

**"Sick Day Rules"**

- Children with diabetes who look after their diabetic control do not get more illnesses or infections than other people
- Mild illnesses such as sore throats and colds may only reduce appetite and make a child feel miserable without much effect on diabetes
- More severe children's illnesses such as 'flu, tonsillitis and chest infections often cause a raised temperature (fever) and tend to make the blood glucose (BG) go **higher** because stress hormones like adrenaline, glucagon and cortisone make the liver release extra glucose to help resist the infection
- Illnesses with diarrhoea and vomiting (gastro-enteritis) often cause BG to go **lower** (towards a 'hypo') because less food is digested and absorbed from the stomach

**What to do when feeling ill**

- Never stop the insulin.
- Test blood glucose more frequently
- Decide whether more or less insulin is needed
- If appetite is not normal replace usual food with easily digestible carbohydrate food or drinks (see later)
- Extra water and sugar-free drinks are important to avoid dehydration especially if feverish and passing a lot of urine
- Take paracetamol for fever or headache
- Seek medical or nursing help if you think the illness needs medical treatment such as an antibiotic or if you think the illness is getting out of control

**HIGH BLOOD GLUCOSE**

**MILD ILLNESS WITH LOSS OF APPETITE BUT NO VOMITING**

**Insulin** – Probably the same dose as usual, perhaps slightly more if blood glucose above 14 mmol (see below in 'Extra Insulin')

**Food/fluid** – If appetite is poor, replace usual food with small frequent amounts of easily digestible carbohydrate food (eg bread, biscuits, breakfast cereal) or drinks (eg milk, milkshake, fruit juice) plus water and sugar-free drinks

**Blood tests** – Test more frequently (every 2 hours) to check what is happening

<b>Title: Diabetes During Illness</b>	
Author: Dr Swift, Dr Shenoy, Dr Greening	
Contact: Dr A Sridhar, Consultant Paediatrician	Written: 2003
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**MORE SEVERE ILLNESS WITH FEVER, BLOOD GLUCOSE MORE THAN 14 mmol, BUT NO VOMITING**

**'EXTRA INSULIN'**

- If it is time for usual insulin  
**Increase insulin by 20%** (ie.1/5 of the usual dose)  
*[ for example instead of usual total morning dose of 20 units  
 → give 20 + (1/5 of 20 units = 4) = 24 units ]*
- If usual dose has already been given add an extra injection of **rapid acting insulin** (see doses below)
- this might need repeating after 2-4 hours if blood glucose stays high

**Extra NovoRapid or Humalog Insulin doses**

AGE	BG 14+	BG 17+	BG 20+
Less than 7 years	0.5-1 units	1-2 units	2-3 units
7-11 years	2-3 units	3-4 units	4-5 units
12-14 years	3-4 units	4-5 units	5-6 units
15-18 years	4-5 units	6-8 units	8-12 units

**Note** If the usual evening insulin has already been injected it is not advisable to give extra Novorapid insulin after midnight **unless** blood glucose is above 20 mmol and carbohydrate can be eaten before sleeping. These newer rapid insulins because do not last so long and will not often cause later hypoglycaemia

**Food/fluid** – If appetite is poor replace usual food with small frequent amounts of easily digestible carbohydrate food (eg bread, biscuits, breakfast cereal) or drinks (eg milk, milkshake, lucozade, fruit juice) plus water and sugar-free drinks

**Blood tests** – Repeat every 2-4 hours until blood glucose settles below 14 mmol and repeat insulin instructions as above every 2-4 hours if BG stays high.

**HIGH BLOOD GLUCOSE (above 14 mmol) WITH ONE OR TWO VOMITS**

**Insulin** – See section on 'EXTRA INSULIN' on page 2

**Food/fluids** - **stop the usual solid meals**  
**give small frequent amounts** of easily digestible carbohydrate food  
 (eg bread, biscuits, breakfast cereal) **or** drinks (eg milk, milkshake)  
**or** sweetened drinks (defizzed lemonade or coke, lucozade, sweetened tea)

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If vomiting settles, gently reintroduce easily digestible foods and if blood glucose remains high repeat 'EXTRA INSULIN'.

**Blood tests** – Repeat every 2-4 hours until blood glucose settles below 14 mmol and repeat insulin instructions as above every 2-4 hours if BG stays high.

**VERY HIGH BLOOD GLUCOSE (more than 17 mmol) WITH PERSISTENT VOMITING (and ketones\* may be present)**

- **GIVE URGENT** extra NovoRapid or Humalog **INSULIN** every 2 - 4 hours as in 'EXTRA INSULIN' doses on page 2
- **Give clear fluids** such as water or sugar-free squash or diet coke to maintain hydration.

**If these treatments are not working**

- **Get advice** from your doctor or specialist nurse

Medical advisers might suggest a single injection of anti-vomiting medicine

- If eyes look sunken, tongue dry or vomiting continues hospital admission is **urgent**.

(\*In Leicestershire we do not often advise urine ketone testing because the regular blood glucose tests are easier to understand but many doctors advise ketone testing when illnesses cause high blood tests. Ketones become positive when the body is starved of insulin and food.)

**If the blood glucose tests are very high and urine ketone test is positive it means**

- (a) There is an urgent need for rapid insulin as in 'EXTRA INSULIN'
- (b) The child may feel more nauseated because of the ketones and
- (c) There is a danger of KETOACIDOSIS if the blood glucose and vomiting cannot be controlled.

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## NORMAL or LOW BLOOD GLUCOSE

**NORMAL BLOOD GLUCOSE (4-8 mmol) or LOW BLOOD GLUCOSE (less than 4), FEELING SICK AND BEGINNING TO VOMIT (AND PERHAPS DIARRHOEA)**

**Insulin** – If it is time for usual insulin

Give 20% (1/5) less than usual amount

[ For example, if normal total morning insulin is 10 units

Give 10 minus (1/5 of 10 = 2) = 8 units ]

**Food/fluid** - Stop solid food

Small frequent amounts of sugary drinks (eg sweetened drinks – defizzed lemonade or coke, lucozade, sweetened tea)

**Blood tests** – Check blood glucose 2-4 hourly

If blood glucose is too low – give Dextrose tablets , Glucogel (Hypostop) or increase sugary drinks

If 'hypo' and vomiting – give .....

**Glucagon** 0.3 mg for 1-5 year olds; 0.5mg for 6-11 year olds; 1 mg (12 years+)

Later if **blood glucose** is between **5-13 mmol** continue on the lower dose of insulin

if **blood glucose** is **14 mmol** or higher give insulin as in '**EXTRA INSULIN**'

### **REMEMBER**

- Nausea and vomiting (high BG especially with ketones) are signs of severe insulin deficiency, rapid insulin is needed urgently.
- Vomiting with diarrhoea is more likely to mean gastro-enteritis with a possible fall in blood glucose levels.
- Fluids are essential when there is diarrhoea and in illnesses with high blood glucose levels causing excessive urine output.

### **SEEK URGENT MEDICAL OR HOSPITAL HELP IF**

- Vomiting continues more than twice
- Vomiting continues plus heavy ketones
- Rapid deep breathing (a sign of ketoacidosis)
- Tummy pains or cramps are severe
- Child confused, dehydrated or exhausted

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**DIABETES DURING ILLNESS**  
**Guideline No 16**

University Hospitals of Leicester NHS  
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Children's Services Medical Guideline

Previous version: Dr Peter Swift -2003

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