

## Ketone and Sick Day Management on an insulin pump

TDD	5%	10%	20%
Date: _____			

**Only correct with Novorapid or Humalog USING A PEN UNTIL KETONES ARE BELOW 0.6 MMOL/L.**

**NEVER STOP BASAL INSULIN**

Blood Ketones	BGL < 4 mmol/L	BGL 4 – 7 mmol/L	BGL 7.1 – 15 mmol/L	BGL > 15 mmol/L
<b>0.6 – 0.9 mmol/L</b>  Urine ketone equivalent <b>+</b> (Negative/trace/small)	<b>Blood Ketone 0.6 – 0.9 mmol/L</b> <ul style="list-style-type: none"> <li>Treat hypo with usual protocol</li> <li>Consider minidose glucagon if unable to tolerate carbs</li> <li>Program 50% temp basal rate for 2 hr</li> </ul> <b>Repeat BGL &amp; treat with carb every 15 min until BGL &gt; 4 mmol/L.</b> <b>Repeat ketone test in 1 hr</b> <b>RING HOSPITAL FOR ADVICE</b>	<b>Blood Ketone 0.6 – 0.9 mmol/L</b> <ul style="list-style-type: none"> <li>Offer carbs &amp; sweetened fluid</li> <li>Apply usual carb ratio for this</li> <li>Continue usual basal insulin</li> </ul> <b>Test BGL and ketones 2 hourly</b>	<b>Blood Ketone 0.6 – 0.9 mmol/L</b> <ul style="list-style-type: none"> <li>Give 5% of TDD <b>with PEN</b></li> <li>Change entire set and cartridge</li> <li>Drink sugar-free fluid</li> <li>Apply usual carb ratio for food eaten</li> </ul> <b>Test BGL and ketones 2 hourly</b>	<b>Blood Ketone 0.6 – 0.9 mmol/L</b> <ul style="list-style-type: none"> <li>Give 10% of TDD <b>with PEN</b></li> <li>Change entire set and cartridge</li> <li>Drink sugar-free fluid</li> <li>Apply usual carb ratio for food eaten</li> <li>Repeat ketone correction using a PEN if ketones not reduced after 2 hours</li> </ul> <b>Test BGL and ketones 2 hourly</b>
<b>1.0 – 1.4 mmol/L</b>  Urine ketone equivalent <b>++</b> (Negative/trace/small)	<b>Blood Ketone 1.0 – 1.4 mmol/L</b> <ul style="list-style-type: none"> <li>Treat hypo with usual protocol</li> <li>Consider minidose glucagon if unable to tolerate carbs</li> <li>Program 50% temp basal rate for 2 hr</li> </ul> <b>Repeat BGL &amp; treat with carb every 15 min until BGL &gt; 4 mmol/L.</b> <b>Repeat ketone test in 1 hr</b> <b>RING HOSPITAL FOR ADVICE</b>	<b>Blood Ketone 1.0 – 1.4 mmol/L</b> <ul style="list-style-type: none"> <li>Give 5% of TDD <b>with PEN</b></li> <li>Change entire set and cartridge</li> <li>Offer carbs and sweetened fluid</li> <li>Apply usual carb ratio for this</li> </ul> <b>Test BGL &amp; ketones 2 hourly</b>	<b>Blood Ketone 1.0 – 1.4 mmol/L</b> <ul style="list-style-type: none"> <li>Give 10% of TDD <b>with PEN</b></li> <li>Change entire set and cartridge</li> <li>Drink sugar-free fluid</li> <li>Apply usual carb ratio for food eaten</li> <li>Repeat ketone correction using a PEN if ketones not reduced after 2 hours</li> </ul> <b>Test BGL &amp; ketones 2 hourly</b>	<b>Blood Ketone 1.0 – 1.4 mmol/L</b> <ul style="list-style-type: none"> <li>Give 10% of TDD <b>with PEN</b></li> <li>Change entire set and cartridge</li> <li>Drink sugar-free fluid</li> <li>Apply usual carb ratio for food eaten</li> <li>Repeat ketone correction using a PEN if ketones not reduced after 2 hours</li> </ul> <b>Test BGL &amp; ketones 2 hourly</b>
<b>&gt; 1.5 mmol/L</b>  Urine ketone equivalent <b>+++</b> (Large)	<b>Blood Ketone &gt; 1.5 mmol/L</b> <ul style="list-style-type: none"> <li>Treat hypo with usual protocol</li> <li>Consider minidose glucagon if unable to tolerate carbs</li> <li>Program 50% temp basal rate for 2 hr</li> </ul> <b>GO TO HOSPITAL</b>	<b>Blood Ketone &gt; 1.5 mmol/L</b> <ul style="list-style-type: none"> <li>Give 5% of TDD <b>with PEN</b></li> <li>Change entire set and cartridge</li> <li>Offer carbs and sweetened fluid</li> <li>Apply usual carb ratio for this</li> </ul> <b>Test BGL &amp; ketones 2 hourly</b> <b>RING HOSPITAL FOR ADVICE</b>	<b>Blood Ketone &gt; 1.5 mmol/L</b> <ul style="list-style-type: none"> <li>Give 10% of TDD <b>with PEN</b></li> <li>Change entire set and cartridge</li> <li>Drink sugar-free fluid</li> <li>Apply usual carb ratio for food eaten</li> <li>Repeat ketone correction using a PEN if ketones not reduced after 2 hours</li> <li>Go to hospital more than 1 vomit or ketones not reducing</li> </ul> <b>Test BGL &amp; ketones 2 hourly</b> <b>RING HOSPITAL FOR ADVICE</b>	<b>Blood Ketone &gt; 1.5 mmol/L</b> <ul style="list-style-type: none"> <li>Give 20% of TDD <b>with PEN</b></li> <li>Change entire set and cartridge</li> <li>Drink sugar-free fluid</li> <li>Apply usual carb ratio for food eaten</li> <li>Repeat ketone correction using a PEN if ketones not reduced after 2 hours</li> <li>Go to hospital more than 1 vomit or ketones not reducing</li> </ul> <b>Test BGL &amp; ketones 2 hourly</b> <b>RING HOSPITAL FOR ADVICE</b>
<b>&gt; 3.0 mmol/L</b>	<b>IMMEDIATE RISK OF KETOACIDOS (DKA) IF BLOOD KETONE IS &gt; 3.0 MMOL/L. INSULIN TREATMENT IS NEEDED URGENTLY</b> <b>GO TO CLOSEST EMERGENCY DEPARTMENT</b>			

## You need to speak to your doctor or diabetes educator urgently or go to hospital if:

- Showing any signs of Diabetes Ketoacidosis
  - Drowsy or confused
  - Fast or unusual breathing
  - Fruity/acetone smelling breath
  - Abdominal pain
  - Nausea and vomiting more than once
- Unable to keep fluids down
- Ongoing hypoglycaemia
- Ketones are not coming down or are 1.5 mmol/L or more after two extra doses of insulin
- Blood glucose does not improve or remains above 15 mmol/L after two doses of insulin
- Unsure what is wrong
- Not sure what to do, or exhaustion, or need help.

Correction by pump is safe 2 – 3 hours after pen correction and when blood ketone is less than 1 mmol/L

Consider programming a temporary basal rate of 200% for 2 hours if BGL is more than 15 mmol/L and ketones are more than 1 mmol/L

If illness is ongoing, increasing basal rate may be needed.  
Ring Hospital for advice

**Total daily dose (TDD) can be found in pump history.**

## % of Total Daily Dose Ready Reckoner

Total daily dose (TDD)	5%	10%	20%
10	0.5	1	2
15	1	1.5	3
20	1	2	4
25	1.5	2.5	5
30	1.5	3	6
35	2	3.5	7
40	2	4	8
45	2.5	4.5	9
50	2.5	5	10
55	3	5.5	11
60	3	6	12
65	3.5	6.5	13
70	3.5	7	14
75	4	7.5	15
80	4	8	16
85	4.5	8.5	17
90	4.5	9	18
95	5	9.5	19
100	5	10	20