

## Diabetes and intercurrent illness

### The challenge of managing diabetes during intercurrent illness

The stress of illness can increase basal insulin requirements in all types of people with diabetes. Being ill may also render the person with diabetes unable to monitor and manage their condition as they would normally. Some people with diabetes may associate insulin dosing with eating, so during a period of anorexia or vomiting they may feel that they do not need to take their normal insulin regimen, whereas they ought to maintain it, or even increase the dose. There is also a need to keep up carbohydrate intake.

These measures help reduce the risk of diabetic ketoacidosis and poor diabetes control. Patients taking metformin should receive special attention, as continuing this medication during periods of dehydration or acute illness can increase the risk of lactic acidosis or a [hyperosmolar hyperglycaemic state](#).

### Managing diabetes during intercurrent illness (patients on oral hypoglycaemics and/or insulin)<sup>[1]</sup>

These are often known as '**sick day rules**':

- Contact a GP or diabetes team who will help with any queries or any uncertainty about what to do.
- **Keep taking insulin and/or most diabetes medications** – even when not feeling like eating. The dose of medication may need to be altered.

- It is advisable to **stop taking a SGLT2 inhibitor (eg, dapagliflozin, canagliflozin, empagliflozin)** if unwell and unable to eat or drink. If this is the case, it is essential to contact a GP/diabetes team for advice as soon as possible.
- If using insulin treatment, **test blood glucose more often**, at least every four hours, including during the night. People with type 1 diabetes should also test for ketones.
- **Stay well hydrated.** Have plenty of unsweetened drinks to avoid dehydration. Eat little and often.
- For those with poor appetite/nausea/inability to keep down food, **advise replacing meals with snacks or drinks containing carbohydrates**, which will provide energy. Try to sip sugary drinks (eg, fruit juice, non-diet cola or lemonade) or suck on glucose tablets or sweets like jelly beans. Letting fizzy drinks go flat may help keep them down. If vomiting or unable to keep fluids down, contact a GP/diabetes team as soon as possible.

Mobile phone support is associated with reduced progression of ketosis to diabetic ketoacidosis in young adults despite poor diabetes control. <sup>[2]</sup>

## Sick-day supplies

Advise patients to keep a 'sick-day supply box' which might contain:

- Long-life fruit juice.
- Bottle of ordinary Lucozade® or non-diet fizzy drink.
- Two 2 L bottles of still water.
- Soup.
- Ice cream.
- Unopened box of blood glucose monitoring strips.
- Unopened box of ketone strips (if on insulin).

All items should have their expiry dates checked (especially the last two items) every six months. Written information on sick-day rules should be kept with these, such as those available at the Diabetes UK website. <sup>[1]</sup>

## Patients on oral hypoglycaemics<sup>[3]</sup>

- People with [type 2 diabetes](#) who have acute intercurrent illness are at risk of worsening hyperglycaemia. Treatment should be reviewed as necessary.<sup>[4]</sup>
- The patient should take their tablets and normal dosage, providing carbohydrate intake continues in solid or liquid form (see above) and glucose monitoring continues at least four-hourly.
- If glucose level increases beyond 13 mmol/L and/or the patient feels unwell, medical advice should be sought.
- Metformin should be stopped if the patient is becoming dehydrated. Hospital admission/sliding scale insulin may need to be considered (see 'Indications for hospital admission', below).
- It is advisable to stop taking a SGLT2 inhibitor (eg, dapagliflozin, canagliflozin, empagliflozin) if unwell and unable to eat or drink.

## Patients on insulin

All patients and/or their carers should be provided with clear individualised oral and written advice ('sick-day rules') about managing type 1 diabetes during intercurrent illness or episodes of hyperglycaemia, including:<sup>[5]</sup>

- Monitoring blood glucose.
- Monitoring and interpreting blood ketones.
- Adjusting their insulin regimen.
- Food and fluid intake.
- When and where to seek further advice or help.

**INSULIN SHOULD NOT BE STOPPED** – hyperglycaemia can arise from intercurrent illness irrespective of the patient's calorie intake. There are no hard and fast rules regarding insulin dosage, as response depends on the individual patient's metabolism and the type of insulin they are taking (long-acting insulin will have a slower response time than fast-acting). Sick-day rules should follow those agreed with consultants/specialist units at the time of initiation of insulin or follow local guidelines.

Frequent glucose monitoring is essential, as is monitoring for ketones.<sup>[6]</sup>

## When patients should ask for medical advice

Patients should be advised to seek medical advice if:

- They are unable to eat or drink.
- They have persistent vomiting or diarrhoea.
- Their blood glucose is higher than 25 mmol/L despite increasing insulin.
- They have very low glucose levels.
- There are persistent ketones or large amounts of ketones in the urine.
- They become drowsy or confused (make sure carers are aware of this).
- They have any other concern.

## Indications for hospital admission (patients on oral hypoglycaemics and/or insulin)<sup>[7]</sup>

Hospital admission should be considered if there are any concerns with regard to the intercurrent illness, the person's well-being or their ability to remain well hydrated. Hospital admission should certainly be considered in the following circumstances:

- A suspicion of underlying diagnosis that requires hospital admission (eg, myocardial infarction, intestinal obstruction) - admit immediately.
- Inability to swallow or keep down fluids - admit to hospital if this persists for more than a few hours.
- Significant ketosis in a person with type I diabetes despite optimal management and supplementary insulin.
- Persistent diarrhoea.
- Blood glucose persistently >20 mmol/L despite best therapy.

- Any clinical signs of ketosis or worsening condition (eg, Kussmaul's respiration, severe dehydration, abdominal pain).
- The patient is unable to manage adjustment of normal diabetes care.
- The patient lives alone, has no support and may be at risk of slipping into unconsciousness.

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## Further reading

- [Guidelines](#); Comparison table: pharmacological management of type 2 diabetes in adults - ADA/EASD, NICE and SIGN, 2021
- [Diabetes - type 1](#); NICE CKS, January 2023 (UK access only)
- [Diabetes - type 2](#); NICE CKS, August 2024 (UK access only)
- [Smith A, Harris C](#); Type 1 Diabetes: Management Strategies. Am Fam Physician. 2018 Aug 1;98(3):154-162.

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