



Sick day rules

General advice for managing diabetes during intercurrent illness

- S (Sugar)**
 - Blood glucose levels can rise during illness even if the person is not eating
 - Advise to increase blood glucose monitoring if the person has access to it
 - Diabetes medications (sulfonylureas and insulin doses) may need to be increased temporarily during illness to manage these raised glucose levels
- I (Insulin)**
 - **NEVER** stop insulin or oral diabetes medications*
 - Insulin doses may need to be increased during illness, especially if ketones are present
 - Specific advice for people on insulin therapy is presented overleaf
- C (Carbohydrate)**
 - Ensure the person maintains hydration and carbohydrate intake
 - If the person is not able to eat or is vomiting, advise to replace meals with sugary fluids
 - If blood glucose levels are high, maintain fluid intake with sugar-free fluids
 - If blood glucose levels are low, encourage regular intake of sugary fluids
- K (Ketones)**
 - In type 1 diabetes, advise to check for ketones every 4–6 hours. If present, check every 2 hours
 - Give **extra rapid-acting insulin doses** (in addition to regular doses) based on total daily insulin dose if ketones are present – see insulin algorithm overleaf
 - Advise to drink plenty of water to maintain hydration and flush through ketones

*Metformin and SGLT2 inhibitors may need to be temporarily stopped if at risk of dehydration (see SADMAN rules below).


SADMAN rules: There are several classes of drugs that should be temporarily stopped in conditions that could lead to complications

S	SGLT2 inhibitors	If taken during an acute illness that can lead to dehydration, there is an increased risk of developing euglycaemic DKA
A	ACE inhibitors	If taken during an acute illness that can lead to dehydration, there is an increased risk of developing AKI due to reduced renal efferent vasoconstriction
D	Diuretics	If taken during an acute illness that can lead to dehydration, there is an increased risk of developing AKI
M	Metformin	If taken during an acute illness that can lead to dehydration, there is an increased risk of developing lactic acidosis
A	ARBs	If taken during an acute illness that can lead to dehydration, there is an increased risk of developing AKI
N	NSAIDs	If taken during an acute illness that can lead to dehydration, there is an increased risk of developing AKI due to reduced renal afferent vasodilation

Once the person is feeling better and able to eat and drink for 24–48 hours, these medications should be restarted.


Signs of diabetic ketoacidosis

- Excessive thirst
- Polyuria
- Dehydration
- Shortness of breath and laboured breathing
- Abdominal pain
- Leg cramps
- Nausea and vomiting
- Mental confusion and drowsiness
- Ketones can be detected on the person's breath (pear-drop smell) or in the blood or urine

 **DKA occurs in type 1 diabetes and can occur in type 2 diabetes at times of severe illness or, rarely, in those on SGLT2 inhibitor therapy. It requires urgent hospital admission.**

Signs of hyperosmolar hyperglycaemic state

- Typically seen after several days with glucose levels consistently above 30 mmol/L
- Disorientation or confusion
- Polyuria
- Thirst and dry mouth
- Nausea
- In the later stages, the person becomes drowsy and gradually loses consciousness

 **HHS is potentially life-threatening and requires urgent admission to hospital.**

About this series

The aim of the “How to” series is to provide readers with a guide to clinical procedures and aspects of diabetes care that are covered in the clinic setting.

What and why

People with diabetes do not necessarily experience illness more often than those without; however, if the diabetes is not managed well during illness it can escalate and result in more serious conditions, such as diabetic ketoacidosis, hyperosmolar hyperglycaemic state and acute kidney injury, which will require emergency hospital admission. It is, therefore, vital that the right advice is given to manage the initial illness.

The aims of managing a person with diabetes during intercurrent illness are to:

- Manage blood glucose levels
- Ensure adequate calorie intake and hydration with fluid replacement
- Test for and manage (if present) ketones
- Recognise when further medical attention is required

Conditions that should trigger advice

Any intercurrent illness can cause glucose levels to rise. The following list of such illnesses is not exhaustive:

- The common cold
- Influenza
- Diarrhoea and vomiting
- Urinary tract infection
- Chest infection
- Pneumonia
- Abscess
- Injury (e.g. fracture)

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Advice for people on insulin

Feeling unwell?

Type 2 diabetes?

Test blood glucose at least 4 times a day

Blood glucose less than 11 mmol/L

Blood glucose more than 11 mmol/L

Blood glucose more than 11 mmol/L and either no or low ketones (trace urine ketones or <1.5 mmol/L on blood ketone monitor)

Type 1 diabetes?

Test blood glucose and ketones every 4–6 hours, including through the night

Blood glucose more than 11 mmol/L **and/or** ketones present (>1.5 mmol/L on blood ketone meter or +/++ on urine ketones)

Blood glucose less than 11 mmol/L and no ketones

Take insulin as normal. Take carbohydrates as a meal replacement and sip sugar-free liquids (at least 100 mL/hour if able)

Take carbohydrates as a meal replacement and sip sugar-free liquids (at least 100 mL/hour if able)
You need food, insulin and fluids to avoid dehydration and serious complications

Take insulin as normal. Take carbohydrates as a meal replacement and sip sugar-free liquids (at least 100 mL/hour if able)

⚠ Blood ketones greater than 1.5 mmol/L indicate high risk of diabetic ketoacidosis. Consider urgent hospital assessment

Urine ketones + to ++ (1.5–3.0 mmol/L on blood ketone meter)

Urine ketones +++ to ++++ (>3.0 mmol/L on blood ketone meter)

Blood glucose	Insulin dose*
11–17 mmol/L	Add 2 extra units to each dose
17–22 mmol/L	Add 4 extra units to each dose
>22 mmol/L	Add 6 extra units to each dose

*Take your prescribed insulin according to these blood glucose levels. Once you have given the initial increased dose, contact your GP or DSN for advice if you still feel unsure about adjusting your insulin doses

If you are taking more than 50 units in total daily, you should double the adjustments. All adjustments are incremental and should be reduced gradually as the illness subsides

Total daily insulin dose	Give an additional 10% of rapid-acting or mixed insulin every 2 hours	Give an additional 20% of rapid-acting or mixed insulin every 2 hours
Up to 14 units	1 unit	2 units
15–24 units	2 units	4 units
25–34 units	3 units	6 units
35–44 units	4 units	8 units
45–54 units	5 units	10 units

If you take more than 54 units or if you are unsure how to alter your dose, contact your specialist team or GP

Test blood glucose every 4 hours

Test blood glucose level and blood/urine ketones every 2 hours, including through the night

Yes – repeat process

Blood glucose more than 11 mmol/L?

No

Blood glucose more than 11 mmol/L and ketones present?

Yes – repeat process

No

As illness resolves, adjust insulin dose back to normal



If you start vomiting, are unable to keep fluids down or are unable to control your blood glucose or ketone levels, SEEK URGENT MEDICAL ADVICE
DO NOT STOP TAKING YOUR INSULIN EVEN IF YOU ARE UNABLE TO EAT

Useful reading and leaflets

- NICE CG169 – [Acute kidney injury: prevention, detection and management](#)
- TREND-UK – [What to do when you are ill. Type 1 diabetes](#) | [Type 2 diabetes](#)
- [“Sick day” guidance in patients at risk of Acute Kidney Injury: A Position Statement from the Think Kidneys Board](#)

Abbreviations

ACE=angiotensin-converting enzyme; AKI=acute kidney injury; ARB=angiotensin receptor blocker; DKA=diabetic ketoacidosis; HHS=hyperosmolar hyperglycaemic state; NSAID=non-steroidal anti-inflammatory drug; SGLT2=sodium–glucose cotransporter 2