

Diabetic Ketoacidosis

Information for patients and families

What is DKA?

When you have type 1 diabetes, and do not have enough insulin in your body, you are at risk of getting diabetic ketoacidosis (DKA):

- When there is not enough insulin, your body has to burn fat for energy. This creates ketones, which can make your blood acidic.
- DKA happens when the acid levels in your blood get too high.

If not treated, DKA can be very dangerous. It can lead to a loss of consciousness, coma and even death.

Sometimes it is hard to tell the difference between being sick and being in DKA because the symptoms are very similar. This is why it is important to know the warning signs and take action if needed.

What are the symptoms of DKA?

- Frequent urination (peeing often)
- Dry mouth
- Dehydration
- Thirst
- Nausea
- Vomiting
- Pain in belly
- Fast breathing (with fruity smelling breath)
- Confusion
- Feeling tired

What can cause DKA?

1. Illness or traumatic stress

- The hormones released during illness or stress can cause blood sugars to rise
- When people feel sick, they often eat less and take less insulin. But when you are sick you need more insulin, even when eating less

2. Missed insulin doses

3. Insulin pump failure

- If you are on an insulin pump, you are at greater risk of DKA
- If you stop getting insulin, DKA can happen in as little as 4 hours

4. Damaged insulin

- Insulin that has been out of the fridge too long, frozen, or exposed to hot temperatures may not work

How do I prevent DKA?

1. Do not miss insulin doses

2. Take action if your insulin pump stops working

- Give insulin injections with an insulin pen or syringe
- Use your pump failure plan (see handout)

3. Do not exercise when your blood sugar is over 16 mmol/L

- Exercising when there is not enough insulin in your body can cause blood sugars to go even higher

4. Have a sick day plan

- You may need more insulin to bring down blood sugars when you are sick
- When you are sick, continue checking blood sugar and ketones every 4 hours, even at night
- Use rapid insulin to correct high blood sugars, then:
 - ✓ Re-check your blood sugar in 2 hours to make sure it is coming down

- ✓ If your blood sugar is not coming down, correct again with more rapid insulin
- ✓ If after another 2 hours, your blood sugar has still not come down, consider going to the Emergency Department
- Stay hydrated (drink 250 millilitres / 1 cup) of **sugar free** fluids every hour

When should I test for ketones?

- If your blood sugar is above 16 mmol/L on two tests in a row, check your blood or urine for ketones
- If blood ketones are ever **higher than 3 mmol/L, go to the Emergency Department** right away
- For instructions on how to adjust insulin when you have ketones, please see one of the following handouts from the SHN Diabetic Clinic:
 - ✓ Sick Day Management for people with Type 1 Diabetes

When should I go the Emergency Department?

- ✓ If blood ketones are higher than 3mmol/L at any time
- ✓ If you are not able to keep your blood sugars above 4 mmol/L
- ✓ If you take extra insulin, but your blood sugars do not go down
- ✓ If you vomit 2 or more times in 12 hours
- ✓ If you are vomiting or have diarrhea and cannot eat or drink anything for 4 hours
- ✓ If you are sick for more than 24 hours or you start to feel worse
- ✓ If you get symptoms of diabetic ketoacidosis: abdominal pain, nausea, vomiting or difficulty breathing