

# *Diabetes management during the coronavirus pandemic: Be proactive and prepared*



The coronavirus pandemic is well and truly upon us, and it is important to remember the patients who are more vulnerable to infection.

Diabetes carries a higher risk of morbidity and mortality from infection with COVID-19<sup>1</sup> and influenza,<sup>2</sup> and general practitioners (GPs) are essential during this period to support this patient population.

In addition to addressing the extra vulnerability to COVID-19 and influenza, it is also essential to ensure other aspects of diabetes management are not neglected. We have outlined some simple steps that can help you and your patients manage their diabetes amid the current pandemic.

## **Don't wait for patients to develop inter-current illness**

Proactive support for patients with diabetes is required to lower their risks of developing inter-current illnesses:

- Actively plan for sick days – patients might need extra advice and support about how to manage their diabetes during periods of other illness (sick days)
- Don't forget usual care – patients need support to manage the ongoing aspects of diabetes care, which could be overlooked in this crisis. For example, patients may start missing appointments due to fears of going

out in public, may have difficulty accessing usual specialist or other aspects of care (ie eye checks, foot care, cardiovascular investigations or pathology), or may put off investigations such as glycated haemoglobin (HbA1c) testing that guide management or self-monitoring of blood glucose

- Stay in touch – contact all patients with diabetes to discuss their management plan for inter-current illness, particularly influenza and COVID-19
- Stay vigilant – target those at higher risk (refer below)

### **Be alert to DKA**

Unfortunately, some people may first present with type 1 diabetes during an accompanying viral illness, with symptoms of diabetic ketoacidosis (DKA) hidden by or mistakenly attributed to viral symptoms.

For clinical presentations where **acute DKA** might be overlooked, timely assessment of capillary finger/heel prick blood glucose levels is critical. Elevated levels require urgent evaluation.

## In practice

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Identify people in high-risk diabetes groups as a priority for focused clinical review, and proactively schedule timely in-person or telehealth appointments.

High-risk groups include people:<sup>3-6</sup>

- with type 1 diabetes
- who are aged  $\geq 65$  years
- with insulin-requiring type 2 diabetes
- with multimorbidity or diabetes complications
- with unstable HbA1c  $\geq 8.5\%$  or with no recorded HbA1c in the past 6–12 months
- who smoke.

However, all patients with diabetes may need advice on preventive health, immunisations, and sick-day management.

Advise patients:

- on risk-reduction behaviours as per the most current [public health messages](#) for COVID-19
- whether home blood pressure (BP) monitoring may be needed if in-person assessment is restricted; for example, home BP checks could be suggested in the lead-up to a planned appointment. Guidance for healthcare professionals and patients is available in [Australian Family Physician](#)
- on appropriate self-monitoring of blood glucose (SMBG) during illnesses. Access to the National Diabetes Services Scheme (NDSS)-subsidised blood glucose monitoring for sick day management is available [online](#)
- to continue usual self-management, and reinforce the importance of achieving healthy goals; for example, in relation to smoking, nutrition, alcohol and physical activity.

Ask patients about:

- personal concerns, including mental health related to diabetes distress
- diabetes-specific management concerns, symptoms suggestive of complications (eg vision changes, peripheral neuropathic symptoms, feet and skin problems) requiring timely assessment.

Arrange:

- a written, individualised sick-day management plan, and provide it to the patient (refer to Table 1)
- appropriate immunisation for people with type 2 diabetes, as per the following schedule (the consensus advice is that necessary immunisation should not be delayed):

- Influenza – annual vaccination is recommended for people with chronic conditions, including diabetes, that require regular medical follow-up or have required hospitalisation in the past year<sup>7</sup>
- Diphtheria, tetanus, pertussis – booster for all adults over age 65 if they have not received this vaccine in the previous 10 years
- Herpes zoster – consider for ages 70–79 (available free for this age group under the National Immunisation Program)
- Pneumococcus – diabetes is considered a ‘Category B’ condition for increased risk of invasive pneumococcal disease. It is recommended that all adults with type 2 diabetes receive three life-time doses of the pneumococcal vaccine 23vPPV, as follows:<sup>7</sup>
  - first dose at around 18 years of age, or at time of diagnosis of type 2 diabetes
  - second dose 5–10 years later
  - final dose at least five years later or at 65 years of age, whichever is later

Children who have received four doses of 13vPCV are recommended to receive two lifetime doses of 23vPPV

- timely investigations (eg HbA1c, lipids). Remember to record the date of planned follow-up and update your practice’s recall/reminder system
- appropriate prescription requirements
- drivers licensing requirements – commercial licence requirements may need specific action in liaison with specialist teams
- emergency contact details during illness, including involved diabetes specialists.

## Principles for sick day management

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Provide patients with a written, individualised sick day management plan.

If a patient does experience a sick day, the following principles should guide management. Management should be tailored to the individual patient.

- Identify the underlying cause and treat as appropriate. Underlying causes include:
  - inter-current illnesses, infections (eg skin, urinary-tract and chest infections), trauma, acute myocardial infarction and stroke
  - use of medications such as corticosteroids

- Increase SMBG if required by individual circumstances (eg patients at risk of hypoglycaemia or using insulin). Refer to the [NDSS website](#) for necessary forms
- Ensure continuity of advice and accessibility – provide telephone or other telehealth access or after-hours support. Guidance on providing telehealth consultations can be found on the [RACGP website](#)
- Review medications (refer to Table 1)

## Special considerations for sick day management

Type 2 diabetes managed with diet alone:

- For worsening glycaemia, consider the introduction of medication and symptomatic management of hyperglycaemia
- During inter-current illnesses, consider SMBG (refer to the [NDSS website](#) for necessary forms)

- Patients may become dehydrated due to the osmotic diuresis

Type 2 diabetes managed with oral or non-insulin glucose lowering medication:

- Worsening glycaemia may require urgent review or referral to a specialist diabetes service, hospital emergency department or contact with an endocrinologist
- Insulin may be temporarily required for persistent and extreme symptomatic hyperglycaemia ( $\geq 15$  mmol/L), which may also require hospital admission
- In patients with nausea, vomiting and/or diarrhoea
  - consider temporarily stopping metformin and glucagon-like peptide-1 (GLP-1) receptor agonists. Metformin may aggravate these symptoms and GLP-1 receptor agonists may aggravate nausea/vomiting. There may be a risk of acute renal impairment due to dehydration

**Table 1. Action plan for management of sick days in people with type 2 diabetes<sup>8,9</sup>**

<b>Commence action plan</b>	<ul style="list-style-type: none"> <li>• When patient starts to feel unwell, or</li> <li>• If blood glucose <math>&gt;15</math> mmol/L on two consecutive readings</li> </ul>
<b>Frequency of blood-glucose monitoring</b>	2–4-hourly monitoring, or more frequently if blood glucose is low
<b>Medication</b>	Continue insulin or diabetes medications, but assess use of metformin, SGLT2 inhibitors (dapagliflozin, ertugliflozin and empagliflozin) and GLP-1 receptor agonists, which may require cessation if vomiting or dehydration is a concern
<b>Food and water intake</b>	<ul style="list-style-type: none"> <li>• There is increased risk of hypoglycaemia from insulin and sulphonylureas if appropriate intake of meals is not maintained</li> <li>• Patients should try to maintain their normal meal plans if possible</li> <li>• Fluid intake (eg water or oral rehydration solutions) should be increased to prevent dehydration</li> <li>• Advise about alternative, easy-to-digest foods like soups if the patient cannot tolerate a normal diet (some non-diet soft drinks may provide essential carbohydrate in this situation)</li> <li>• If vomiting or diarrhoea, SGLT2 inhibitors, metformin and GLP-1 receptor agonists should be reviewed and/or ceased</li> <li>• If illness is causing loss of appetite and marked reduction of carbohydrate intake, SGLT2 inhibitors should be reviewed and/or ceased</li> <li>• If blood glucose <math>&gt;15</math> mmol/L, use non-glucose-containing fluids</li> <li>• If blood glucose <math>&lt;15</math> mmol/L, use oral rehydration solutions (may contain glucose) if needed</li> <li>• If unable to tolerate oral fluids and blood glucose continues to drop, advise patient to attend medical care</li> </ul>
<b>Seek assistance</b>	<p>Individuals and support people need to assess whether the person is well enough or able to follow the plan; if not, they should call for help or attend hospital</p> <p>Recommencement of oral intake/normal diet may allow the re-introduction of diabetes medications</p>

GLP-1, glucagon-like peptide-1; SGLT2, sodium glucose co-transporter 2

- review and cease sodium–glucose co-transporter-2 (SGLT2) inhibitors, metformin and GLP-1 receptor agonists if acute gastrointestinal illness is present, as these medicines may further aggravate dehydration and hypovolaemia
- note that **DKA/euglycaemic DKA** should be considered in patients who are taking SGLT2 inhibitors if they display abdominal pain, nausea, vomiting, fatigue or metabolic acidosis<sup>10</sup>

Type 2 diabetes managed on insulin:

- All patients should be **self-monitoring blood glucose**, have adequate **pen needles**, and be advised to seek an urgent review when unwell or if their blood glucose is >15 mmol/L on two consecutive SMBG readings, as per the action plan
- Blood glucose monitoring should be increased to every 2–4 hours if unwell. Patients may need to increase their morning intermediate or long-acting insulin dose by 10–20% if the glucose reading remains elevated and, depending on further blood glucose levels, modify subsequent doses of short-acting insulin during the day. If prescribing ultra-long-acting basal insulins, including glargine U300 or degludec insulins, you may need to seek advice from an appropriate specialist regarding dose adjustment, as dose changes may take 4–7 days for effect. Advice on the additional use of oral agents and GLP-1 receptor agonists is listed in Table 1
- Additional **blood ketone testing** (with appropriate self-monitoring equipment) may be incorporated if there are symptoms suggestive of ketosis (eg nausea, vomiting, shortness of breath or fruity odour, abdominal pains, altered consciousness), there is a history of DKA, or if the patient is using an SGLT2 inhibitor. This should be a documented strategy in the patient's sick day management plan
- It is important to note that many patients are only on basal insulin or a premixed insulin. These patients require appropriate medical advice and may need acute medical advice or prescription for additional rapid-acting insulin to use as a supplemental insulin dose.<sup>8</sup> If uncertain, consult an appropriate specialist
- Patients with gastrointestinal upset who are not eating, but who feel well and continue their usual activities, may need to reduce their insulin according to SMBG readings (especially rapid-acting insulin) to avoid hypoglycaemia

The RACGP and Australian Diabetes Society's *Emergency management of hyperglycaemia in primary care* contains important information on managing severe hyperglycaemia.

## References

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