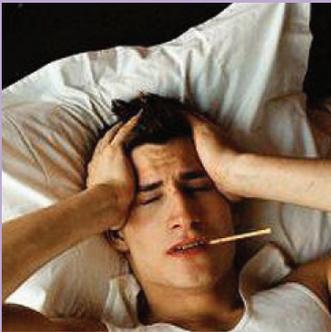


Diabetes Research &
Wellness Foundation



Managing **DIABETES** when you are **ILL**

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Diabetes and illness

Good general health and glucose (sugar) control in diabetes are important to help reduce the risk of becoming ill. Keeping glucose within reasonable levels when ill may result in illness not being as severe or prolonged as it could be. It is advisable that people with diabetes prepare 'sick day' care plans. This is because their diabetes management in illness may need to be personalised and the use of such plans could reduce the chance of needing hospital care.

There are short-term situations when diabetes can become unstable. The stress of illness in diabetes means that glucose levels can double or treble, even *without* eating. It is important that people know what to do in the event of unexplained, persisting high glucose levels. Medications should be continued unless advised otherwise by care providers. **Insulin should NEVER be stopped**, as the body **always** needs it (**figure 1**), though dose adjustments may be needed. People should maintain contact with their family, friends, carers and diabetes team when unwell.

This leaflet offers guidance in promoting safe diabetes control in situations where glucose levels may rise unexpectedly.

Managing type 1 diabetes when you are ill (sick day rules)

Rest: Strenuous activity should be avoided as this can *increase* the glucose level in illness.

Eating and drinking: Glucose is needed to balance the insulin so not eating any food will affect diabetes control. Try eating little and often. If you can't eat solid foods try replacing with one of:

- 100ml cola/lemonade (not diet) or fruit juice
- 50ml Lucozade
- 1 yogurt
- 200ml milk
- 1 scoop of ice cream
- 200ml soup (thick, creamy)

Be prepared – make sure you have sugary fluids at home in case you don't feel like eating. It is easy to become dehydrated when you are ill so it is important to drink plenty of sugar free fluids during the day (**figure 2**).

Alcohol should be avoided when unwell as it can increase the risk of dehydration.

1



Figure 1 People with diabetes must never stop insulin when ill, even if not eating.

2



Figure 2 Aim to drink 100ml/hour when ill.

Insulin: Doses may need adjusting, depending on the trend seen on blood glucose testing. Insulin must never be stopped as illness often increases the dose needed. Glucose testing should be 2-4 hourly, day and night. Patients should consider taking a supplementary 10% of their **total** daily insulin dose as rapid acting insulin every four hours to lower glucose levels if needed and seek advice from their healthcare professionals.

If you are an insulin pump user and are finding that you are having to do repeated correction doses when you are ill, you should consider temporarily increasing your basal rate by 30% and continue to test blood glucose every 2 hours.

Ketones: These are usually only a problem in type 1 diabetes. Urine ketones should be tested for on each trip to the toilet when glucose levels are above 15mmol/L. Alternatively, with the appropriate meter, blood ketones could be measured every 2 hours.

If able to take fluids easily, keep glucose levels between 6-15mmol/L and remain ketone negative, then home care is appropriate. If persistently above '2 plus' urine or above 1.5mmol/L blood ketones are measured, this may indicate a medical emergency (diabetic ketoacidosis - associated with a relative lack of insulin in the body) and healthcare advice should be sought (see 'Calling for support' section).

Managing type 2 diabetes when you are ill (sick day rules)

Again, acute illnesses such as diarrhoea and vomiting can be associated with dehydration, being unable to take usual diabetes tablets and increased glucose levels.

Rest, eating and drinking: Advice as for type 1 diabetes.

Tablets: Continuing certain diabetes tablets when not eating (e.g gliclazide) may increase the risk of glucose levels dropping too low (hypo), so sugary drinks are favoured. Metformin is known to cause 'tummy trouble', even in well patients. Withholding it in 'at risk' states for dehydration (e.g, vomiting or diarrhoeal illnesses) should be considered, especially if you are known to have pre-existing kidney problems. It is advisable to inform your diabetes team in this situation, as extra glucose monitoring or kidney function blood tests may be needed. There have been reports of diabetic ketoacidosis occurring with near normal glucose levels in patients who take 'flozin' tablets for their diabetes. It is advisable to stop these during periods of dehydration.

Sick day emergency kit

Useful items to keep at home would include: small cartons of long life orange juice, fun-size jelly baby packs, a bottle of Lucozade, unopened 'in date' testing strips and urine ketone sticks, as well as foods like soup or ice cream.

Calling for support (NHS 24, GP, diabetes team) or going to the Emergency Department (outside normal working hours) is mandatory in type 1 or type 2 diabetes, if:

- You are unsure of what to do
- Unable to keep food down for over 4 hours
- Continuous diarrhoea and vomiting, with/without fever
- Persistent glucose level above 15mmol/L
- In type 1 diabetes, more than '2 plus' ketones in the urine or above 1.5mmol/L on blood testing
- You are increasingly drowsy, have stomach ache or shortness of breath
- Your symptoms do not improve within 24-48 hours

Serious illness in diabetes (e.g. ketoacidosis, infected foot) requires admission to hospital. It is not uncommon for admitted patients usually controlled on tablets to be temporarily managed with insulin, as this controls high glucose levels more quickly and can contribute to earlier recovery. Certain treatments, such as steroids (and possibly antibiotics) can also increase glucose levels; so more insulin may be needed.

Hospital tests and day case procedures

When these are arranged, it is advisable that you remind medical staff that you have diabetes, so appropriate guidelines can be followed. It is likely that you will be required to be 'nil by mouth' and need to reduce insulin or tablet doses. Some units would arrange for you to have an intravenous glucose and insulin drip to keep glucose levels stable. You would usually be first on a list or given special instructions beforehand. See your diabetes team if treatment needs attention (e.g., dose adjustment) well before these tests are due.

For any hospital admission, it is worth bringing your usual hypo snacks with you, in case there are delays. A list of all current medications is also useful.

Reduce the risk of dehydration by taking appropriate fluids beforehand, particularly if you need to take agents to empty your bowels (e.g. Picolax) or be 'nil by mouth'. Certain tests might require a scan to be performed, for which a dye may be injected into the veins. In this case, metformin may need to be withheld for at least 24 hours beforehand and not recommenced for at least 48 hours after. Guidance should be provided for you before such a test. Some medication may also have to be stopped and alcohol avoided before and after a procedure or operation until eating and drinking properly. Consult with a healthcare professional to clarify what medication should be stopped and what could be safely continued.

Aim to resume other normal medications as soon as possible after procedures. The glucose level might be higher than usual for around 24 hours. Seek advice if it remains uncontrolled over 24-48 hours later.

Managing illness with diabetes while on holiday/abroad

- Plan your trip well and take out appropriate insurance.
- Check blood glucose levels regularly, as increased physical activity and heat levels can increase the risk of hypos.
- Wear plenty of sun block to avoid sunburn, as this can harm your body and cause elevated blood glucose levels.
- Take great care of your feet – don't walk barefoot and seek help early if problems arise.
- Keep fluid levels up whilst avoiding excess caffeine and alcohol in high temperatures, as these can increase the risk of dehydration.

Keep medication and supplies as cool as possible. Extreme temperatures can affect insulin and other supplies, causing them to become less active. Be alert for signs of heat exhaustion. These include: profuse sweating, muscle cramps, tiredness, dizziness, headache and/or fainting. Seek medical attention immediately if any of these occur.

Top tips to manage diabetes when you are ill – Summary

- Try to agree an illness management plan with your diabetes team early.
- Have your flu jab when advised.
- Avoid dehydration – keep up your fluid intake, get help **early** if you cannot.
- Check blood glucose levels every 2-4 hours.
- Seek help *promptly* if unable to self manage your illness, particularly with rising blood glucose levels.
- Seek medical help *urgently* if you feel ill, abnormally drowsy, short of breath, have pain or prolonged vomiting.
- With type 1 diabetes, **never stop insulin** during acute illness.
- In type 1 diabetes, test for blood or urine ketones every 2-4 hours and if positive, consider taking additional insulin.
- Seek help for suspected skin or foot infections **early**.

More information

If too unwell to self-manage, then contacting your GP, diabetes nurse, out of hours care service, at the following links and telephone numbers, or attending the Emergency Department is strongly advised.

England

Freephone: **111**, 24 hour helpline. NHS 111 service website:

<http://www.nhs.uk/NHSEngland/AboutNHSservices/Emergencyandurgentcareservices/Pages/NHS-111.aspx>

Scotland

Freephone: **111**, 24 hour helpline. NHS 24 website: www.nhs24.com

Wales

Freephone NHS Direct Wales on **0845 46 47**. NHS Wales Direct website:

<http://www.nhsdirect.wales.nhs.uk/contactus/feelingunwell/>

Northern Ireland

GP out of hours information service website: <http://www.nidirect.gov.uk/out-of-hours-service>

Or you can visit the NHS Choices website: www.nhs.uk

DRWF has diabetes awareness jewellery and medical check-up cards that can be carried at all times by people with diabetes. These can be ordered by visiting www.drwf.org.uk, by calling **023 9263 7808**, or by emailing enquiries@drwf.org.uk



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Staying well until a cure is found...

The Diabetes Research & Wellness Foundation works towards educating, informing and reminding you of the best and healthiest choices to make. Contact us to join the Diabetes Wellness Network and request the full series of patient information leaflets.



Source references can be provided on request.
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