team approach and, where possible, the older person with diabetes must be

**Table 1. Outline of the Medicare Processes introduced to support diabetes management in Australian general practice, which are central to the diabetes Annual Cycle of Care.***

| Medicare process | Outline |
|---|---|
| Enhanced Primary Care (EPC) Program | Enables services performed by diabetes educators and allied health professionals (such as dietitians, psychologists, Aboriginal health workers, dentists, exercise physiologists and podiatrists) to attract a rebate if the individual is managed within the EPC Program. Group intervention programs provided by some eligible health professionals are also encompassed within the ECP program. |
| Practice Incentive Program (PIP) | Only available to accredited GP or practices working towards accreditation. |
| National Integrated Diabetes Program (NIDP) | Established to prevent diabetes or achieve early diagnosis and management. Practices are required to register, create patient registers and reminder and recall systems. There are additional incentives for undertaking an annual cycle of care complication screening and health plan and another incentive if management targets are met. |
| Service Incentive Program (SIP) | GPs working in accredited practices attract SIP payments for themselves and their practices. The SIP cycle encompasses 6-monthly blood pressure, BMI and foot assessments, and yearly $HbA_{1c}$, lipids and microalbuminuria screening, as well education on healthy eating, physical activity, self-care, medicines review and smoking cessation programs. |
| General Practice Management Plans (GPMP) | GPMPs are document management plans the GP develops that encompass the person with diabetes' goals and needs, a plan of how the goals will be achieved and the resources needed. Various electronic and other templates are available. Medicare items are available for initially developing a GPMP, reviewing the plan and ongoing monitoring by the practice nurse on behalf of the GP for five visits. |
| Team Care Arrangements (TCA) | TCAs are usually encompassed within the GPMP and describe which health professionals will implement the various aspects of the GPMP (e.g. dietitian and diabetes educator). |
| Home Medicines Reviews (HMR) | HMRs involve an accredited pharmacist undertaking a comprehensive medicines assessment for people having problems managing their medicines. The pharmacist may recommend changes to the GP to improve medicine adherence, quality and safety. |

* Specific items in the Medicare Schedule provide for Aboriginal and Torres Strait Islander People.

involved in care decisions. The ACC parameters do not specifically encompass screening for age-related risks, functional decline and changing health trajectory; however, the *Health Assessment for People Aged 75 and Older* enables GPs to undertake comprehensive health assessments (Department of Health, 2014). The assessment provides a structured way of identifying health issues and conditions that are potentially preventable or amenable. The purpose of this health assessment is to help identify any risk factors that may require further health management to improve health and/or quality of life. The assessment is also used to identify a broad range of factors that influence a person's physical, psychological and social functioning. For example, it is also an ideal opportunity to monitor whether glycaemic targets should be relaxed to improve safety and quality of life. The information can be used to proactively plan for key life transitions, such as stopping driving and end-of-life preferences.

### Comprehensive geriatric assessments

In addition to the health assessment for people over the age of 75, the American Geriatric Society ([AGS], 2006) recommends comprehensive geriatric assessments for older people at risk of hospital admission or admission to a residential assisted-care facility (RACF); those with impaired ability to undertake activities of daily living; those who have a history of falls; and those with urinary and/or faecal incontinence, delirium and weight loss. The AGS also recommends assessing the health of family caregivers. Older caregivers are at risk of infections and cardiovascular events in the 12 months following the death of a close family member, such as a spouse (Segerstrom and Miller, 2004). However, the AGS recommendations do not address diabetes-specific factors that also need to be monitored. *Box 1* includes components of a health assessment that are not in the ACC, but are important to check regularly when managing older people with diabetes.

## Functional categories

DA/RACGP (2014) guidelines suggest $HbA_{1c}$ targets need to be individualised for all people with diabetes, taking into account individuals' functioning capacity, especially among older people, as this can vary hugely from person to person. In 2013, the International Diabetes Federation (IDF) produced guidelines specifically for the management of diabetes among older people. To improve awareness among clinicians and to take into account diabetes duration, life expectancy and frailty, the IDF described three main functional categories for older people with diabetes to assist in setting appropriate $HbA_{1c}$ targets.

- **Category 1: Functionally independent**
  Individuals live independently with no impairments to activities of daily living. Although diabetes may be the main medical problem, people in this category may have other medical comorbidities that influence diabetes care. The $HbA_{1c}$ target for this group is usually 53 mmol/mol (7%).
- **Category 2: Functionally dependent**
  This category represents individuals who, due to loss of function, have impairments of activities of daily living such as bathing, dressing or personal care, so will most likely require additional medical and social support. This category includes the subcategories "frail", which accounts for up to 25% of older people with diabetes, and "dementia", people who may well be physically well, but who are unable to self-care. Both categories emphasis patient safety, the high risk of hypoglycaemia and reduced life expectancy. Recommendations may include relaxing glycaemic goals, simplifying regimens, use of low-risk glucose-lowering agents, providing family and patient education and enhanced communication strategies. A target $HbA_{1c}$ of 64–69 mmol/mol (8–8.5%) is recommended.
- **Category 3: End-of-life care**
  Individuals in this category are characterised by a significant medical illness and a life expectancy that has been reduced to less than 1 year. Diabetes may no longer be an important priority, with pain relief and symptom and comfort control taking precedence. Hyperglycaemia can worsen pain, thirst, cognition, confusion and

### Page points

1. The *Health Assessment for People Aged 75 and Older* enables GPs to undertake comprehensive health assessments among older people.
2. The American Geriatrics Society recommends assessments for older people at risk of adverse events and with declining physical and cognitive functioning, and their caregivers if they too are older.
3. Functional categories take into account an individual's functional capabilities and assist clinicians to take into account diabetes duration, life expectancy and frailty.

**Page points**

1. *Box 1* includes additional components of a health assessment for older people with diabetes.
2. Recommending that older people with a high BMI lose 5–10% of their weight might be inappropriate, especially if the individual is malnourished or has co-existing sarcopaenia.

**Box 1. Important additional components to consider during a health assessment when managing an older person with diabetes.**

- Functional capacity and health trajectory.
- Self-care behaviours including medicine self-management and blood glucose monitoring technique.
- A comprehensive medicines review and reconciliation to:
  - Stop unnecessary medicines and medicines that are contraindicated according to the Beers Criteria (American Geriatrics Society, 2012) adapted for Australia and/or the STOPP/START tool (Gallagher et al, 2011) or other tools.
  - Check injection sites if insulin and other injectable medicines are prescribed.
  - Check medicine dose aids, especially if they are not packed by a pharmacist.
  - Check renal function.
  - Check for risk of medicine side effects and interactions including hypoglycaemia. Older people with long-standing diabetes often have hypoglycaemic unawareness and reduced capacity to mount a counter-regulatory response to hypoglycaemia (Munshi et al, 2013).
  - Check for anaemia, especially vitamin B12 in people with renal disease and on metformin.
  - Check glucagon-like peptide-1 receptor agonists dosage as it can contribute to weight loss and possibly loss of critical micronutrients (Lucissano and Murfett, 2015).
  - Check whether the person is using complementary medicines (CAM). People with diabetes are high-CAM users (Yeh et al, 2003).
- Individualised sick day care plan. Hyperglycaemia increases the risk of dehydration and ketoacidosis of hyperosmolar states. It affects cognition and the capacity to make decisions and problem-solve. Consequently, current generic sick day care recommendations may not be appropriate for some older people with diabetes.
- Hypoglycaemia risk and individualised hypoglycaemia management plan.
- Mental health assessments, using relevant screening tools such as PAID, PHQ and dementia screening tools (DA/RACGP, 2014).
- Assess quality of life (QOL) using a patient-generated QOL tool (Jenkinson and McGee, 1998). QOL should then be monitored as part of the Annual Care of Cycle (ACC) rather than using generic QOL tools that may be more suited to research and may not encompass the issues that constitute QOL for the individual.
- Determine whether general health checks have been attended (e.g. dental checks, mammograms, prostate and bowel screens and recommended vaccinations, which are part of the ACC).
- Determine nutritional status: weight loss might be contraindicated and increase the risk of falls. Many older people are under- or malnourished, even when they are obese.
- Complete a frailty assessment (e.g. Fried criteria; Feinkohl et al, 2001) and falls fracture risk (e.g. FRAX; American College of Rheumatology, 2016).
- Sexual health checks with accompanying sexual health education.
- Assess family caregiver health and the potential care burden.
- Consider intercurrent illnesses, or past admissions to hospital and/or emergency department.

incontinence; however, it is generally agreed that a range of 6–15 mmol/L is appropriate for most palliative care patients to optimise patient wellbeing and cognitive function (DA/RACGP, 2014). A target $HbA_{1c}$ of 64 mmol/mol (8–8.5%) is recommended; however, $HbA_{1c}$ becomes irrelevant when the person is actively dying in the terminal stage (Dunning, 2013).

Based on the joint ADA/EASD diabetes guidelines (Inzucchi et al, 2012), less stringent $HbA_{1c}$ goals (e.g. 58–64 mmol/mol [7.5–8.0%] or even slightly higher) are appropriate for

people with a history of severe hypoglycaemia, limited life expectancy, advanced complications, extensive comorbid conditions and those in whom the target is difficult to attain despite intensive self-management education, repeated counselling, and effective doses of multiple glucose-lowering agents, including insulin.

## Obesity in older people

Recommending that older people with a high BMI lose 5–10% of their weight might be inappropriate, especially if the individual is malnourished or has co-existing sarcopaenia. An important nutritional aim for older people is to prevent under nutrition and malnutrition, and coordinate calorie intake with dose and administration frequency and glycaemic targets, as well as maintaining hydration (Valiyeva et al, 2006). It is important to be aware that weight loss could indicate an underlying pathology, such as cancer or thyroid disease or be one of the indicators of reduced life expectancy (Gold Standards Framework [GSF], 2011). Caution is advised when encouraging increased physical activity to take into account the risk of activity-based injuries and hypoglycaemic events.

## Health trajectories

Health trajectories describe changes to health over time. Functional categories can be used with health trajectories to determine changing health status and assist in guiding care discussions and decisions (Lynn and Adamson, 2003; Dunning, 2016). This may include discussing whether it is appropriate to continue driving. Stopping driving may alter the individual's functional category and health trajectory. Although many older people recognise when it would be appropriate to stop driving, it is associated with a decline in general health, and physical and cognitive function, as well as increased risk of non-attendance for health consultations, isolation and depression. It also increases the likelihood of admission to an RACF and their mortality risk (Chihuri et al, 2016).

- **Trajectory 1:** This includes healthy people with stable diabetes. Most people will be functional category 1 but some may be in category 2. The aim is to maintain health, prevent complications and recognise episodes of remediable deterioration, such as intercurrent illnesses and when function and health status begin to change.
- **Trajectory 2:** Sudden death, which may be due to silent myocardial infarction, hypoglycaemia or unrelated to diabetes. People could be in any functional category and it is important to support surviving family members.
- **Trajectory 3:** Steady progression to a clear terminal phase, e.g. cancer. Many people with cancer survive for a long period of time, being treated and going in to remission; therefore, functional category will change over time. An association between diabetes and some forms of cancer, and some cancer treatments have been associated with diabetes (e.g. corticosteroid medicines [Giovannucci et al, 2010]).
- **Trajectory 4:** Gradual decline in health with episodes of acute deterioration and some recovery. It is a common trajectory for frail older people. Death may be sudden and seemingly unexpected from heart failure or renal or respiratory disease. More episodes of acute deterioration and recovery often occur in the year before the individual dies.

These trajectories can be used with the Gold Standards Prognostic Indicator (GSF, 2011) and the surprise question, "Would I be surprised if this person died in the next 12 months?", to design and revise care plans and commence and revise advance care plans.

## Role of telemedicine

As people with diabetes age, they may require more frequent assessments (Munshi et al, 2013). Physical visits to GPs and other health professionals can become more difficult, especially in rural areas when transport and other factors affect access to health services. In some cases, physical visits to the GP and GP home visits could be supplemented by other measures such as home visits and telemedicine (Munshi et al, 2013) or wearable technologies. Consumer research indicates wearable devices improve daily habits and personal accountability

***"The health assessment of older people with diabetes must be holistic and person centred."***

***"Time and other constraints can make comprehensive assessments challenging; however, the Annual Cycle of Care can identify the need to make an appointment for a longer consultation and/or the need to refer the older person for specialist advice."***

(PricewaterhouseCoopers, 2016). However, these technologies have not been evaluated in the context of the ACC or the 75 and older health assessment. In the future wearable technologies may play a role in detecting physiological changes and improve health, function and safety.

## Summary

Time and other constraints can make comprehensive assessments challenging, even when using the health assessment provisions for people over age 75. The ACC can identify the need to make an appointment for a longer consultation and/or the need to refer the older person for specialist advice. Assessment of older people with diabetes must be holistic and person centred and encompass the following:

- The ACC.
- 75 years and older health check when relevant.
- Physical, cognitive and mental health function and health trajectory.
- Biochemical investigations.
- Medicines review.
- Forward planning. ■


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