

# Managing sick days for type 1 diabetes

When you have type 1 diabetes, everyday illnesses or infections can cause both high and low blood glucose levels.

It is important to be prepared before you get sick – have a personalised sick day action plan and sick-day management kit ready to use at the earliest sign of illness.

Discuss putting together your sick-day action plan and kit with your diabetes team.

## What is a sick day?

A sick day is when you have an illness or infection and need to make changes to your usual diabetes management plan to keep blood glucose levels from going too high or too low. These changes are usually only needed until you are well again.



## Why it's important to manage sick days

When you have type 1 diabetes and are unwell, you are at risk of high blood glucose levels and/or ketones. This can lead to diabetic ketoacidosis (DKA), which can be life threatening.

## What are ketones?

When there is not enough insulin in the body, glucose can't enter the body's cells to provide energy. Instead, the body breaks down fat as a source of energy. This breakdown of fat produces ketones, which, in large amounts, are toxic to the body.

## What is diabetic ketoacidosis?

DKA is a serious condition that occurs when the levels of glucose and ketones in the blood are too high. The build-up of ketones makes the blood too acidic and leads to a loss of body salts and fluids. If you have large amounts of ketones in your blood or urine, you may have DKA and could need urgent medical attention.

Signs of DKA include the below.

- » Nausea, vomiting and/or stomach pain
- » Rapid breathing or breathlessness
- » Drowsiness, confusion or weakness
- » Increased thirst or dry mouth
- » Reduced or no urine output
- » Breath that smells 'fruity'.

Seek urgent medical attention if you have any of these symptoms.

You can help prevent DKA by following your sick-day action plan. This should include information about managing your diabetes when you are unwell, which you have discussed with your health professionals.

## What to do when you are sick

### Follow your sick day action plan

Follow your plan if:

- » you feel unwell
- » your blood ketones are positive (over 0.6mmol/L), or
- » your blood glucose levels are higher than 15mmol/L for six hours or more (even if you feel ok)\*.

### Let someone know you are unwell

Let a friend or family member know that you are unwell. Tell them about your sick-day action plan in case you need any help. If required, have someone stay with you or check on you frequently.

### Check your blood glucose levels more often

Check your blood glucose levels every two hours until they are back in your target range. Your blood glucose levels will help work out any insulin adjustments you may need.

If you are using continuous glucose monitoring (CGM), it is important to double check your CGM levels with finger prick tests. Remember there is a lag time between a finger prick test and CGM glucose levels.

### Check for ketones

The most accurate way to check for ketones is using a blood glucose meter that also checks for ketones. If this is not an option, you can check your urine using urine ketone test strips.

You should check for ketones every two to four hours when you are unwell. A blood ketone

level under 0.6mmol/L – or a negative result when testing your urine – is considered within the normal range. If your ketones are above this level, follow your sick-day action plan.

If your blood glucose levels are above 15mmol/L, check your blood glucose and ketone levels at least every two hours.

### Expect to increase your insulin dose(s)

Your body usually needs extra insulin when you are unwell, even when you are not eating much, or if you are vomiting or have diarrhoea.

Always take your usual doses of insulin, and then check your blood glucose and ketone levels to decide whether you need to take extra insulin\*\*. Extra insulin taken for sick days will be rapid-acting or short-acting insulin, which you will need to take in addition to your usual dose.

Your sick-day action plan can help you work out if you need to take extra insulin, as well as how much. Contact your diabetes health professional for advice on changing your insulin dose.

### Seek medical help

Seek medical advice to treat the underlying illness. Contact your doctor early to avoid becoming more unwell and needing emergency care. You may need to contact your diabetes health professional for advice about adjusting your insulin dose during periods of illness.



\* If you are using an insulin pump it's important to check for ketones when your blood glucose levels are high (in case of pump failure/cannula occlusion). It's important to manage high blood glucose levels by using a correction dose.

\*\* Occasionally, blood glucose levels may be low during illness. In this case, a reduction in insulin doses may be needed. Refer to your sick-day action plan or talk to your diabetes health professional for advice on insulin adjustments.

## Keep drinking and (if possible) eating

It's very important to keep up your fluid and carbohydrate intake when you are feeling unwell, to avoid dehydration and low blood glucose levels (hypoglycaemia, or hypo).

- » Try to eat – but if you can't eat normally, have some easy-to-manage carbohydrate drinks, snacks or small meals. This can include dry toast, plain rice, dry biscuits or crackers, mashed potato, plain ice cream or custard.
- » Try to have a cup of fluid (250 mL) every hour.
- » If your blood glucose levels are 15mmol/L or lower and you can't eat, drink one cup of fluid that contains carbohydrate every hour. These include regular cordial or soft drink, juice, sports drinks, weak tea with sugar/honey, jelly or sweet ice blocks.
- » If your blood glucose levels are higher than 15mmol/L, drink one cup of fluid that doesn't contain carbohydrate every hour, such as water diet cordial or diet soft drink, weak tea with no sugar/honey, diet jelly or broth.
- » If you are vomiting or have diarrhoea, you can replace fluids and salts with drinks such as Gastrolyte® or Hydralyte®.

## Seek medical attention IMMEDIATELY if you:

- » are drowsy or confused
- » have deep, rapid breathing or shortness of breath
- » have stomach pain
- » have a 'fruity' odour to your breath (a sign of DKA)
- » can't keep food or fluids down and are experiencing persistent vomiting or diarrhoea
- » are showing signs of dehydration (such as extreme thirst, weakness, confusion, lack of urination)

- » have blood glucose levels that continue to rise even though you have had at least two extra doses of insulin (with at least two hours between each extra dose of rapid-acting insulin)
- » have blood ketone levels greater than 1.5mmol/L, even though you have had at least two extra doses of insulin (this may be DKA)
- » are having trouble keeping your blood glucose levels above 4mmol/L, or you have had a severe hypo
- » are not well enough to follow your sick day action plan or you don't have anyone to help you.



## Sick day check list

Follow your sick-day action plan and use your sick-day management kit

- Let someone know you are unwell
- Check your blood glucose levels every two hours
- Check for ketones every four hours
- Always take your insulin, and expect to increase the dose
- Ask for help – see your doctor or contact your diabetes educator
- Drink plenty of fluids and keep eating (if possible)
- Seek urgent medical care if needed

## Tips to stay healthy

- » Get immunised against the flu and pneumonia.
- » Take care with personal hygiene to avoid the spread of germs.
- » Keep your blood glucose levels within your target range to help reduce the risk of illness and infections.



## Sick day kit

The following items should be included in your sick-day kit:

- a copy of your sick day action plan
- a guide to extra insulin doses for sick days
- a blood glucose meter that can also monitor ketones
- in-date blood glucose testing strips
- in-date blood ketone testing strips or urine ketone test strips
- your blood glucose diary
- a thermometer
- pain relief medication
- food and drinks for sick days
- hypo treatment
- in-date rapid-acting or short-acting insulin
- insulin syringes or pen
- spare insulin pump consumables (if relevant)
- telephone numbers for medical and support people.

Check your kit every six months to make sure it is still in date and restock your kit if you have used it.



## More information

For a sample sick day action plan and management kit, refer to the Australian Diabetes Education Association's **Sick day management of adults with type 1 diabetes – consumer resources**.

These guidelines are available online at [adea.com.au](http://adea.com.au)



## The NDSS and you

A wide range of services and support is available through the NDSS to help you manage your diabetes. This includes information on diabetes management through the NDSS Helpline and website. The products, services and education programs available can help you stay on top of your diabetes.