

Ketone and Sick Day Management

How to calculate rapid acting insulin (Novorapid/Apidra/Humalog)

TDD	5%	10%	20%

Never stop basal/background insulin *Lantus, Levemir, Protophane or NPH* ***% of TDD replaces normal correction**

Urine Ketones	Blood Ketones mmol/L	< 4 mmol/L	4 - 8 mmol/L	8.1 - 15 mmol/L	> 15 mmol/L
Negative or trace/small +	0.6 - 0.9 mmol/L	<ul style="list-style-type: none"> Use 15g of rapid acting carb to treat hypo Consider minidose glucagon if unable to tolerate carb <p>Test blood glucose and ketones repeat in 15 mins and repeat 15g rapid acting carb every 15 min until BGL > 4mmol/L</p> <p>RING HOSPITAL FOR ADVICE</p>	<ul style="list-style-type: none"> Normal insulin Offer carb & sweetened fluid - use insulin to carb ratio to cover food/fluid <p>Test blood glucose & ketones 2 hourly</p>	<ul style="list-style-type: none"> Give *5% of TDD Encourage sugar free fluids Use insulin to carb ratio to cover food <p>Test blood glucose & ketones 2 hourly</p>	<ul style="list-style-type: none"> Give *10% of TDD Encourage sugar free fluids Use insulin to carb ratio to cover food Repeat dose after 2 hours if ketones not reduced <p>Test blood glucose & ketones 2 hourly</p>
Small / Moderate ++	1.0 - 1.4 mmol/L	<ul style="list-style-type: none"> Use 15g of rapid acting carb to treat hypo Consider minidose glucagon if unable to tolerate carb <p>Test blood glucose and ketones repeat in 15 mins and repeat 15g rapid acting carb every 15 min until BGL > 4mmol/L</p> <p>RING HOSPITAL FOR ADVICE</p>	<ul style="list-style-type: none"> Give* 5% of TDD Carb and sweetened fluid Use insulin to carb ratio to cover food/fluid Repeat dose after 2 hours if ketones not reduced <p>Test blood glucose & ketones 2 hourly</p>	<ul style="list-style-type: none"> Give* 10% of TDD Encourage sugar free fluids Use insulin to carb ratio to cover food Repeat dose after 2 hours if ketones not reduced. <p>Test blood glucose & ketones 2 hourly</p>	<ul style="list-style-type: none"> Give *10% of TDD Encourage sugar free fluids Use insulin to carb ratio to cover food Repeat dose after 2 hours if ketones not reduced <p>Test blood glucose & ketones 1 hourly</p>
Large ++++	> 1.5 mmol/L	<ul style="list-style-type: none"> Use rapid acting carb to treat hypo Consider minidose glucagon if unable to tolerate carb <p>GO TO HOSPITAL</p>	<ul style="list-style-type: none"> Give *5% of TDD Carb and sweetened fluid Use insulin to carb ratio to cover food/fluid Repeat dose after 2 hours if ketones not reduced Go to hospital if vomiting <p>Test blood glucose & ketones 2 hourly</p> <p>RING HOSPITAL FOR ADVICE</p>	<ul style="list-style-type: none"> Give *10% TDD Encourage sugar free fluids Use insulin to carb ratio to cover food Repeat dose after 2 hours if ketones not reduced Go to hospital if vomiting <p>Test blood glucose & ketones 1 hourly</p> <p>RING HOSPITAL FOR ADVICE</p>	<ul style="list-style-type: none"> Give* 20% of TDD Encourage sugar free fluids Use insulin to carb ratio to cover food Repeat dose after 2 hours if ketones not reduced. Go to Hospital if vomiting <p>Test blood glucose & ketones 1 hourly</p> <p>RING HOSPITAL FOR ADVICE</p>

Immediate risk of diabetic ketoacidosis (DKA) if the blood ketone level is > 3.0 mmol/L. Insulin treatment is needed urgently. Go to closest emergency department.

To calculate total daily dose (TDD) - add up all insulin given on a usual day, includes long acting and rapid acting insulin. (E.g. If TDD is 50 units, 5% = 2.5 units; 10% = 5 units; 20% = 10 units).

Do not include correction doses for unexpected hyperglycaemia.

Adapted from ISPAD guidelines 2014 & APEG guidelines 2011

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

- Vomiting persists and unable to keep fluids down
- Ketones are not coming down or are 1.5mmol/L or more after two supplemental doses of insulin
- Persistent hypoglycaemia
- Blood glucose does not improve or remains over 15mmol/L despite two supplemental doses of insulin
- Drowsy or confused
- Fast or unusual breathing
- Abdominal pain
- Unsure what is wrong
- The people who are caring for you are not sure what to do or are exhausted

If pregnant go to hospital or contact health care team if ketones > 1mmol/L

% Of Total Daily Dose Ready Reckoner			
Total daily dose (TDD) ↓	5%	10%	20%
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