

# SICK DAY MANAGEMENT

## 7.1 GUIDELINES FOR SICK DAY MANAGEMENT

**Children and adolescents with well controlled diabetes** are not more likely to become unwell compared to children without diabetes, however when they are sick, close monitoring is required. Diabetes management can be complicated during times of illness due to reduced appetite or vomiting, potential presence of ketones and increased resistance to insulin.

We have included some guidelines for managing sick days but remember that you can call a diabetes educator (office hours) or the on-call consultant (after hours) if unsure.



### SICK DAY CHECKLIST:



**Regularly check BGL and ketones** (every 2 hours). Ketones are to be checked, even if BGL <15 mmol/L when unwell. Blood ketone checking is preferable over urine ketone check when available and affordable. Overnight monitoring may be required.



**INSULIN MUST ALWAYS BE GIVEN** but the dose may change. Ensure the BGL is above 3.9 mmol/L before administering insulin.



**Review for signs of ketone development and Diabetic Ketoacidosis** (please see section 5).



**Prevent dehydration.** Drink at least 100ml (small glass) of water per hour to prevent dehydration.



**Visit your GP** if your child remains unwell to treat the underlying illness. Usual analgesics can be given as directed to treat fever, but may impact on CGM accuracy.



**Eat normal meals and snacks where possible.** If your child is unable to eat or is vomiting, sip 100ml of sweet fluid or soup every hour to help maintain their BGL.

#### Examples are:



Chicken soup or clear broths



Sports / electrolyte drinks



Fruit drinks, colas, ginger ale, etc



Icy poles



Easy to digest foods such as crackers or rice may also be a good option



**If vomiting persists for more than 2 hours and ketones are increasing or still large**, please contact the diabetes clinic or consider presenting to ED.



**If your child is under 5 years old and has gastroenteritis** they may need hospital admission.



**Do not leave your child alone when unwell.**

## Sick day management for patients on injections

- Check blood glucose and ketone level.
- **DO NOT** inject dose of insulin if previous dose was given <2 hours ago. This can lead to **INSULIN STACKING** and hypoglycaemia.

| BGL             | Blood Ketones | Plan   |
|-----------------|---------------|--|
| <3.9 mmol/L     | <1.0          | <ul style="list-style-type: none"> <li>➤ Treat hypoglycaemia</li> <li>➤ Encourage sweetened fluids or foods</li> <li>➤ Do not give insulin while BGL is below 3.9 mmol/L</li> <li>➤ Once BGL is above 3.9 mmol/L, insulin can be given but short and long acting insulin may be decreased by up to 50 percent</li> <li>➤ Consider presenting to Emergency Department (ED) in children under 5 years old, especially if oral intake is low</li> </ul>                           |
|                 | 1.0 – 1.4     | <ul style="list-style-type: none"> <li>➤ Treat hypoglycaemia</li> <li>➤ Encourage sweetened fluids or foods</li> <li>➤ Do not give insulin while BGL is below 3.9 mmol/L</li> <li>➤ Re-check BGL and ketones in 2 hours (may improve with additional glucose alone)</li> <li>➤ Consider presenting to ED in children under 5 years old</li> </ul>  |
|                 | >1.5          | <ul style="list-style-type: none"> <li>➤ Treat hypoglycaemia</li> <li>➤ Encourage sweetened fluids or foods</li> <li>➤ Re-check BGL and ketones in 2 hours (may improve with additional glucose alone)</li> <li>➤ Consider extra 5 percent of total daily insulin dose (TDD) as short acting insulin once BGL above 5 mmol/L</li> <li>➤ Consider presenting to ED in children under 5 years old</li> </ul>   |
| 3.9 - 10 mmol/L | <1.0          | <ul style="list-style-type: none"> <li>➤ No change to insulin</li> <li>➤ Check carbohydrate intake; encourage sweetened fluids if inadequate</li> </ul>  |
|                 | 1.0 – 1.4     | <ul style="list-style-type: none"> <li>➤ Encourage carbohydrate intake/sweetened fluids</li> <li>➤ Re-check BGL and ketones in 2 hours, as ketones may fall with no extra insulin</li> <li>➤ Consider extra 5 percent of total daily dose (TDD) as short acting insulin</li> </ul>   |
|                 | ≥1.5          | <ul style="list-style-type: none"> <li>➤ Give extra 10 percent of TDD as rapid acting insulin</li> <li>Review in 2 hours:                             <ul style="list-style-type: none"> <li>➤ - if ketones are rising or remain large, consider presenting to the ED</li> <li>➤ - if ketones decreasing, follow this guideline for additional insulin based on ketones/glucose level</li> </ul> </li> <li>➤ If significant vomiting, consider presenting to the ED</li> </ul> |

## Sick day management for patients on injections *cont.*

| BGL            | Blood ketones | Plan   |
|----------------|---------------|--|
| 10 - 22 mmol/L | <1.0          | <ul style="list-style-type: none"> <li>➤ Give extra 5 percent of TDD as rapid acting insulin</li> <li>➤ Encourage unsweetened fluids/water</li> <li>➤ Review BGL and ketones in 2 hours</li> </ul>   |
|                | 1.0 - 1.4     | <ul style="list-style-type: none"> <li>➤ Give extra 10 percent of TDD as rapid acting insulin</li> <li>➤ Encourage unsweetened fluids/water</li> <li>➤ Review BGL and ketones in 2 hours</li> </ul>  |
|                | ≥1.5          | <ul style="list-style-type: none"> <li>➤ Give extra 20 percent of TDD as rapid acting insulin</li> <li>➤ Review in 2 hours:                             <ul style="list-style-type: none"> <li>- if ketones rising or remain large, consider presenting to the ED</li> <li>- if ketones decreasing, follow this guideline for additional insulin based on ketones/glucose level</li> </ul> </li> <li>➤ If significant vomiting, consider presenting to the ED</li> </ul> |
| >22 mmol/L     | <1.0          | <ul style="list-style-type: none"> <li>➤ Give extra 10 percent of TDD as rapid acting insulin</li> <li>➤ Encourage unsweetened fluids/water</li> <li>➤ Review in 2 hours</li> </ul>  |
|                | 1.0 - 1.4     | <ul style="list-style-type: none"> <li>➤ Give extra 20 percent of TDD as rapid acting insulin</li> <li>➤ Encourage unsweetened fluids/water</li> <li>➤ Review in 2 hours</li> </ul>  |
|                | ≥1.5          | <ul style="list-style-type: none"> <li>➤ Give extra 20 percent of TDD as rapid acting insulin</li> <li>➤ Review in 2 hours:                             <ul style="list-style-type: none"> <li>- if ketones rising or remain large, consider presenting to the ED</li> <li>- if ketones decreasing, follow this protocol for additional insulin based on ketones/glucose level</li> </ul> </li> <li>➤ If significant vomiting, present to the ED</li> </ul>              |



### **NOTE: to calculate total daily dose (TDD)**

- ➊ Add all rapid- and long-acting insulin doses together over a 24 hour period  
Eg. breakfast 5 units + lunch 6 units + dinner 6 units + pre-bed 15 units = 32 units
- ➋ Do this for the past 5 days
- ➌ Add all the results together

Eg. Day 1 = 32 units  
 Day 2 = 30 units  
 Day 3 = 35 units  
 Day 4 = 31 units  
 Day 5 = 32 units  
 TOTAL = 160

Divide by 5 to get average

- ➍ Eg.  $160 / 5 = 32$  units

**Therefore the average TDD = 32 units**

- For sick day management on an insulin pump, please refer to 'Insulin Pump Management' resource.