Managing illness in children with Type 1 Diabetes

Child unwell / vomiting → check blood sugar and blood ketone

Ketone levels

Blood Ketones < 0.6
(Urine ketone negative / trace)

Blood Ketone 0.6-1.5
(Urine ketone trace / + / ++)

Blood Ketone >1.5
(Urine ketone > ++)

Ketone level Acceptable

Continue monitoring blood glucose and ketones every 1-2 hours.

Encourage frequent sips of sugar free fluids to keep hydrated.

If not eating normal foods, encourage easily digestible foods such as soup/ jelly/ ice cream or sugary fluids.

If eating, have insulin with food as usual.

If blood sugar ,
- < 5.5 mmol , treat as hypo
- 5.5- 10 mmol , do not worry
- 10-14 mmol, give usual correction dose
- >14 mmmol, give correction dose 5%TDD
- > 22 mmol, give correction dose 10% TDD

Treat illness as usual. Eg. Calpol, contact GP.

Ketones Levels unacceptable – Risk of DKA
Are there signs or symptoms of DKA? [see chart below]

No

Need to reduce ketones to acceptable levels
Extra insulin required to correct hyperglycaemia

Yes

Need medical review on the paediatric assessment area
Follow DKA protocol

Clinical Features of DKA
Abdominal pain
Shortness of breath/Rapid breathing
Altered conscious level
Dehydration

INSULIN PUMP USERS

Can give first insulin correction dose via pump if ketone < 0.6
If blood sugar ,
- 5.5- 10 mmol , give usual correction dose
- 10-14 mmol, give correction dose 5% TDD
- >14 mmmol, give correction dose 10% TDD
- >22mmol, give correction 20% TDD

Disconnect pump from child and do a pump self-check and re-prime infusion set to check pump is working
If the pump is working, replace cannula
Change the reservoir as well if there are any uncertainties
Reconnect pump to child

Encourage frequent sips of sugar free fluid

Replace food with small amounts of sugary fluid, with novorapid insulin, if not eating.

Recheck blood sugars and ketones in 2 hours

If no improvement after 2 hours,
•Give insulin correction dose via pen
•Check pump as above if not already done
•Are there signs of DKA? If yes , need medical review urgently.

Consider using temporary increased basal rate, may need up to 200%

Continue monitoring blood sugars and ketones every 2 hours until clinical improvement

INSULIN PEN USERS

Give insulin correction dose

If blood sugar ,
- 5.5- 10 mmol , give usual correction dose
- 10-14 mmol, give correction dose 5% TDD
- >14 mmmol, give correction dose 10% TDD
- >22 mmol, give correction 20% TDD

Encourage frequent sips of sugar free fluid

Replace food with small amounts of sugary fluid, with novorapid insulin, if not eating.

Recheck blood sugars and ketones every 2 hours

Do not give insulin correction dose within 2hours

If no improvement after 4 hours or signs of DKA at any point, need medical review.

Continue monitoring blood sugars and ketones every 2 hours until clinical improvement.

How to calculate total daily dose TDD
If child is on injection, add up all insulin given in 1 day (long acting insulin eg glargine /levemir and rapid acting insulin novorapid eg child on levemir 6 units and 3 units novorapid at each meal , TDD = 6 + 3 +3 + 3 = 15

If on insulin pump, add daily basal insulin + bolus insulin during the day.