

## Patient information

# Hypoglycaemia (low blood sugar) & ketotic hypoglycaemia

### What is hypoglycaemia?

Hypoglycaemia is having a blood glucose (also known as blood sugar) level that is too low to provide energy for the body's cells.

### What is glucose?

Glucose is a sugar that is made from the breakdown of carbohydrates found in foods. It is the main source of fuel for the body (including the brain). It may be stored in the liver and muscles for later use, but spare glucose is converted to fat. The level of glucose in the blood is controlled by complex hormone and energy pathways.

### What is a healthy range for blood glucose?

The normal range of blood glucose throughout the day and night is around 3.3 – 6 mmols/L. However, this varies according to a number of factors; your child's doctor will talk with you about what should be a normal range for him or her.

### Why is hypoglycaemia a concern?

The brain depends on glucose, and too little can affect its ability to function. Severe or very prolonged hypoglycaemia could result in fits or serious brain injury. We think your child may be at risk of low blood sugar and you will have been given some advice and treatment to prevent this problem.

### Causes in young children

Single episodes:

- Sickness and diarrhoea, or another illness that may cause them to not eat enough.
- Fasting for a prolonged period of time.
- Prolonged exercise with lack of food.

Recurrent episodes:

- Ketotic hypoglycaemia.
- Medications your child may be taking.
- Congenital (present at birth) error in energy metabolism or unusual hormone problem (rare causes).

### What is ketotic hypoglycaemia?

This usually affects children between the ages of 6 months to 5 years. Children usually outgrow this condition from the age of 6 years, however this can vary. The body usually uses glucose as an energy source and this comes from the food we eat. Once this has been used the body will use stored

energy from the liver. After this the body will use stored fats to make energy, which need to be converted into ketones. This usually occurs during times of illness or fasting for longer than usual.

Ketotic hypoglycaemia is a disorder which occurs in young children generally following a period of time without food. Children with ketotic hypoglycaemia are more likely than others to have hypoglycaemia during illness, after having fasted (overnight, for example) and after strenuous exercise. They may be small and thin for their age and have less muscle mass than their friends.

When children become unwell, they are more likely to have hypoglycaemic episodes. Their body will make ketones as a normal response to the illness, however the ketones will build up and then make the child feel more unwell. Ketone levels will be tested with a fingerprick blood test or occasionally a urine sample. Other tests are usually done during the first or second episode to make sure your child does not have another reason for low blood sugars.

Treatment of this illness is simply making sure that your child avoids prolonged periods of fasting, particularly when they are unwell. Give them frequent, small meals and snacks, especially before bedtime. Bedtime snacks that are rich in carbohydrates e.g. milk, toast, cereal or banana can be given. If your child is underweight, nutritional supplements may be given.

Hypoglycaemia is more of a problem during acute illness when your child may not eat well and the body is under stress. We have given you instructions to make special energy drink. to give to your child when they are unwell to prevent their blood sugar falling.

### **Symptoms of low blood sugar**

While each child may experience symptoms of hypoglycaemia differently, the most common include:

- Shakiness and dizziness.
- Sweating.
- Hunger.
- Headache.
- Irritability.
- Pale skin colour.
- Sudden moodiness or behavioural changes, such as crying for no apparent reason.
- Clumsy or jerky movements.
- Difficulty paying attention, or confusion.
- Tingling sensations around the mouth.

If you notice these symptoms, you should give your child something to eat and start your special energy drink if they are unwell. If your child's hypoglycaemia is not severe, he or she should feel better within 10 to 15 minutes of eating or drinking something.

**If your child does not respond to having something to eat or is unable to eat or drink because they are too drowsy, refusing to eat or vomiting they should be taken immediately to hospital. If they are unconscious, call 999 for an ambulance.**

## **Feeding guidelines and use of glucose energy drinks for infants and children with recurrent hypoglycaemia**

### **Emergency Regimen (ER):**

**WARNING: We do not recommend that this written information is used unless you have also discussed how to use this treatment with your child's paediatrician and / or paediatric dietitian.**

### **How long can my baby fast (go without a feed) for?**

Your baby can fast for up to 6 hours, when they are well. As your baby gets older, they will be able to fast for longer. Newborn and young infants normally demand feed every 3 to 4 hours. When your baby begins to sleep longer at night, give a feed just before they go to bed, once during the night (you may need to wake your baby for this feed) and on waking in the morning.

### **What should I do if my baby will not wake for a feed during the night?**

If your baby will not wake or take a feed during the night and is fasting for longer than the recommended time, contact your hospital doctor for further advice.

### **What is the Emergency Regimen (ER)?**

This is a special feeding plan used if your baby/child is unwell and/or is not feeding well:

- Glucose polymer feeds are given to provide your baby/child with energy. The hospital will provide you with a tin of Super soluble Maxijul powder and a white scoop. Please ensure that the scoop is washed at home before using.
- These feeds are given frequently day and night.

### **When should I give the ER?**

Any time your baby is not feeding well, this is usually during illness.

- If you are unsure if your baby/child is unwell, give a glucose polymer feed and continue to assess.
- If your baby/child is definitely unwell, start the full ER of frequent glucose polymer feeds.

### **When should I contact the hospital doctor if my baby/child is on the ER?**

**Please seek urgent medical attention by attending the Emergency Department if:**

- Your baby/child is frequently vomiting or refusing to take ER feeds.
- Your baby/child has diarrhoea, unless very mild.
- Your baby/child is not improving on ER feeds.

### **Please dial 999 if:**

- **Your baby/child is drowsy, floppy, not responding normally ('glazed look').**

### **For infants age under 1 year:**

How do I make the ER feeds (10% Carbohydrate/Glucose Polymer)?

Super Soluble Maxijul powder:

Please sterilise the scoop with boiling water or cold sterilisation

4 level white scoops Maxijul or 20g Maxijul made up to 200mls with cool boiled water.



Suggested feed volumes for under 1 year of age:

- **Age 0-3 months:** Feed: 45-80ml every 2 hours or 70-120ml every 3 hours day & night.
- **Age 4-6 months:** Feed: 85-100ml every 2 hours or 130-150ml every 3 hours day & night.
- **Age 7-9 months:** Feed: 90-100ml every 2 hours or 130-150ml every 3 hours day & night.
- **Age 10-12 months:** Feed: 100ml every 2 hours or 150ml every 3 hours day & night.

**For over 1 year of age, please see advice in table:**

Age	ER Recipe	Suggested Volumes
1 -2 years	6 level white scoops Maxijul or 30g Maxijul made up to 200mls with cool boiled water ("No added sugar" fruit squash can be used to flavour the drink)	Aim for 1200ml in 24 hours. Offer 100ml every 2 hours or 150ml every 3 hours day & night
3 - 4 years	8 level white scoops Maxijul or 40g Maxijul made up to 200mls with cool boiled water ("No added sugar" fruit squash can be used to flavour the drink)	Aim 1300ml in 24 hours. Offer 100ml every 2 hours or 150ml every 3 hours day & night
5 -6 years	8 level white scoops Maxijul or 40g Maxijul made up to 200mls with cool boiled water	Aim 1500ml to 1600ml in 24 hours. Offer 130ml every 2 hours or 200ml every 3 hours day & night.
7 – 8 years	8 level white scoops Maxijul or 40g Maxijul made up to 200mls with cool boiled water	Aim 1700ml in 24 hours. Offer 135ml every 2 hours or 210ml every 3 hours day & night
9 – 10 years	8 level white scoops Maxijul or 40g Maxijul made up to 200mls with cool boiled water	Aim 1800ml in 24 hours. Offer 150ml every 2 hours or 220ml every 3 hours day & night.

### **How do I give the ER?**

Give the glucose polymer drink every 2 or 3 hours day and night.

For babies, first try to give your baby's usual formula. If this is not tolerated, give the ER feeds of glucose polymer. If your baby/ child is vomiting give the drinks as small frequent sips.

### **My baby is breast fed – how do I give the ER?**

Try to breast feed every 2 to 3 hours day and night. If your baby is not breast feeding well try giving ER feeds of glucose polymer from a bottle. If your baby refuses a bottle contact your hospital doctor or go to your local hospital.

### **When can I stop giving the ER feeds?**

As your baby/child starts to recover you can return to their normal feeds and routine. Try to do this within 48 hours of starting the ER feeds. When your child starts eating again you can give fewer ER drinks but continue some night drinks. ER drinks can be stopped once your child is eating normally again.

**If you would like any information regarding access to the West Suffolk Hospital and its facilities please visit the website for AccessAble (formerly DisabledGo) <https://www.accessable.co.uk>**



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