

Diabetes and pregnancy

Information for women with Type 1 or Type 2 diabetes

To give yourself and your baby the best start you can, you need a review of your diabetes and general health. This is provided by the diabetes team and if necessary the obstetric (pregnancy) team. This includes a pre-conception (before pregnancy) service led by a nurse specialist experienced in the care of pregnant women with diabetes. You should do this before you conceive. Speak to your GP, practice nurse or local diabetes team for a referral.

If you have any further questions, please speak to a doctor or nurse caring for you.

In this booklet we focus on the needs of those women who have Type 1 or Type 2 diabetes in pregnancy. A third type of diabetes, Gestational Diabetes (GDM), presents during pregnancy and usually goes away after the baby is born. Women who develop GDM are at high risk of developing Type 2 diabetes later in life but the risks can be reduced. Please speak to your GP or practice nurse if you would like more information on GDM.

Encourage your friends and family to read this booklet and help them to understand your diabetes and your pregnancy. Speak with your diabetes specialist team if you have any questions.

Read on for information about pregnancy with diabetes:

| | Page |
|--|------|
| Will I have a healthy baby? | 2 |
| What can I do to prepare for a healthy baby? | 2 |
| Your health before pregnancy | 3 |
| The diabetes antenatal clinic | 4 |
| Your diet during pregnancy | 4 |
| Your medication during pregnancy | 4 |
| What exercise can I do? | 5 |
| Summary of pregnancy and diabetes | 6 |
| Your baby | 7 |
| How will pregnancy affect me? | 8 |
| Insulin changes in pregnancy | 10 |
| What tests will I have during pregnancy? | 11 |
| Will I have a normal birth? | 12 |
| Will I be able to breastfeed my baby? | 14 |
| The future | 15 |
| Further information | 15 |

Will I have a healthy baby?

Yes. The majority of women with diabetes have healthy babies. Diabetes can be associated with pregnancy complications, but women with diabetes have an equal chance of having a healthy baby if conception occurs at a time when diabetes is tightly controlled and general health is good. It is highly recommended that women with diabetes plan their pregnancies to achieve the best outcome.

If you are already pregnant, NOW is the time to get your body on track. Don't panic! Your diabetes and pregnancy team will work with you towards the best outcome for you and your baby. Unplanned pregnancies are common and present an extremely difficult time for many women as they consider their options. If your usual diabetes care is with your GP you will need an immediate referral to the hospital based diabetes team.

The first eight weeks are when a baby's major organs develop so it is important to gain tight control of blood glucose levels as soon as possible.

What can I do to prepare for a healthy baby?

Six to 12 months before attempting to conceive, we advise women with diabetes to:

- Discuss your plans with your GP or practice nurse.
- Attend a pre-pregnancy counselling session at a specialised diabetes and pregnancy clinic.

Most pre-conception care for women with diabetes occurs in the hospital setting. In this area pre-pregnancy clinics are held in the diabetes centres at Guy's and St Thomas' and King's College Hospitals.

Members of your diabetes and pregnancy team who will help you plan your healthy pregnancy will generally include a;

- GP/ practice nurse
- diabetes specialist nurse/ diabetes dietician
- diabetes specialist doctor
- specialist obstetrician/ midwife.

Blood glucose levels

Optimum blood glucose control at the time of conception and during the first two months of pregnancy is a major factor in preventing miscarriage and birth defects in your baby. We recommend that where possible, women planning pregnancy maintain an HbA1c less than 7% (53mmol/mol) before pregnancy. We also discuss how best to achieve target blood glucose levels at the pre-conception clinics. Work with your team to get the best blood glucose that you can.

Helpful Hint: Take your blood glucose monitoring equipment to appointments with your diabetes specialist nurse or diabetes specialist to check that it is working accurately and is up to date and to download the results to help you easily review blood glucose patterns.

Your health before pregnancy

Smoking and alcohol

Smoking increases the risk of damage to blood vessels in the heart, brain, feet and kidneys, especially in people with diabetes. Smoking also harms the development of your unborn baby. If you would like to give up smoking, please speak to your diabetes team or call the Trust stop smoking service on **020 7188 0995**, or call the **NHS Smoking Helpline** on **0300 123 1044**.

Recreational drugs and alcohol should also be avoided as they increase the risk of miscarriage and damage to your baby.

Contraception

Contraception enables you to plan the timing of your pregnancy around your general health, blood glucose control and social circumstances. There is no single method of contraception perfect for everyone. Different methods suit different people and you should discuss the advantages and disadvantages of each with your GP.

Blood pressure

Speak with the diabetes team or GP before pregnancy if you have high blood pressure, especially if you take medicine to treat it. High blood pressure increases the chance of certain problems in pregnancy for you and your baby, and needs special attention.

Complications screening

Before conceiving or as soon as possible after, it is important to have your eyes, kidneys and nerves tested for any complications associated with diabetes.

Your diabetes team will ask you to supply a urine sample to check the amount of protein passing through your kidneys as well as the presence of a urinary tract infection (UTI).

Your feet will be tested for any nerve damage, using simple physical examinations such as a 'monofilament' (a plastic straw that measures pressure sensation).

An appointment will be made to photograph and examine the back of your eyes, to check for any growth of irregular blood vessels – this is common in both Type 1 and Type 2 diabetes and is treatable. This will be done by the Diabetes eye complication screening service (DECS). The back of the eye is checked every three months (trimester) during pregnancy.

If you have diabetic retinopathy (damage to the back of the eye) your eyes may worsen during pregnancy but after the birth they usually return to the stage they were at pre-pregnancy.

ACTION: Thinking about having a baby?

- Visit your GP for: referral, blood tests, contraception advice.
- Meet your Diabetes and Pregnancy Team for pre-conception advice.
- Folic acid 5mg supplements once a day.
- If you smoke, visit your GP/Practice nurse for support to help you to stop.
- Try to lose weight if appropriate.

The Diabetes Antenatal clinic

When your pregnancy is confirmed ring the diabetes department to make an appointment in the Diabetes Antenatal clinic, phone 020 7188 1993.

The clinic is held every Wednesday afternoon and is staffed by the diabetes team, the Thames midwives team, and the specialist obstetrician (specialist pregnancy doctor) and midwife. Having all these specialists available together, in one clinic, means that the teams are able to support you in an integrated way. You will need regular support to manage your diabetes during pregnancy, most women attend this clinic every two weeks.

Your diet during pregnancy

It is important to have a healthy, balanced diet before pregnancy. We recommend that all women planning a pregnancy have an appointment with a dietitian specialising in diabetes.

There are aspects of your diet that are important in pregnancy including energy, protein, iron, calcium and folic acid and Vitamin D. The dietitian will also tell you about which foods are best avoided in pregnancy.

Your medication during pregnancy

Folic acid (Folate)

Folate is a vitamin that is very important to prevent certain birth defects of the brain and spine. Most women can meet their daily requirements from a varied diet including green leafy vegetables, fruit, breads and cereals, nuts and legumes. It is recommended that all women of childbearing age planning to conceive take a folic acid supplement. Babies of women with diabetes are at higher risk of brain and spine defects, therefore women with diabetes should take a higher dose of folic acid supplement (5mg once a day) from at least one month before pregnancy and throughout the first trimester (first three months of pregnancy). You will need a prescription for folic acid 5mg from your GP.

Vitamin D

10 micrograms (400 units) of vitamin D once a day is commenced throughout your pregnancy and during breast feeding. This helps provide your baby with enough vitamin D for the first few months of its life. Vitamin D is important for healthy bone development. Vitamin tablets for pregnancy that can be bought from the pharmacy, or supermarket usually contain this amount, you can also buy plain vitamin D tablets or capsules.

Aspirin

Aspirin 75mg once a day is routinely prescribed for women with diabetes as it has been shown to reduce the risk of pre-eclampsia. It will be commenced early in pregnancy and continue through pregnancy.

Diabetes tablets

If you are taking tablets to control your diabetes before pregnancy, it is important that you discuss your plans to become pregnant with your GP or diabetes specialist. Some medications for diabetes are not recommended in pregnancy and your treatment regimen may be changed to insulin and/or tablets. If you are taking metformin tablets they will be continued, or may be started if your blood glucose readings are above the target range. Women with type 2 diabetes commonly require both metformin tablets and insulin during pregnancy.

Insulin

Most women with diabetes will need insulin treatment before and during pregnancy. To achieve the best possible glucose control we usually recommend that insulin is injected several times a day. This includes injections with each meal and often at night and/or first thing in the morning.

Insulin pumps

Some women use insulin pumps rather than multiple daily injections. Pumps continuously deliver a small amount of quick-acting insulin, and allow the wearer to deliver additional doses when they eat. Pumps are worn constantly, with a small plastic cannula (tube) inserted with a needle under the skin. The cannula is changed every two-three days.

Other medicines

Every medicine that you are taking, including those for lowering cholesterol and blood pressure must be reviewed before pregnancy or as soon as possible after you find out you are pregnant. Some medicines may need to be stopped or the doses changed while you are pregnant.

What exercise can I do?

Women with diabetes benefit from regular exercise in pregnancy. Physical activity is a way to relax and spend time with friends, as well as an essential tool for diabetes control. Pregnancy is not the time to begin a vigorous new exercise routine but swimming, for example, is a great activity to support your abdominal muscles during pregnancy. Specific exercise activities are best discussed with the obstetrician or midwife.

Enjoy walking or swimming by incorporating activity into your daily routine.

Hard work but worth it!

Achieving very tight blood glucose control before conceiving, then maintaining it through the early stages of pregnancy as your body undergoes tremendous changes, can be extremely stressful and demanding for many women. For others, everything seems to fall into place when they become pregnant and it is smooth sailing.

This is likely to be a very challenging period of your life. We encourage people to be open and discuss their needs and concerns with partners and close friends and relatives. Be sure to seek the support and understanding that you need from people close to you as well as from health professionals.

Summary of pregnancy and diabetes

The following is a guide only. The tests and other care that you need will depend on your individual situation, and your doctor and nurse specialist will discuss this with you in more detail.

In general women with established diabetes are seen every 1-2 weeks and have very regular contact with the diabetes specialist nurse. You will see either an obstetrician (specialist pregnancy doctor) or midwife approximately every four weeks during your pregnancy and this will increase in the last three months of your pregnancy (3rd trimester). Your schedule of care for appointments will be arranged and discussed with you at your initial booking appointment.

| | |
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| Pre Pregnancy (3 months) | Meet your diabetes and pregnancy team <ul style="list-style-type: none"> • 5 mg folic acid (folate) once a day • Contraception • HbA1c < 7% (53mmol/mol) a measure of blood glucose levels over previous three months • Tests: Thyroid Function, diabetes review and coeliac screen if you have type 1 diabetes • Medication review • Dietitian Review |
| Conceive | |
| Confirm Pregnancy | Visit diabetes / ante-natal team. Phone 020 7188 1993 to make an appointment as soon as you know you are pregnant. <ul style="list-style-type: none"> • If you are already taking insulin make a note of pre-pregnancy insulin doses because you may need them to hand after birth • Commence Aspirin 75mg once daily • Blood tests • Book combined diabetes/ ante-natal clinic appointment and eye photograph appointment. • Blood Glucose review, adjust insulin / tablets • Glucagon Hypokit prescription, and training for partner • Adequate diet for pregnancy • Arrange booking appointment with specialist midwifery team (Nuchal scan will be arranged at the midwifery booking visit) |
| 12 - 16 weeks | Ante-natal screen <ul style="list-style-type: none"> • Nuchal scan (screening tests assessing risk for Down's syndrome) • Book anatomy ultrasound scan • Blood glucose review, adjust insulin / tablets • 2nd trimester eye photograph appointment arranged • Midwife & obstetric review |
| 18-22 weeks | Anomaly ultrasound scan (foetal heart scan in the Evelina London hospital) <ul style="list-style-type: none"> • Obstetric doctor to review scan results • Blood glucose review, adjust insulin / tablets • Midwife review at 20 weeks |

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|-------------------------------------|--|
| 24-34 weeks | Antenatal visits <ul style="list-style-type: none"> • Blood glucose review adjust insulin / tablets • 3rd Trimester eye photographs arranged • Growth scans around 28 and 32 weeks gestation • Midwives & obstetric team • Parent education classes with midwives |
| 36 weeks | Antenatal visits <ul style="list-style-type: none"> • Blood glucose review, adjust insulin / tablets • Diabetes birth plan with diabetes team • Delivery birth plan with obstetric team • HbA1c • Final Growth ultrasound around this time |
| Labour & Birth | Delivery at 38 weeks |
| | <ul style="list-style-type: none"> • Diabetes team are available for blood glucose supervision • Labour and birth care provided by midwives and obstetric team |
| Lactation/ Breastfeeding | Midwife <ul style="list-style-type: none"> • Reduce insulin / tablets according to Diabetes team plan • Hypo food – make sure its always available |

Your baby

Glucose can freely cross the placenta to the baby during pregnancy but insulin does not. Your baby stores the extra glucose and may grow more rapidly than babies of women without diabetes. Your baby will produce its own insulin from about 15 weeks' gestation.

High blood glucose levels in you, the mother, will result in high blood glucose levels in your baby. This stimulates your baby's pancreas to make extra insulin, which can make your baby grow bigger and faster than necessary. A large baby, born at term or prematurely, may have low blood glucose levels (hypoglycaemia) at birth as it continues to make extra insulin for a day or two. Your baby could also have trouble with feeding, breathing and other medical problems.

Maintaining your blood glucose levels during pregnancy and labour will reduce the risk of all these problems. However, some babies still have problems, just like babies of some women without diabetes.

Will low blood glucose levels affect my baby?

Your low blood glucose levels do not affect your baby, like they do you. When your blood glucose level drops low it only affects your brain cells, not your baby's. Your baby is able to maintain his/her own blood glucose by releasing glucose from his/her own liver if the amount of glucose you have is too low.

Can my baby be born with any abnormalities?

Rarely, congenital (structural) abnormalities in babies do occur. Damage to the heart, spine and kidneys may occur during early developmental stages of pregnancy, often before you realise you are pregnant.

To reduce your chance of miscarriage, and of your baby developing abnormalities, it is important to test and keep blood glucoses within the normal healthy range (4 - 7mmol/L and HbA1c less than 7% (53mmol/mol) for three months before conception and throughout your pregnancy.

Will my baby be born with diabetes?

No. Your baby will not be born with diabetes. If you have Type 1 diabetes the chance of your children developing Type 1 diabetes in the future is only five in 100 children and is actually greater (seven in 100 children) if the father has Type 1 diabetes.

How will pregnancy affect me?

Changes to hypoglycaemia (low blood glucose)

Insulin requirements change in early pregnancy (see page 10) and this can lead to severe hypos. Many women also notice that their early warning signs for hypos, such as feeling shaky or sweating, change or disappear completely in pregnancy. This means that hypos often happen fast and without enough warning for you to treat the early symptoms.

Glucagon hypokit

Your partner and family are invited to meet with your diabetes specialist nurse for an information session on when and how to treat hypoglycaemia including the use of Glucagon in an emergency.

Glucagon is an injection into the muscle that can be used to reverse hypoglycaemia in someone who has lost consciousness. It assists your body to release glucose stored in your liver and raises your blood glucose levels quickly

ACTION:

1. Get in the habit of carrying a supply of hypo food such as glucose tablets or jelly babies with you at all times.
2. Check your Glucagon Hypokit is in date and ask your GP for a prescription if needed.

Infection / colds / flu

Just as before pregnancy, illnesses such as colds and infections can cause your blood glucose levels to rise. During pregnancy, you will need to be particularly careful if this occurs. All pregnant women in the UK are advised to have influenza vaccine before the flu season starts.

Helpful hints for infection, colds or flu:

- Check your blood glucose levels more frequently when you are unwell.
- Take your insulin / tablets – you may need to increase your insulin dose when unwell to control blood glucose levels and prevent ketones.
- If you have Type 1 diabetes Check your urine or blood for ketones.
- Call your doctor or diabetes team if
 - your urine has more than one plus (+) of ketones
 - you are vomiting or unable to eat or drink
 - you are worried about high blood glucose levels.
- See your GP to establish the cause of the illness.

If you are vomiting so much that you cannot keep food or fluids down, call your doctor or diabetes team immediately or go to an Accident and Emergency Department.

Ketoacidosis and high blood glucose levels in women with Type 1 diabetes

Body cells that are unable to use glucose for energy breakdown fats instead to form ketones, which you can detect in your urine. For people with Type 1 diabetes, high blood glucose and ketones can lead to a serious condition called ketoacidosis which needs treatment in hospital.

Ketoacidosis may occur when you are unwell, forget your insulin or don't take enough insulin. Frequent testing of blood glucose and increasing insulin doses when you are sick, can prevent this. Ketones should be monitored by testing your urine, or some people test their blood for ketones – Ketone testing strips are available on prescription.

Complications

Certain complications of long-term diabetes are aggravated by pregnancy, for example renal damage (kidneys) and retinopathy (eyes).

Your doctor will request a baseline screening before pregnancy to establish if any complications are present. If complications are present, they need to be closely monitored throughout your pregnancy. In most cases, any deterioration of eyes or kidneys during pregnancy resolves after your baby is born. If complications are advanced, it is important to have an individual assessment of your capacity to carry a child, as pregnancy does put additional stress on your body.

Morning sickness

Especially during the first 12 weeks of pregnancy, some women feel sick first thing in the morning, some in the evenings; others feel sick all day long and may vomit.

Helpful hints for morning sickness:

- Keep drinking fluids - sip on drinks such as regular flat lemonade, diluted cordial or fruit juice if you cannot face solid food to avoid hypoglycaemia.
- Eat small, frequent meals - talk to your diabetes team about changing insulin doses to cater for this.
- Avoid strong food odours and rich, fatty foods.
- Snack on something like dry toast or plain biscuits before getting out of bed, if mornings are a problem.
- Salty foods may help – try small amounts of potato crisps or salty crackers.
- Some women find ginger tea to be useful.
- Always take your insulin, but you may need to lower your dose.
- Some women require anti sickness medication when symptoms are severe.

Pre-eclampsia

Pre-eclampsia is a very important complication of pregnancy which is diagnosed if you develop high blood pressure, swelling and protein in the urine. It occurs more frequently in women with diabetes and is a major cause of premature birth. Pre-eclampsia may be dangerous for you and your baby. Your doctor or team will check your blood pressure and urine, and look for swelling in your face, hands and feet at each visit. Aspirin 75mg once a day reduces the risk of pre-eclampsia.

Insulin changes during pregnancy

The diabetes team will discuss with you ideal blood glucose targets. In general the targets for blood glucose levels during pregnancy are:

| | |
|-----------------------------|---------------------------------|
| Before breakfast (fasting) | 2 hours after each meal |
| Less than 5.5 mmol/L | Between 4 and 7.0 mmol/L |

Insulin requirements change constantly throughout pregnancy as your baby grows and placental hormones take effect. You need to be prepared to adjust your insulin doses on a daily or at least weekly basis. It is important that you understand the action of each of your insulins so you can adjust your doses effectively.

After the birth of your baby your insulin requirements will drop back to your pre pregnancy dose. You may even need less, especially if you are breastfeeding.

ACTION:

- Record your pre pregnancy insulin requirements so you have them to hand to use immediately after birth.
- Record all your pre pregnancy insulin pump settings so you have them to hand to reset your pump immediately after birth.
- Record the name and dose of the diabetes tablets you were taking before pregnancy in case you need to restart them after birth.

Early pregnancy

Many women find it extremely challenging to maintain optimal blood glucose levels in this early stage of pregnancy as your body is undergoing so many hormonal and physical changes.

Women with Type 2 diabetes are advised to discuss their medication with their diabetes team. Some women will need to change their diabetes tablets and / or start insulin injections during pregnancy.

Insulin needs for women with Type 1 diabetes often decrease in the early stages of pregnancy, between 6 and 16 weeks gestation. This may cause severe 'hypos' (low blood glucose) to occur, sometimes without warning. Preventing a hypo is better than treating one. An important tip is to not miss any meals and snacks. It is essential that you make a habit of carrying hypo food such as glucose tablets or jelly babies and a carbohydrate snack with you at all times so that you can treat a hypo quickly.

ACTION:

1. Check you have a Glucagon Hypokit and make sure it's in date, and your partner or those you live with know how to use it!
2. Carry glucose tablets, jelly babies or sugary sweets with you at all times.
3. Keep Lucozade and dry biscuits by your bed.
4. Make a plan with your team - times and number of blood glucose tests you do each day or week.

Mid-pregnancy

From 20 weeks gestation, your insulin needs begin to rise, until you may need two or three times your pre-pregnancy dose. The placental hormones interfere with the way your insulin normally works, directing food to your baby. It is normal to need more insulin to allow food to pass into your own body cells.

Birth

Once your baby is born, your insulin requirements will go back to normal on delivery of the placenta.

Breastfeeding may cause your insulin needs to decrease again – please see page 14 for more information.

What tests will I have during pregnancy?

Throughout your pregnancy, your health team will order tests to check your general health and the well being of your baby.

Blood tests

- Haemoglobin level to make sure you are not anaemic.
- Thyroid function tests.
- HbA1c – blood glucose average over the last three months. It is critical to aim for less than 7% (53mmol/mol) to ensure the risk of your baby being born with abnormalities is just the same as women without diabetes.
- Your obstetric team will order further blood tests at your booking appointment.

ACTION:

Ask your health care team for the results of all your blood tests when you are planning pregnancy and during your pregnancy so that you can track your own progress.

Ultrasound scans

Ultrasound scans are used to identify foetal abnormalities and assist risk calculations for genetic disorders in your baby. You will be offered an ultrasound at:

- 11-13 weeks: Nuchal Scan (to check for abnormalities)
- About 20 weeks: Anomaly scan (to check for physical abnormalities)
- About 20-22 weeks: Fetal cardiac scan (to check the structure and development of the baby's heart)

You will generally be asked to have more scans around 28, 32 and 36 weeks to monitor your baby's growth and general condition.

Urine tests

You will be asked to give a urine sample at each visit during your pregnancy. This is tested for ketones and protein. Protein may suggest that the pregnancy has affected your kidneys, or that you have a urinary tract infection or that you are developing a pregnancy complication called 'pre-eclampsia' (see page 9).

Blood glucose after meals

Together with your regular monitoring of blood glucose levels throughout the day, you will be asked to do tests two hours after each meal. You will probably not have to do this before. These extra tests will help you and your doctor gain a more thorough understanding of your blood glucose levels and adjust your insulin to attain the best control of your diabetes.

Will I have a normal birth?

In the UK women with diabetes are advised to have their baby between 38-39 weeks gestation. Reasons for this include the size and maturity of the baby, development and maturity of the placenta and problems with blood pressure or glucose control.

Many women with diabetes do have a vaginal birth, though there is an increased chance for women with diabetes to have a caesarean section. Your doctor and midwife will discuss your own circumstances with you to plan for the birth of your baby.

Induction of labour

You may be offered an induction of labour which means helping your body to start labour at an earlier time to reduce certain risks to you and your baby. An induction can be performed several ways; sometimes a combination of two or more ways.

- Pessary / gel induction – a pessary or gel is inserted into your vagina to assist the cervix to 'ripen' and open. This in turn tells your uterus to start contracting. Some women need more than one pessary or gel before labour begins.
- Break waters (Artificial Rupture of the Membranes - ARM) – the bag of fluid around your baby is gently broken using an 'amnihook', which looks like a long crochet hook. The gush of fluid may encourage your uterus to start contractions.
- Oxytocin (Syntocinon infusion) - an intravenous (IV) line ('drip') is inserted into a vein in your arm and this hormone is slowly delivered into your blood to assist your uterus to start contracting. The IV may be used alone or with a pessary/gel induction.

Monitoring and place of birth

It is recommended that women with diabetes have their baby in the medical unit (Hospital Birth Centre - HBC) in view of the equipment and monitoring required. There is also easier access to specialist midwives, doctors and neonatal (baby) doctors available if required.

It is important to discuss what is important to you and your birth plan in the antenatal period to assist with preparation for birth and your midwife will be able to do this with you. Please do write any questions down so you have them to hand during your appointments.

Diabetes management during labour

Control of blood glucose levels during labour helps your baby to have better blood glucose levels at birth. The mother's blood glucose levels immediately before the birth have an important effect on the baby's health. Mother and baby will have the same blood glucose level at the time of birth. The baby will be producing its own insulin so that once outside its mother there is a risk that too much insulin is being produced and the baby may experience hypoglycaemia (see section on breastfeeding on page 14). 'Normal' blood glucose in the mother during labour decreases the risk of your baby having low blood glucose at birth.

ACTION:

- Speak with your midwife or obstetric team before labour about pain relief options, diabetes management and any other questions or concerns you may have.
- Book with your midwife to attend antenatal classes.

Women who have Type 1 and women with Type 2 diabetes who have any reading above 6mmol/l once labour is established are usually managed with an insulin and glucose intravenous (IV) drip throughout labour, which allows small amounts of insulin to run into your blood continuously (a “sliding scale” or Variable Rate Intravenous Insulin Infusion, VRIII). This way, your blood glucose levels can be adjusted and maintained within the normal range much more simply. Whilst in labour, you will have your blood glucose tested frequently to adjust the insulin dose. You are advised to take your own equipment to hospital and you are encouraged to continue your own testing and insulin injections whenever possible.

The birth

Your baby will be examined in the room with you after the birth. If your blood glucose levels have been stable during pregnancy and labour, and your baby has no problems, your baby will go with you to your ward.

If your baby is born prematurely, or is having breathing problems, or has low blood glucose, a neonatologist (a doctor with specialist training in the care of newborn babies) may recommend your baby be observed in the Neonatal Unit. Nursing staff often have instant cameras, so ask for a photo of your baby if you are separated from him/her.

Blood tests on your baby

Your baby will be tested for LOW blood glucose at three hours after birth and then before feeds every three hours until they are consistently above 2.6mmol/L. If your baby's blood glucose level is less than 2.6mmol/L, your midwife or doctor may suggest your baby have supplementary feeds. If your baby has consistently low blood glucose admission to the Neonatal Unit may be recommended. Talk to your midwife about using your own milk which you can even express before your baby is born.

Your baby may have produced extra insulin to compensate for any excess glucose passed across the placenta during labour. Your baby's pancreas usually needs 24 to 48 hours to adapt and return to normal insulin production. This does not mean your baby will develop diabetes in the future.

We encourage breastfeeding within 30 - 60 minutes of birth to reduce the risk of your baby experiencing low blood glucose levels. Regular feeds, every three to four hours, on the first day, will also assist your baby to maintain blood glucose levels above 2.6 mmol/L.

ACTION:

Talk with your midwife about breastfeeding, hand expressing and preventing low blood glucose levels in your baby at birth.

Will I be able to breastfeed my baby?

Yes. Your baby's blood glucose will benefit from an early breastfeed (within 30 minutes of birth) to prevent hypoglycaemia. There are also many other proven benefits to your child's health to be gained through breastfeeding including immunity from infections. Talk to your midwife about ways to enhance successful breastfeeding. Your midwife will discuss hand-expressing breast-milk in later pregnancy to reduce the need for your baby to have artificial milk.

Breastfeeding takes a lot of energy from you and increases the risk of hypos when you are taking insulin. Be ready to reduce your insulin doses quickly if hypos occur. Do discuss these issues with the diabetes team. Women with Type 2 diabetes, who did not require insulin before pregnancy, may not need insulin at all after your baby is born. Monitoring your blood glucose regularly will help you and the diabetes team decide on your ongoing diabetes treatment.

ACTION:

1. Set up a comfortable area where you will sit to feed your baby with snacks on hand in case you feel low.
2. Test your blood glucose before and after a feed to see how your levels drop.

If you don't have your baby with you, ask your midwife about expressing within the first four hours of your baby's birth. Your breasts make milk on a supply and demand basis. If you express, your breasts will keep producing milk to give to your baby.

The initiation of breast milk or 'milk coming in' (usually on day three) may be delayed for 24 to 48 hours in some women with Type 1 diabetes.

As your blood glucose levels may fall rapidly during and following breastfeeding, just like any other physical activity, you may need to:

- Snack before or whilst breast feeding – for example, fruit, crackers, a sandwich.
- Treat yourself immediately should a 'hypo' occur.
- Drink at least two litres of sugar free fluid each day.
- Develop a routine for feeding your baby, so you are able to have your meals on time and reduce your risk of hypos.
- Controlling blood glucose levels will help ensure a good milk supply.
- Test your blood glucose after a feed, especially during the night, to avoid nocturnal (night-time) hypos.

If you are having trouble with breastfeeding, your baby is losing weight, is continuously unsettled or has few wet nappies, contact your GP, Health Visitor or post-natal team.

ACTION:

- Talk to your team about setting new blood glucose goals and insulin adjustments during breastfeeding.
- Talk to your midwife about successful breastfeeding strategies.
- Ask about storing breast milk to complement feeds if necessary.
- Attend local breast feeding support services, ask your midwife for details.

The future

Pregnancy is a good time to update your family about your diabetes and how you can manage it well. It is vital to achieve optimal blood glucose control to prevent long-term complications of diabetes. High blood glucose levels over a period of time will affect your eyes, kidneys, nerves and blood vessels, and may lead to blindness, kidney failure, foot problems and heart disease.

Follow up appointments with the diabetes consultant will be arranged for you approximately eight weeks after the birth of your child, if you haven't received an appointment phone 020 7188 1993

Keep yourself healthy with the lifestyle and diabetes management techniques you have developed and enjoy your new child!

ACTION:

- Talk to your diabetes specialist team about regular screening for diabetes complications.
- Review your contraception, whether you intend to have another child or not.
- Make a date with the diabetes team or doctor when planning your next baby
- Book to attend the diabetes pre conception clinic when planning for your next pregnancy.

Further information

- **Pregnancy & diabetes**

Diabetes UK

Tel: **0845 123 2399**

www.diabetes.org.uk

- **NHS Choices**

<http://www.nhs.uk/Conditions/pregnancy-and-baby/pages/diabetes-pregnant>

The Trust produces other information leaflets which you may find useful:

- Preparing for your stay at Guy's or St Thomas' Hospitals
- Your outpatient visit to Guy's or St Thomas' Hospitals
- Having an anaesthetic
- Induction of labour
- Elective caesarean section
- Coping methods and options for pain relief in labour
- Screening for Down's, Edwards' and Patau's syndromes
- Birth options after previous caesarean section

Please ask a member of staff for a copy or you can find some of them on our website at www.guysandstthomas.nhs.uk

This is just a selection of the information available. If you would like information leaflets on other topics, please ask the staff. For more information leaflets on conditions, procedures, treatments and services offered at our hospitals, please visit www.guysandstthomas.nhs.uk/leaflets

This booklet has been adapted for the UK, and reproduced with permission, from the second edition of ***Can I Have a Healthy Baby?*** published in 2005 by The Australasian Diabetes in Pregnancy Society (www.adips.org), Diabetes Australia – Victoria (www.dav.org.au) and Reality Check - young adults with diabetes Inc. (www.realitycheck.org.au).

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Pharmacy Medicines Helpline

If you have any questions or concerns about your medicines, please speak to the staff caring for you or call our helpline.

t: 020 7188 8748 9am to 5pm, Monday to Friday

Your comments and concerns

For advice, support or to raise a concern, contact our Patient Advice and Liaison Service (PALS). To make a complaint, contact the complaints department.

t: 020 7188 8801 (PALS) **e:** pals@gstt.nhs.uk

t: 020 7188 3514 (complaints) **e:** complaints2@gstt.nhs.uk

Language and Accessible Support Services

If you need an interpreter or information about your care in a different language or format, please get in touch:

t: 020 7188 8815 **e:** languagesupport@gstt.nhs.uk

NHS 111

Offers medical help and advice from fully trained advisers supported by experienced nurses and paramedics. Available over the phone 24 hours a day.

t: 111

NHS Choices

Provides online information and guidance on all aspects of health and healthcare, to help you make choices about your health.

w: www.nhs.uk

Get involved and have your say: become a member of the Trust

Members of Guy's and St Thomas' NHS Foundation Trust contribute to the organisation on a voluntary basis. We count on them for feedback, local knowledge and support. Membership is free and it is up to you how much you get involved. To find out more, and to become a member:

t: 0800 731 0319 **e:** members@gstt.nhs.uk

w: www.guysandstthomas.nhs.uk/membership

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