



FACT SHEET:

Living well with type 1 diabetes – what to do when you are sick

Like everyone, people living with diabetes get sick with everyday illnesses such as influenza (flu), a cold, gastro, or other common infections. It is important to be prepared and to know what to do if you get sick. This includes having a personalised **sick day action plan**, and a **sick day kit** ready to use at the earliest sign of illness.

Start following your sick day action plan **immediately** if you feel unwell or have any signs of illness. Contact your doctor early to get medical treatment so you can avoid becoming more unwell and needing emergency care. Understanding how to manage your diabetes when you are sick and having a personalised plan can reduce the risk of developing serious problems.

Sick days and living with type 1 diabetes

You may need to make changes to your usual diabetes management plan to help prevent your blood glucose levels from going too high or too low. These changes are usually only needed until you are well again.

Why is it important to manage sick days?

Being unwell can make it more challenging to keep blood glucose levels in your target range. This is because of the stress hormones your body

releases when you are sick. Stress hormones increase the amount of glucose the liver releases into the bloodstream. They can make it difficult for your usual dose of insulin to keep your blood glucose levels from rising too high.

If you are sick and have high blood glucose levels, you are at risk of severe dehydration. This can make you feel drowsy and confused and needing urgent medical attention.

When you have type 1 diabetes and are unwell, you are also at risk of raised levels of ketones in the blood. This can lead to diabetic ketoacidosis (DKA), which can be life threatening.

What are ketones?

Ketones are chemicals made in the liver. The liver makes ketones when there is not enough of the hormone insulin in the body to use glucose for energy. So, the body breaks down fat as a source of energy instead. This break-down turns fat into ketones, a type of acid, and sends them into the bloodstream. The body uses ketones as a source of energy when insulin cannot enter the cells to provide energy. Ketones in large amounts are toxic to the body.

What is DKA?

DKA is a serious condition that occurs when the level of ketones in the blood is too high. The build-up of ketones makes the blood too acidic. When you are at risk of DKA, you may need medical attention.

Signs and symptoms of DKA include:

- feeling drowsy, confused or weak
- having deep, rapid breathing or shortness of breath
- having tummy pain
- not keeping fluid down or having persistent vomiting or diarrhoea
- showing signs or having symptoms of dehydration such as extreme thirst, dry mouth, weakness, confusion and not urinating
- having a 'fruity' smell to your breath (a sign of DKA).

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

What do I do when I am sick?

Follow your sick day action plan

Start following your sick day action plan immediately if:

- you feel unwell, **OR**
- your blood ketones are higher than 0.6 mmol/L, **OR**

- your blood glucose levels are higher than 15 mmol/L - even if you feel ok - for more than:
 - » 6 hours if you are using multiple daily injections (MDI); **OR**
 - » 2-3 hours if you are using an insulin pump; **OR**
 - » 1-2 hours if you are pregnant.

People with type 1 diabetes may sometimes have certain diabetes medications other than insulin added to their diabetes treatment. Some of these medications may need to be stopped if you are unable to eat or have several episodes of vomiting and/or diarrhoea lasting more than a few hours. Your sick day action plan will list these diabetes medications.

Make an appointment with your doctor, diabetes nurse practitioner or diabetes educator if you do not have a sick day action plan. They can work with you to develop your personalised sick day action plan.

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 help. If possible, have someone stay with you or check on you frequently.

Check your blood glucose levels more often

Check your blood glucose levels every 2 hours or more often according to your sick day action plan. Your blood glucose levels and sick day action plan will help you to work out if you need to change your insulin doses.

If you are using a continuous glucose monitoring (CGM) or flash glucose monitoring (Flash GM) device, you may need to confirm the result with a finger prick check. Remember there is lag time between blood glucose levels recorded by a finger prick check and glucose levels recorded by a CGM or Flash GM device. Ask your doctor or diabetes educator if this is necessary for the CGM or Flash GM device you use. Some pain relief medications and high doses of vitamin C can affect the accuracy of CGM or Flash GM devices. Your sick day action plan should list which medications can affect the accuracy.

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Check for ketones

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

You should check for ketones every 2-4 hours when you are unwell. Your sick day action plan should explain what action to take for what level of blood or urine ketone.

Will I need to change my insulin dose(s)?

Your body usually needs extra insulin when you are unwell, even when you are not eating much. Extra insulin used for sick days will be rapid-acting or short-acting insulin. Depending on your illness, you may need this extra insulin in addition to your usual dose.

Your sick day action plan can help you work out if you need to take extra insulin. It can also help you decide how much extra insulin you should take. Contact your endocrinologist, diabetologist or diabetes nurse practitioner for advice on changing or managing your insulin dose.

You may need to reduce your insulin doses if you are unable to eat or drink or have several episodes of vomiting and/or diarrhoea lasting more than a few hours.

If you are unsure of what to do, always use your usual doses of insulin, and then check your blood glucose and ketone levels to decide whether you need to take extra insulin.

Keep drinking and (if possible) eating

It is very important to keep up your fluid intake. This will reduce your risk of becoming dehydrated. It is also very important to keep up your carbohydrate (carb) intake to reduce your risk of hypoglycaemia (also known as hypo or low blood glucose levels).

- Try to eat normally. If you cannot, have snacks or small meals. This can include dry toast, plain rice or pasta, dry biscuits or crackers, mashed potato, or plain ice cream or custard. Avoid dairy foods if you are vomiting and/or have diarrhoea.

- If you are vomiting and/or have diarrhoea, try to have ½-1 cup of fluid (125 - 250 mL) every hour.
- If you cannot eat, try to replace the carb in your usual meals with carb-containing fluids. These include regular cordial or soft drinks, juice, sports drinks, weak tea with sugar/honey, jelly or sweet ice blocks.
- If you are eating carb foods and your blood glucose level is more than 10 mmol/L, choose carb-free fluids or take insulin to cover the carbs in carb-containing fluids.
- If you are vomiting or have diarrhoea, you can replace fluids and electrolytes with drinks such as Hydralyte®.



Ask for help

Seek medical help to treat any illness you may have. The best way to stay healthy is to seek medical advice early if you experience symptoms of illness. If you are unsure about taking medications or need advice about your insulin doses when you are unwell or have questions about sick day action plan, contact your doctor, diabetes educator or diabetes nurse practitioner.

Contact your doctor early to avoid becoming more unwell and needing emergency care.

Seek medical attention IMMEDIATELY if you:

- do not know what to do
- are drowsy or confused
- have deep, rapid breathing or shortness of breath
- have tummy pain
- have a 'fruity' smell to your breath (a sign of DKA)
- cannot keep food or fluids down and are persistently vomiting or have diarrhoea
- are showing signs or have symptoms of dehydration such as extreme thirst, weakness, confusion or not passing urine
- have blood glucose levels that continue to rise even though you have had at least 2 extra doses of insulin with at least 2 hours between each extra dose of rapid-acting insulin
- have blood ketone levels greater than 1.5 mmol/L, even though you have had at least 2 extra doses of insulin, as this may be DKA
- cannot keep your blood glucose levels above 4 mmol/L, or you have had a severe hypo
- are not well enough to follow your sick day action plan or you do not have anyone to help you.

Sick day checklist

- Follow your sick day action plan and use your sick day kit.
- Let someone know you are unwell.
- Check your blood glucose levels every two hours or more often according to your sick day action plan.
- Check for ketones every two to four hours.
- Always take your insulin and consider whether you may need to increase the dose.
- Ask for help-contact your doctor, diabetes nurse practitioner and diabetes educator.
- Drink plenty of fluids and keep eating if possible.
- Seek urgent medical care if needed.

Sick day kit

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

- a copy of your sick day action plan
- a blood glucose meter that can also monitor ketones
- in-date blood glucose monitoring strips
- in-date blood ketone monitoring strips or urine ketone monitoring strips
- your blood glucose diary or smartphone app to record your blood glucose readings
- a thermometer
- pain relief medication
- food and drinks for sick days
- hypo treatment including in-date glucagon injection
- spare insulin pens and pen needles or syringes
- spare insulin pump consumables if relevant
- telephone numbers for medical and support people
- if you use an insulin pump, your insulin pump back-up plan, a list of relevant medical information, for example Medicare number, NDSS number, medical insurance information and notepad and pen to record all extra insulin doses, food/drink intake and glucose/ketone checks.

Check your sick day kit every 3 months to make sure it is up to date and restock your kit if you have used it.

Stay healthy

- Get immunised against the flu, pneumonia and COVID-19.
- 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 or infections.



More information and support

- Go to ndss.com.au to access the Carb Counting program online and other NDSS programs and services in your state or territory, or online.
- Go to ndss.com.au and search for the 'Insulin' and 'Carb counting' and other fact sheets.
- Call the NDSS Helpline on **1800 637 700** and ask to speak to a diabetes educator or go to adea.com.au to find a diabetes educator.
- Go to healthdirect.gov.au to find diabetes health professionals near you.
- For more information, go to adea.com.au and download a copy of the Australian Diabetes Educators Association guide to managing sick days for adults with type 1 diabetes and a sample sick day action plan that you can complete with your endocrinologist, diabetologist, diabetes nurse practitioner or diabetes educator. There are separate guides and sick day action plans for people with type 1 diabetes who use insulin injections and those who use an insulin pump to manage their diabetes.





Top tips

- Talk to your doctor, diabetes nurse practitioner or diabetes educator for advice on making changes to your insulin. They will work with you to develop your personalised sick day action plan. Your sick day action plan should tell you how to manage your insulin doses when you are unwell
- Make sure your sick day kit is up to date and restocked.
- Start following your sick day action plan immediately if you feel unwell or have any signs of illness.
- Let a friend or family member know that you are unwell.
- Seek medical help to treat any illness or infection you may have.
- Contact your doctor early to avoid becoming more unwell and needing emergency care.
- Seek urgent medical attention if you have any signs and symptoms of DKA.

Notes

The NDSS and you

Whether you have just been diagnosed with diabetes, or have been living with diabetes for a while, the NDSS provides a range of support services, information, and subsidised products to help you manage your diabetes, stay healthy and live well. For access to more resources (including translated versions), or to find out more about support services, go to ndss.com.au or call the NDSS Helpline on **1800 637 700**.

This information is intended as a guide only. It should not replace individual medical advice and if you have any concerns about your health or further questions, you should contact your health professional.