Treating hypoglycaemia in children and young people with diabetes on HCL (hybrid closed loop) pumps

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Patient information

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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. 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	

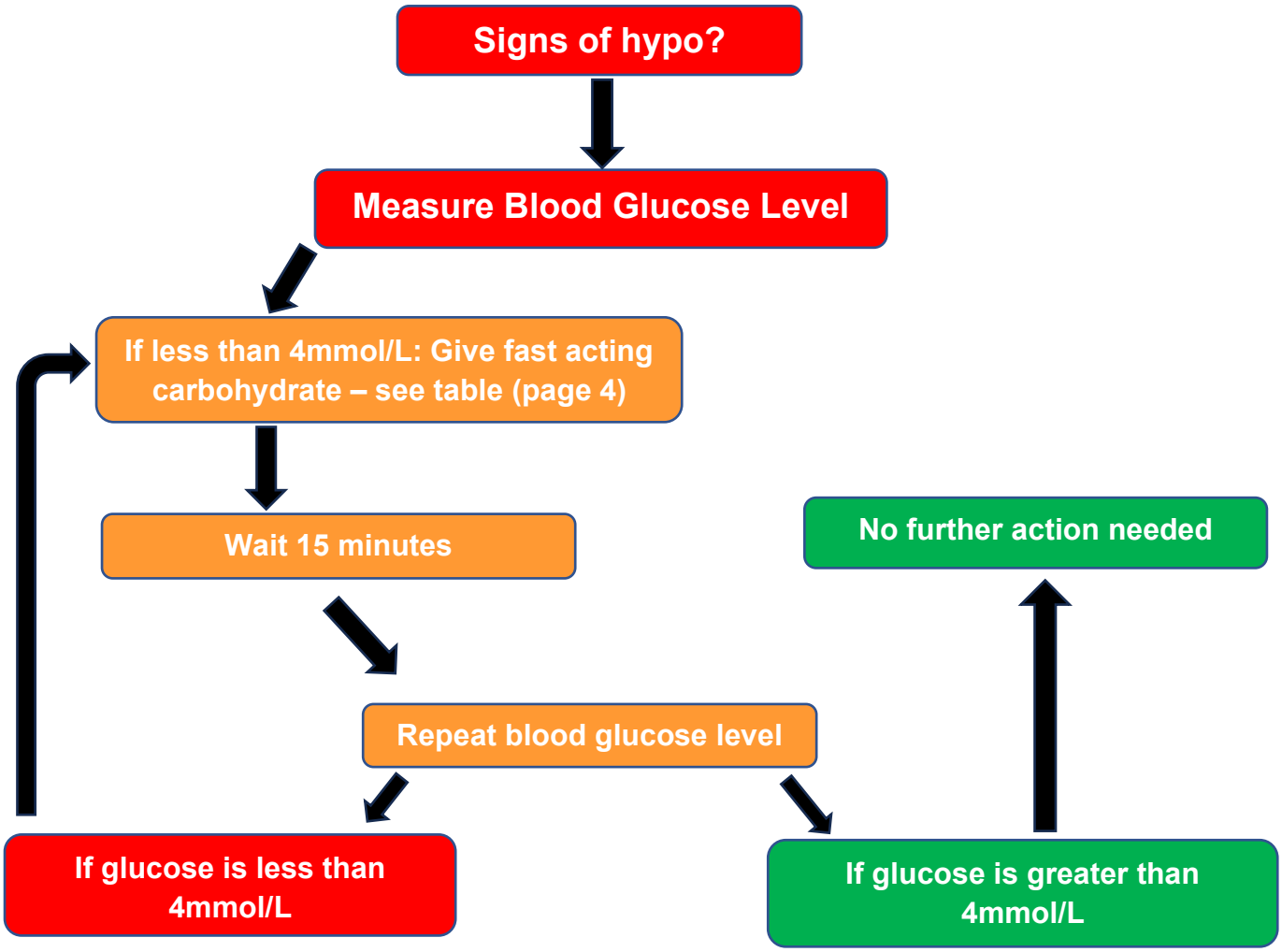
Causes of Hypoglycaemia

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 need **intramuscular glucagon.** This 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 need training on how to use glucagon.

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

	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)	1.5g	3g	4.5g	6g	7.5g	9g	1.5g	3g	4.5g	6g	7.5g	9g
LIFT GLUCOSE TABLETS 3.7g/tablet	NOT SUITABLE	1	1	1.5	2	2.5						
LIFT GLUCOSE SHOTS 15g/ 60ml	7.5ml	12.5ml	18ml	25ml	30ml	40ml						
GLUCOGEL 10g CHO/tube	¼ tube	¼ tube	½ tube	¾ tube	¾ tube	1 tube	¼ tube	¼ tube	½ tube	¾ tube	¾ tube	1 tube
DEXTROSE TABS 3g/tablet	NOT SUITABLE	1	1.5	2	3	3		When you are giving Glucogen 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	30ml	45ml	60ml	75ml	90ml						
LUCOZADE (Energy Original 9.2g/100ml)	NOT SUITABLE	35ml	50ml	65ml	80ml	100ml						
LUCOZADE (Energy Orange 8.4g/100ml)	NOT SUITABLE	40ml	55ml	70ml	90ml	110ml						
COLA 10.6g/100ml	NOT SUITABLE	25ml	45ml	55ml	70ml	85ml						
JELLY BEANS 2g/sweet	NOT SUITABLE	2	3	3	4	5						
JELLY BABIES 5g/sweet	NOT SUITABLE	1	1	1 ½	1 ½	2						
SKITTLES 1.1g/sweet	NOT SUITABLE	3	4	6	7	8						

Table created based on the advice from ACDC Omnipod 5 workbook, Omnipod 5 panther tool and ATTD AID consensus guide.

Only half the hypo treatment is needed when on a hybrid closed loop pump compared to multiple daily injections (MDI). The table (page 4) shows the correct amount of hypo treatment needed on HCL. The most effective hypo treatments (i.e. those with the fastest action) are highlighted in PINK in the left-hand column of the table.

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. Chocolate would **not** be a recommended choice of hypo treatment.

Hypo prevention is not needed when using a hybrid closed loop pump. However, if you are experiencing more than 3-4 hypos in a week please contact the team for advice.

Never omit the next dose of insulin following hypo treatment.

References

1. The ACDC Omnipod 5 workbook talks about hypo treatment on page 10: https://www.a-c-d-c.org/wp-content/uploads/2012/08/omnipod-5-hybrid-closed-loop-training-booklet-1.pdf.

2. The ATTD AID consensus guide also discusses hypo treatment under the section titled 'Clinical Recommendations for AID use' which can be accessed via this link: https://pmc.ncbi.nlm.nih.gov/articles/PMC9985411/#bnac022-s5.

3. The Omnipod 5 Panther Tool also discusses hypo treatment on page 6 and can be accessed via this link: https://www.omnipod.com/sites/default/files/Omnipod-5_Panther-tool-Flyer_UK.pdf.

How to contact us

West Herts Children and Young People's Diabetes (CYPD) Team
Children's Outpatients
Hemel Hempstead Hospital
Hillfield Road
Hemel Hempstead
Hertfordshire HP2 4AD

Tel: 01442 287425
Email: westherts.paediatricdiabetes@nhs.net
Hospital switchboard: 01442 213141

PALS

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

Author	Children and Young People's Diabetes Service
Department	Paediatric Diabetes
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