

Low Blood Glucose in Babies (Neonatal Hypoglycaemia) Parent Information

Kidz First Neonatal Care, Counties Manukau

Health New Zealand
Te Whatu Ora

This pamphlet is for parents of babies who are at risk of or who develop low blood glucose (“neonatal hypoglycaemia”). The information below will help you decide how to feed and treat your baby, should they develop hypoglycaemia.

Why is neonatal hypoglycaemia important?

In babies, glucose is the main energy source for the brain. If the blood glucose is very low or repeatedly low, the brain can be injured. In some babies, this may affect their development and learning in the long term.

It is not possible to know which babies with hypoglycaemia will have these long-term effects, so those at the highest risk are monitored after birth, and babies who develop hypoglycaemia are given treatment to correct the low blood glucose.

What causes neonatal hypoglycaemia?

During pregnancy, the mother provides the baby with glucose via the placenta. This glucose causes the baby to produce a hormone called insulin, which is important for promoting fetal growth. After birth, when the cord is cut, the baby needs to start making their own glucose, mainly using their fat stores. This is triggered by labour and birth, and a fall in the baby’s insulin level.

Neonatal hypoglycaemia occurs if a baby’s normal glucose production after birth is delayed. This can occur if the insulin level does not fall quickly enough. Hormones released during labour, and regular breastfeeding and colostrum also help to turn on the systems in a baby that make glucose.

How is hypoglycaemia detected?

A small amount of blood is used to measure glucose, which is obtained by pricking your baby’s heel. We know that it is difficult for babies to have frequent heel pricks, but this is currently the only way to accurately measure glucose in a baby.

In the first days after birth, the average blood glucose level in breastfed babies is 3.3 mmol/L. Hypoglycaemia is present when the glucose level drops below 2.6 mmol/L.



Which babies are tested for hypoglycaemia?

These babies are at highest risk of hypoglycaemia:

- Born preterm (before 37 weeks of pregnancy)
- Low or high birthweight
- Maternal diabetes, either before or during pregnancy

The above babies should have at least four blood glucose tests over the first 12 hours after birth to monitor for hypoglycaemia. Additional monitoring is needed if a baby develops hypoglycaemia and will be continued periodically until glucose levels are stable.

First-line treatment

If your baby develops hypoglycaemia, we first rub a small amount of glucose gel into your baby's cheek and give them an additional feed of your choice. For breastfed babies, this includes a breastfeed and giving colostrum by a syringe. The gel may be repeated after 30 minutes. If your baby is formula feeding, the feed volume will be increased.

If the blood glucose is very low (<1.2 mmol/L) or does not respond to the gel and feeding, admission to the neonatal care unit is recommended.

Treatments in Neonatal Care

If your baby is admitted to the neonatal care unit for hypoglycaemia, there are several treatment options available, depending on how you are feeding baby.

How should babies be fed?

How you feed your baby is your choice, although breastfeeding is recommended for all babies. If you are planning to exclusively breastfeed, we will work with you to help you achieve this whenever possible, even if your baby develops hypoglycaemia. Babies do not necessarily need formula to prevent or treat low blood glucose, although formula is often effective at correcting hypoglycaemia. If formula is started, it generally needs to be continued at discharge, which risks breastfeeding being unsuccessful.

Breastfeeding babies

If you are aiming to exclusively breastfeed, we will support this whenever possible. In many cases, this can be achieved with **medical treatment** of hypoglycaemia. This is a newer approach that attempts to reverse the underlying cause of hypoglycaemia. It involves using an oral medicine called **diazoxide**, which reduces the amount of insulin your baby makes, helping them to make their own glucose. Diazoxide is usually combined with an injection of a natural hormone **glucagon**, which also stimulates glucose production. If early medical treatment is successful, your baby may be able to be discharged back to the maternity ward quickly, sometimes by 6 hours. Babies typically only need diazoxide for 2 to 3 days, and it is usually stopped before you go home. All medicines have risks, but brief use of diazoxide and glucagon in otherwise well babies is very safe.



Medical treatment of hypoglycaemia is suitable when a mother can come to the neonatal care unit to continue breastfeeding. The baby must also be at least 2.5 kg and 36 weeks of pregnancy.

If a baby is not breastfeeding well or a mother is too unwell to come to the neonatal unit, an **intravenous drip** is usually inserted to give glucose fluids. The main disadvantage of starting intravenous glucose fluids is that insulin secretion is increased, which can cause rebound hypoglycaemia, and the duration of admission in neonatal care is increased (4 days on average). In some situations, diazoxide may be used to speed up coming off the drip.

Formula fed babies

In most cases, increasing the formula will correct and prevent hypoglycaemia. If this is unsuccessful, an **intravenous drip** is usually inserted to give glucose fluids to supplement formula feeding. Occasionally, diazoxide is recommended for formula fed babies.

Common questions

If I took insulin during the pregnancy, will this affect my baby's chance of having low blood glucose?

The mother's insulin does not cross the placenta. If you have diabetes, maintaining good blood glucose control during pregnancy, including use of insulin if required, will reduce the chance of your baby having hypoglycaemia.

If my baby goes to neonatal care, how long will they be admitted for?

If a baby starts an intravenous drip, the typical time in the neonatal care unit is around 4 days. If a baby is suitable for medical therapy and this is successful, they may be able to return to the maternity ward after 6 hours.

Why does my baby need repeat heel pricks?

Taking a blood sample from a heel prick is the only way that the glucose level can be measured accurately. Because babies' blood glucose levels can change quickly, it is important that the blood glucose is measured frequently until it is stable.

Quality improvement

Counties Manukau is running a quality improvement programme to ensure that babies with hypoglycaemia are always receiving the best treatments. We are regularly auditing outcomes and updating our practice accordingly. If you would like more information about the quality programme, please talk to a member of the neonatal team.