Treating and preventing hypoglycaemia in children and young people with diabetes on multiple daily injections (MDI) or manual pumps

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West Hertfordshire Teaching Hospitals NHS Trust

Patient information

Treating and preventing hypoglycaemia in children and young people with diabetes on multiple daily injections (MDI) or manual pumps

Excellent patient care, together

What is Hypoglycaemia (hypo)?

The definition of hypoglycaemia in children and young people with diabetes is a blood glucose less than 4mmol/L. Remember "*4 is the floor*!"

Signs and Symptoms of Hypoglycaemia ('Hypo') vary between individuals and may change with age. A child/young person may exhibit some of the symptoms below, while others may have no symptoms. The list is not exhaustive and if you suspect a child/young person is experiencing a hypo, their capillary blood glucose **MUST** still be checked.

Mild	Moderate	Severe
Pale	Headache	Irritability
Sweaty/Clammy	Confusion	Seizures
Hungry	Weakness/Lethargy	Erratic Behaviour
Tremor	Glazed Expression	Nausea
Restlessness	Visual/Speech Disturbances	Unconsciousness
Dizziness	Aggressive Behaviour	
	Mood Change	

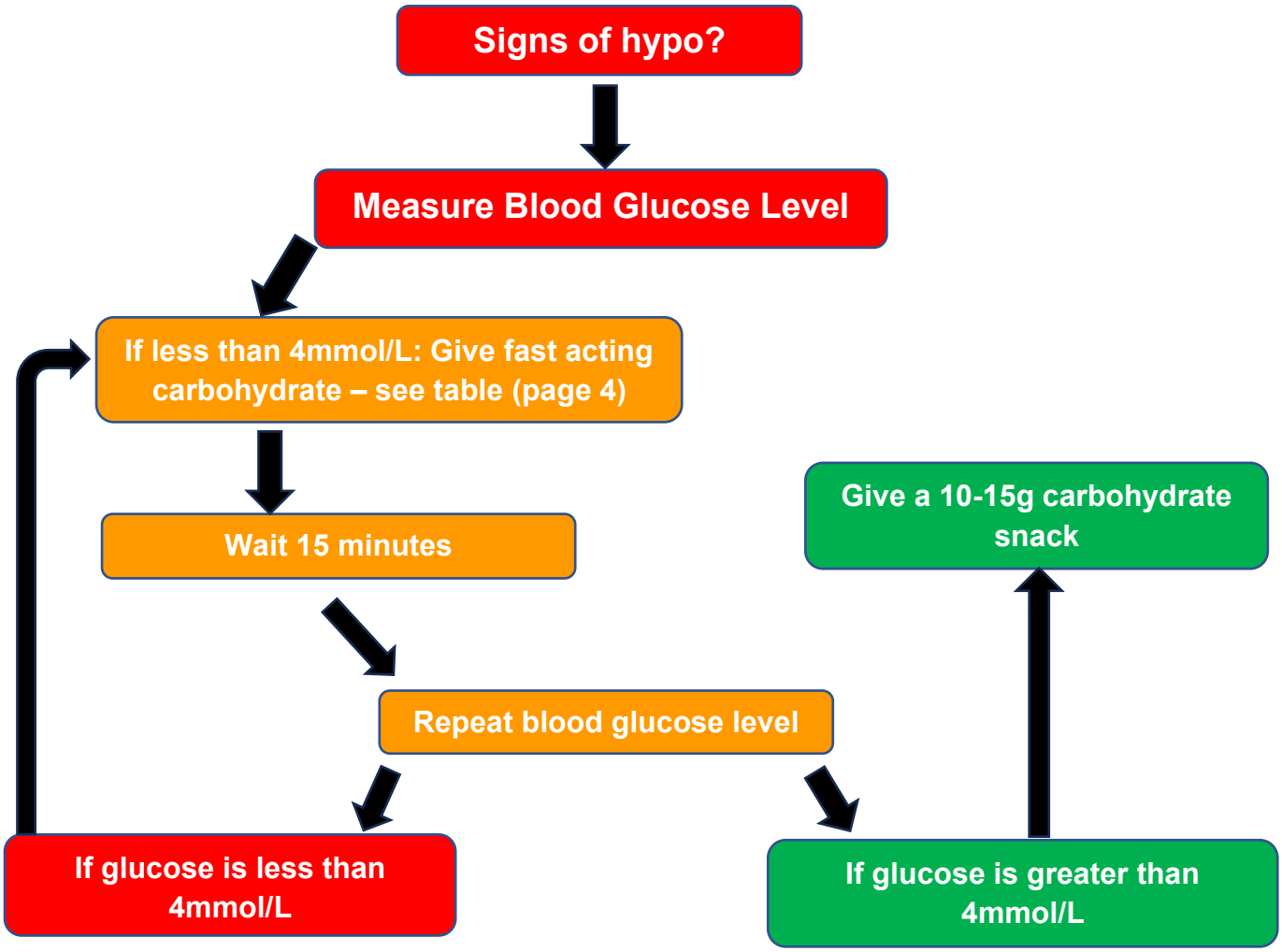
Causes of Hypoglycaemia

Causes you can control	Causes you can't control
Taking too much insulin	Hot and humid weather
Not monitoring your glucose levels when exercising or drinking alcohol	Unplanned changes in your usual routine (e.g. travelling)
Not timing your insulin dose correctly	Spending a long time at high altitude
Not carb counting correctly	Puberty
Missing meals	Having your menstrual period
	Being unwell - vomiting

REMEMBER – If you drive or are learning to drive, your glucose level needs to be a minimum of 5mmol/L before and during driving. If at any point your blood glucose falls below this, you cannot drive for 45 mins after it has risen above 5mmol/L again. Remember it's "5 to Drive"

Treating a Hypo

Children and Young People having a hypo should be treated where they are and not left alone.



If your child is having a severe hypo and is unable to eat or drink, they will require **intramuscular glucagon**. This which will stimulate their liver to release stored glucose into their blood.

8 years and under dose = 500mcg via IM injection

9 years and older dose = 1mg via IM injection.

Call **999** if your child is unconscious.

Please ask the Diabetes Team if you require training on how to use glucagon.

Examples of fast-acting carbohydrate (CHO) to use as hypo treatment on MDI

	Co-operative and **ABLE** to tolerate oral treatment						Unco-operative but conscious and **REFUSES** oral treatment					
WEIGHT	Less than 10kg	10-20kg	20-30kg	30-40kg	40-50kg	More than 50kg	Less than 10kg	10-20kg	20-30kg	30-40kg	40-50kg	More than 50kg
g CHO REQUIRED (0.3g/Kg)	3g	6g	9g	12g	15g	18g	3g	6g	9g	12g	15g	18g
LIFT GLUCOSE TABLETS 3.7g/tablet	NOT SUITABLE	1.5	2.5	3	4	5						
LIFT GLUCOSE SHOTS 15g/ 60ml	15ml	25ml	35ml	50ml	60ml	75ml						
GLUCOGEL 10g CHO/tube	½ tube	½ tube	1 tube	1½ tube	1½ tube	2 tube	½ tube	½ tube	1 tube	1½ tube	1½ tube	2 tube
DEXTROSE TABS 3g/tablet	NOT SUITABLE	2	3	4	5	6		When you are giving Glucogel squirt tube content in the side of each cheek evenly and massage gently from outside enabling the glucose to be swallowed and absorbed **DO NOT** give Glucogel to an unconscious or fitting child/ young person				
FRUIT JUICE	NOT SUITABLE	60ml	90ml	120ml	150ml	180ml						
LUCOZADE (Energy Original 9.2g/100ml)	NOT SUITABLE	65ml	100ml	130ml	160ml	200ml						
LUCOZADE (Energy Orange 8.4g/100ml)	NOT SUITABLE	70ml	110ml	140ml	180ml	210ml						
COLA 10.6g/100ml	NOT SUITABLE	50ml	90ml	110ml	140ml	170ml						
JELLY BEANS 2g/sweet	NOT SUITABLE	3	5	6	8	9						
JELLY BABIES 5g/sweet	NOT SUITABLE	1	2	3	3	4						
SKITTLES 1.1g/sweet	NOT SUITABLE	5	8	11	14	16						

The most effective hypo treatments (i.e. those with the fastest action) are highlighted PINK in the left-hand column of the table (page 4).

If you would like any alternatives, please speak to us and we can discuss other options.

Be aware that foods like chocolate, although high in sugar, are also high in fat. This makes it difficult for the body to absorb quickly. Thus, chocolate would **not** be a recommended choice of hypo treatment.

If you/your child is experiencing more than 3-4 hypos in a week, please contact the diabetes team for advice.

Never omit the next dose of insulin following hypo treatment.

Suitable 10-15g carbohydrate containing snacks

- 1 white toast (medium slice) and butter
- 2-3 rich tea biscuits
- 1-2 custard cream biscuits
- 1-2 Jaffa cakes
- 1 cereal bar (these do differ in carb value so check the packaging)
- 20-25g of raisins
- Small sized banana (75g)
- Medium sized apple
- 250ml milk

Hypo Prevention Tips

You can reduce the chances of getting a low blood glucose level if you:

- Check your glucose level regularly and be aware of the symptoms of a low glucose level so you can treat it quickly.
- Use a continuous glucose monitor (CGM) to see how your glucose levels are changing. You can ask the diabetes team about getting a sensor if you don't have one.
- Always carry your hypo treatment with you so you can treat straight away.
- Try not to skip meals or go for long periods without eating.
- Be careful when you drink alcohol - do not drink large amounts. Eat a good meal before drinking and check your glucose level regularly. Eat a carbohydrate snack afterwards and before you go to sleep. (See advice leaflet on alcohol and diabetes).
- Be careful when exercising. Eating a carbohydrate snack before exercise can help to reduce the risk of having a hypo. Sometimes the diabetes team may advise you to take less insulin before or after exercise. (See patient information leaflet on exercise management).
- Have a carbohydrate snack before bed if your blood glucose drops too low when you are asleep (nocturnal hypoglycaemia).
- If you/your child is having frequent hypos, please discuss with the diabetes team as your insulin doses may need to be adjusted.

If you are already using a CGM the guide below may help you to prevent a hypo based on the directional arrow on your reader/smartphone.

Trend arrow	Maximum change in 15 minutes	Prevent or act on a current glucose level of:
→	Stable: It may go up or down	4.8mmol/L or lower, if active eat some carbohydrate to prevent hypo. If sitting still or about to eat try waiting and check the trend.
↘	Falling within 15 mins	5.6mmol/L or lower eat some carbohydrate to prevent hypo. If eating within 15 minutes, try waiting and check the trend.
↓	Falling rapidly	6.4mmol/L or lower eat some carbohydrate to prevent hypo. * If very active you may need to eat fast acting carbohydrate (hypo treatment) even if higher than 6.5mmol/L.
↓↓	Falling very rapidly	6.4mmol/L or lower eat some carbohydrate to prevent hypo. * If higher than 6.4mmol/L or if very active you will need to eat fast acting carbohydrate (hypo treatment) to prevent hypo.

*Table adapted from DEXCOM-6-leaflet-vs9-1.pdf

How to contact us

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PALS

If you need this leaflet in another **language, large print, Braille or audio version**, please call **01923 217198** or email westherts.pals@nhs.net.

Concerns, complaints or suggestions

If you are unhappy with your experience or would like to give feedback, please contact our Patient Advice and Liaison Service (PALS). PALS is available to patients, relatives, carers and friends to raise concerns.

For more information, please scan the QR code or visit our website.

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