

My Sick Day Plan for Type 1 Diabetes on an Insulin Pump

When you are sick, your blood sugar levels may be harder to keep under control. Your blood sugar may go too high or too low.

Use this guide to help prevent **Diabetic Ketoacidosis (DKA)**.

Be prepared **before** you get sick.



When should I see my health care provider or go to an Emergency Department?

You may need to see your health care provider or go to the emergency department if you:

- vomit 2 times or more in a 12 hour period
 - have stomach pain and nausea that will not go away
 - have diarrhea that does not stop or is getting worse
 - have a high fever (greater than 38°C or 100.4°F)
 - have a cold, infection or flu that is getting worse
 - find your blood sugar or ketones are **not** decreasing after taking two correction doses of insulin
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What happens when I am sick? What are ketones?

When you are sick, your body may make extra sugar to help fight the fever or infection that is causing your illness. If there is not enough insulin to turn the sugar into energy, your body breaks down fat to use as an energy source. When fat breaks down, ketones are made.

Ketones can change your normal body chemistry and can cause a dangerous state called diabetic ketoacidosis (DKA).

When you have ketoacidosis, you can get very sick, become dehydrated, have stomach pains, be nauseous and/or vomit. If left untreated, DKA can become life threatening.

To prevent this from happening, you will need to take extra insulin and drink plenty of fluids.

The chart on page 7 shows you how to figure out the amount of insulin you will need to take.

Can I develop high blood sugars or Diabetes Ketoacidosis (DKA) on a pump?

Yes. You can develop high blood sugars or diabetes ketoacidosis (DKA) on a pump for the same reasons individuals who take multiple daily injections, such as missing several bolus insulin doses.

DKA can happen more quickly when you are on a pump because there is no long acting insulin used with a pump.

When you do not get any or enough insulin on a pump, it is called a “No Delivery” situation.

This can happen when the infusion cannula becomes:

- **out of place** and the insulin leaks onto your skin.
- **kinked** so that insulin does not get through. This may happen during insertion. If a high pressure situation occurs, a “no delivery” alarm may sound.
- **blocked** by tissue. This may happen if the set is not changed every 2 to 3 days as recommended.

If you do not get any insulin from your pump for 4 to 5 hours, you may develop blood ketones over 0.6 mmol/L (ketosis).

Once ketosis develops, you will need to take extra insulin and drink plenty of fluids to lower your high blood sugar and ketones. Preventing DKA is the goal.

You need to have a **High Blood Sugar Emergency Kit** prepared and with you at all times.



High Blood Sugar Emergency Kit

- A blood glucose meter and test strips.
- A blood ketone meter and test strips.
- A pen or syringe for manual injection.
- An extra infusion set.
- Extra insulin (check that it is not expired).

When you are sick

1. Check your blood sugar and ketone levels often.

- Check your blood sugar and ketone levels **every 2 to 4 hours** to see if they are coming down. Have someone else check it if you are too sick to do it yourself.
- Write down your blood sugar and ketone levels so that you have them ready if you need to call your health care provider.

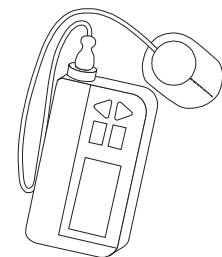


2. Take your insulin.

- Continue to run your usual basal insulin in your pump, even if you cannot eat.
- Take your pump recommended bolus doses of insulin.
- You may need to take more insulin when you are sick. You can use the temporary basal rate feature on your pump to give more basal insulin. For guidelines on how much extra insulin to take, follow the chart on page 7 called “How much insulin will I need when I am sick on a pump?”

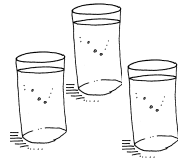
3. Troubleshoot any pump issues.

- Take a correction dose with your pump.
- Check your blood sugar and ketone levels 2 hours after taking a correction dose.
- If your blood sugar and ketone levels are not decreasing after 2 hours, assume a site problem. Take another correction dose with a pen or syringe. Change the infusion set and site.



4. Drink plenty of fluids.

- ✓ Eat your usual meals and snacks (if you have snacks).
- ✓ If you are not able to eat, try one of these:
 - If your blood sugar level is below 15 mmol/L, have both sugar-containing and sugar-free fluids.
 - If your blood sugar level is 15 mmol/L or more, have sugar-free fluids.



Sugar-containing fluids. If you are **not able to eat** your usual meals and snacks, try having one of these fluids (which contain 15 grams of carbohydrate) every 1 to 2 hours:

- $\frac{3}{4}$ cup regular pop
- $\frac{3}{4}$ cup juice
- 1 popsicle
- $\frac{1}{2}$ cup regular Jello
- 1 cup Gatorade

Sugar-free fluids. Try drinking at least 1 cup of one of these sugar-free fluids every hour to prevent dehydration:

- water
- Crystal Lite drink
- diet pop
- tea
- clear soup or broth

What foods are good to try when I am nauseous?

Eat foods that have carbohydrates and are easy to tolerate when you are nauseous or sick, such as one of these:

- 1 cup of soup
- 1 slice of toast
- 6 soda crackers



Remember



Even if you do not feel like having foods or fluids with carbohydrates at your usual meal times when your blood sugars are high, you will need to take bolus (rapid acting) insulin to bring your blood sugar and ketone levels down.

Metric and Imperial Sizes	
250 ml	= 1 cup
175 ml	= 3/4 cup
125 ml	= 1/2 cup
60 ml	= 1/4 cup

How much insulin will I need when I am sick on a pump?

You may need to take more insulin than usual to correct a high blood sugar. You **can use the temporary basal rate feature** on your pump to give more basal insulin. Use the chart below to determine how much extra insulin to take.

Your blood sugar (mmo/L)	Your blood ketones (mmol/L)	Action needed
Less than 3.9	None	No extra insulin. Treat your low blood sugar with 15 grams of fast acting carbohydrate. Do not stop taking insulin.
Under 7	Less than 0.6	Take your pump recommended insulin dose.
Under 7	0.6 or more	Take your pump recommended insulin dose. If you are unable to eat or drink any carbohydrate containing food or fluids, go directly to the emergency department. You CANNOT safely treat this at home!
7 to 14	Less than 0.6	Take your pump recommended insulin dose.
7 to 14	0.6 or more	Take your pump recommended insulin dose PLUS Increase your basal rate by 10% for 4 hours.
Between 14 and 22	Less than 0.6	Take your pump recommended insulin dose PLUS Increase your basal rate by 10% for 4 hours
Between 14 and 22	Between 0.6 and less than 1.5	Take your pump recommended insulin dose PLUS Increase your basal rate by 20 % for 4 hours.
Between 14 and 22	Between 1.5 and 3.0	Take your pump recommended insulin dose PLUS Increase your basal rate by 30% for 4 hours.
More than 22	More than 3.0	Take your pump recommended insulin dose PLUS Increase your basal rate by 50% for 4 hours. This is a medical emergency. Recheck your blood sugars and ketones. If they have not decreased, go to the emergency department right away!

Example

You are sick at lunch with a blood sugar of 16 mmol/L and your blood ketones are 0.6 mmol/L.

What would you do?

Answer:

- Take your pump recommended insulin dose for your lunch.
AND
- Increase your basal rate by 20% for 4 hours.



Prevent DKA

- ✓ Check your blood sugar and ketone levels every 2 to 4 hours.
- ✓ Give extra insulin if needed to stop the production of ketones.
- ✓ Troubleshoot issues with your pump.
- ✓ Drink plenty of fluids.

Important telephone numbers

Diabetes Clinic:	905-521-2100, ext. 76061
Nurse Practitioner/Nurse:	
Registered Dietitian:	
Endocrinologist:	

Call your health care provider if you need help or have questions or concerns.