

# Hyperglycaemia and sick day management for adults with type 1 diabetes

Having a sick day management plan to manage blood glucose levels (BGLs) is important to help prevent diabetic ketoacidosis (DKA) and hypoglycaemia (low BGLs).

This guide has been developed for multiple daily injections (MDI) and **NOT** insulin pump therapy. It should be used in consultation with your health care team.

## When to action your sick day management plan

- If you are unwell or have an infection, even if your blood glucose level is normal.
- When blood glucose levels are higher than 15mmol/L for 6 hours or more, even if you feel OK.
- When you have ketones in your blood or urine.
- Based on your previous experience. For example, if you have an infection or taking steroid medication.

## Key steps to take

- 1 Test your blood glucose level and adjust insulin, *as per pages 2-7.*



- 2 Test your blood or urine ketone levels as per sick day recommendation and adjust insulin, *as per pages 2-7.*



- 3 Continue to take your insulin. Extra insulin may be required. This is dependent on your blood glucose and ketone levels, *as per pages 2-7.*



- 4 Try to continue to eat and drink if possible. *Refer to fluid options Page 7.*



- 5 Seek urgent medical attention at your nearest emergency department if you remain unwell or are unable to manage your diabetes.



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## Sick day and insulin adjustment plan

### **If your blood glucose levels are less than 4.0mmol/L and**

#### **Blood ketones less than 1.0mmol/L (urine ketones negative)**

- Treat hypoglycaemia as per usual treatment
- Recheck blood glucose level in 15 minutes
- If unable to eat or drink, phone 000 and give intramuscular glucagon injection (if available)
- Recheck blood glucose level in 1 hour
- Recheck blood ketones in 2 hours.

#### **Your blood ketones 1.0–1.4mmol/L (urine ketones small)**

- Treat hypoglycaemia as per usual treatment
- Recheck blood glucose level in 15 minutes
- If unable to eat or drink, phone 000 and give intramuscular glucagon injection (if available)
- Recheck blood glucose level in 1 hour
- Recheck blood ketones in 2 hours.

#### **Your blood ketones more than 1.5mmol/L (urine ketones moderate/large)**

- Treat hypoglycaemia as per usual treatment
- Recheck blood glucose level in 15 minutes
- If unable to eat or drink, phone 000 and give intramuscular glucagon injection (if available)
- Recheck blood glucose level and ketones hourly until normalised.

#### **Your blood ketones more than 3.0mmol/L**

- Seek urgent medical attention at your nearest emergency department.



**IMPORTANT: Seek urgent medical attention if blood glucose levels do not rise or ketones remain present.**

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## **If your blood glucose levels are 4.1 – 8.0mmol/L and**

### **Your blood ketones are less than 1.0 mmol/L (urine ketones negative)**

- Continue usual insulin doses
- Drink fluids containing 15–20 grams carbohydrate (*see page 7*)
- Recheck blood glucose levels in 2 hours.

### **Your blood ketones are between 1.0 – 1.4 mmol/L (urine ketones small)**

- Continue usual insulin doses
- Drink fluids containing 15–20 grams carbohydrate (*see page 7*)
- Recheck blood glucose level and ketones in 2 hours.

### **Your blood ketones are more than 1.5mmol/L (urine ketones moderate/large)**

- Take 5% extra insulin
- Drink fluids containing 15–20 grams carbohydrate (*see page 7*)
- Recheck blood glucose level and ketones in 2 hours.

### **Your blood ketone more than 3.0mmol/L**

- Seek urgent medical attention at your nearest emergency department.



**IMPORTANT:** You should seek urgent medical attention if your blood glucose levels or ketones continue to increase after two extra doses of insulin.

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## If your blood glucose levels are 8.1 – 15.0mmol/L and

### Your blood ketones less than 1.0mmol/L (urine ketones negative)

- If ketones elevated for more than 2 hours, consider 5% extra insulin
- Drink fluids containing 15–20 grams carbohydrate (*see page 7*)
- Administer usual insulin for carbohydrates
- Recheck your blood glucose level and ketones in 2 hours.

### Your blood ketones between 1.0 – 1.4mmol/L (urine ketones small)

- If ketones elevated for more than 2 hours, consider 5–10% extra insulin
- Drink fluids containing 15–20 grams carbohydrate (*see page 7*)
- Administer usual insulin for carbohydrates
- Recheck your blood glucose level and ketones in 2 hours.

### Your blood ketones more than 1.5mmol/L (urine ketones moderate/large)

- If ketones elevated for more than 2 hours, consider 10% extra insulin
- Drink fluids containing 15–20 grams carbohydrate (*see page 7*)
- Administer usual insulin for carbohydrates
- Recheck your blood glucose level and ketones in 2 hours

### Your blood ketones more than 3mmol/L

- Seek urgent medical attention at your nearest emergency department.



**IMPORTANT:** You should seek urgent medical attention if your blood glucose levels or ketones continue to increase after 2 extra doses of insulin.

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## If your blood glucose levels are more than 15mmol/L and

### Your blood ketones less than 1.0 mmol/L (urine ketone negative)

- Take 5–10% extra insulin dose
- Drink carbohydrate free fluids OR drink fluids containing carbohydrate and administer insulin for carbohydrate
- Recheck blood glucose level and ketones in 2 hours.

### Your blood ketone 1.0 – 1.4 mmol/L (urine ketone small)

- Take 10–15% extra insulin dose
- Drink carbohydrate free fluids OR drink fluids containing carbohydrate and administer insulin for carbohydrate
- Recheck blood glucose level and ketones in 2 hours.

### Your blood ketones more than 1.5mmol/L (urine ketone moderate/large)

- Take 15–20% extra insulin dose
- Drink carbohydrate free fluids OR drink fluids containing carbohydrate and administer insulin for carbohydrate
- Recheck blood glucose level and ketones in 1 hour.

### Your blood ketones more than 3 mmol/L

- Seek urgent medical attention at your nearest emergency department.



**IMPORTANT:** You should seek urgent medical attention if blood glucose levels or ketones continue to increase after two extra doses of insulin or unable to decrease blood glucose level after 2 extra doses of insulin.

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## Calculation of extra insulin

The total daily dose (TDD) is the sum of your long acting and rapid acting doses across the day. Extra rapid acting insulin doses are based on a percentage of your TDD.

	Morning	Lunch	Dinner	Bed
Rapid acting insulin				
Long acting insulin				

Total Daily Dose = \_\_\_\_\_ units

Percentage based on TDD	5% _____ units	10% _____ units
	15% _____ units	20% _____ units

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## Nutrition tips

- ✓ To avoid dehydration, you should keep drinking and eating if possible.
- ✓ Aim to have 125mls – 250mls of fluid per hour.

### If your blood glucose levels are less than 15mmol/L

Have fluids containing carbohydrate (15 – 20 grams per hour)

E.g. fruit juice, soft drink, milk, sports drinks



100mls



150mls



300mls



250mls

### If your blood glucose levels are more than 15mmol/L

Have fluids which don't have carbohydrates (125 – 250 ml per hour)

E.g. water, diet soft drink, Powerade Zero, diet cordial, diet jelly, broth



## More information

 Call us on **(03) 8532 1800** or

 Visit [www.baker.edu.au/insulin-pumps](http://www.baker.edu.au/insulin-pumps)

This fact sheet has been adapted from ADEA Managing sick days for adults with type 1 diabetes on an insulin pump Consumer Resource. Available from: [https://www.adea.com.au/wp-content/uploads/2020/09/Sickdays-\\_12.pdf](https://www.adea.com.au/wp-content/uploads/2020/09/Sickdays-_12.pdf)



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Review date: 2024.