



**Diabetes Education Centre**  
**Huron Perth Healthcare Alliance**  
Stratford General Hospital                      St. Marys Memorial Hospital  
Seaforth Community Hospital                  Clinton Public Hospital  
**Phone: 519 272-8210 ext. 2365      Fax: 519 272-8188**



## Type 1 Diabetes: Sick Day Management and Insulin Guidelines

### Staying out of Hospital

A bad cold, the flu or serious illness can make your blood glucose too high. If you are unable to eat your usual foods, your blood glucose may go too low. Follow these guidelines to help you stay out of hospital:

- Continue to take your insulin even if you are not eating your normal meals. Your insulin requirements may increase when you are sick and so you need to do one of the following:
  - Follow the correction/sliding scale your diabetes team or doctor has given you
  - Follow suggestions given on page 3 (see chart for extra insulin needed).
- **Continue to take your long-acting insulin when you are ill.** Your doctor may recommend you take  $\frac{1}{2}$  your usual dose if you are unable to eat or drink to prevent low blood glucose.
- Continue to follow your meal plan. If you are unable to eat your usual foods, try to follow the **Foods for Sick Days** ideas on page 2.



- Drink plenty of sugar-free fluids such as water, weak or caffeine-free tea and sugar-free pop. Try to drink at least 8 to 10 cups of fluid each day.

- Test your blood glucose and your ketones (urine or blood) every 4 hours. Have someone else check if you cannot do it yourself. Your diabetes team or pharmacist can show you how to test for ketones (see chart for extra insulin needed).



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## Foods for Sick Days

Drink plenty of sugar-free fluids such as water, weak or caffeine-free tea, sugar free pop, or broth. Try to drink 8 to 10 cups of fluid per day

Continue to eat your usual foods as much as possible. If you are not able to eat your usual foods, have **one** of the following every 1 to 2 hours, even if your blood glucose is high. (Each of these servings contains about 15 grams of carbohydrate.)

- ½ cup (125 ml) fruit juice
- ½ cup (125 ml) regular pop (not sugar-free)
- 1 cup (250 ml) Gatorade®
- ½ cup (125 ml) regular Jell-O®
- 1 twin popsicle
- 1 cup (250 ml) milk
- 1 cup (250 ml) cream soup
- ½ cup (125 ml) ice cream, custard or pudding
- 6 soda crackers
- 1 slice toast with margarine/butter/jam
- ½ cup (125 ml) applesauce
- ½ cup (125 ml) liquid meal replacement

## See Your Doctor or Go to Emergency

See your doctor today or go to emergency for help if any one of the following occurs:

- your blood glucose is greater than 14 mmol/L before meals or bedtime on two tests in a row **and** your urine ketones are moderate to large or blood ketones are 1.5 mmol/L or higher.
- you are unable to eat or drink due to vomiting for longer than 24 hours. You need to drink 8 cups or 2 litres of fluid in 24 hours.
- you have diarrhea lasting longer than 24 hours.

High blood glucose and ketones mean you need more insulin. The amount depends on your blood glucose level and the amount of ketones. Use the following guidelines under the direction of your doctor or diabetes nurse educator.

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## What Can Happen When Your Blood Glucose is High?

- High blood glucose on 2 tests (4 hours apart) can quickly become Diabetic Ketoacidosis (DKA)
- You do not have enough insulin and are unable to use glucose for energy
- When glucose cannot be used, your body burns fat
- Burning fat makes ketones. Ketones are toxic to your body and can cause weakness, fatigue, weight loss, stomach pain, rapid breathing, nausea and vomiting
- DKA must be treated immediately! Failure to do so may lead to shock, coma and death.

## Guidelines of Extra Insulin When you Are Sick

Blood Glucose (mmol/L)	Ketones		Extra Rapid-acting or Short-acting Insulin Every 4-6 hours
	Urine	Blood (mmol/L)	
14-16	Negative - Small	1.4 or less	Usual dose
	Moderate - Large	1.5 or more	Usual dose + <b>10%</b> of total daily units of insulin
16.1-22	Negative - Small	1.4 or less	Usual dose + <b>10%</b> of total daily units of insulin
	Moderate - Large	1.5 or more	Usual dose + <b>15%</b> of total daily units of insulin
22.1 or more	Negative - Small	1.4 or less	Usual dose + <b>15%</b> of total daily units of insulin
	Moderate - Large	1.5 or more	Usual dose + <b>20%</b> of total daily units of insulin

## What to do if you do not have a preset correction scale

1. When your blood sugar is 14 mmol/l or higher, you need to take extra rapid acting insulin.
2. Insulin adjustments are based on your total daily dose (TDD) of insulin. To get your TDD, add your usual unit doses of both rapid-acting (mealtime) and long acting insulin.  
For example:
  - Long-acting insulin at bedtime: 40 units
  - Rapid-acting insulin at breakfast: 12 units
  - Rapid-acting insulin lunch: 10 units
  - Rapid-acting insulin dinner: 10 units
  - Your TDD would be  $40+12+10+10=72$  units

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3. Your sick day adjustment will then be a percentage of your TDD. The adjustment could be 10%, 15%, or 20% of your TDD, based on your blood sugar levels. See **Table A** below.
4. You can calculate your extra insulin by doing the math yourself. For example, if your TDD is 72 units, 10% =7.2 extra units (round to 7),  
15%=10.8 extra units (round to 11), 20%=14.4 extra units (round to 14)

Or

Use **Table B** below to determine what your suggested sick day insulin adjustment is, based on your blood sugar levels.

**Table A**

Blood Glucose	Extra Insulin (using rapid/mealtime insulin only)
14 to 16 mmol/l	10% of TDD
16.1-22 mmol/l	15% of TDD
22.1 or more	20% of TDD

**Table B**

Total Daily Dose (TDD)	Extra 10% rapid or short acting insulin	Extra 15% rapid or short acting insulin	Extra 20% rapid or short acting insulin
1 to 10 units	0.5 to 1 unit	0.5 to 1 unit	1 to 2 units
11 to 20 units	1 to 2 units	2 to 3 units	2 to 4 units
21 to 30 units	2 to 3 units	3 to 4 units	4 to 6 units
31 to 40 units	3 to 4 units	4 to 6 units	6 to 8 units
41 to 50 units	4 to 5 units	6 to 7 units	8 to 10 units
51 to 60 units	5 to 6 units	7 to 9 units	10 to 12 units
61 to 70 units	6 to 7 units	9 to 10 units	12 to 14 units
71 to 80 units	7 to 8 units	10 to 12 units	14 to 16 units
81 to 90 units	8 to 9 units	12 to 13 units	16 to 18 units
91 to 100 units	9 to 10 units	13 to 15 units	18 to 20 units

Important:

The suggested extra rapid insulin can be taken either by:

1. Adding the suggested dose to your usual mealtime dose of rapid acting insulin.
- Or**
2. Taking an injection of rapid acting insulin every four hours using the suggested dose listed to fix the high blood sugars if not eating your regular meals.