

Diabetes in pregnancy

Information for the public

Published: 25 February 2015

nice.org.uk

About this information

NICE guidelines provide advice on the care and support that should be offered to people who use health and care services.

This information explains the advice about diabetes in pregnancy that is set out in NICE guideline NG3.

This is an update of advice on diabetes in pregnancy that NICE produced in 2008.

Does this information apply to me?

Yes, if:

- you have diabetes and are planning to get pregnant or are pregnant
- you develop diabetes while you are pregnant (called gestational diabetes).

You should be offered the care described in this guideline whatever your age.

NICE has produced separate guidance about care for women during pregnancy and during and after birth – see [other NICE guidance](#) for details.

About diabetes in pregnancy

Around 1 in 20 women who give birth in the UK each year either have diabetes before they get pregnant or develop diabetes during their pregnancy (known as gestational diabetes). Most of these women will have healthy pregnancies and healthy babies if their diabetes is well controlled. But if you have diabetes there is a higher chance of health problems for you and your baby both during pregnancy and during and after the birth. You will be offered extra care and support to manage your diabetes and reduce the risks to you and your baby.

Your care team

A range of professionals who specialise in different areas of treatment or support may be involved in your care. These will include both specialists in diabetes and specialists in pregnancy and birth. Your care team will include hospital doctors, midwives, specialist diabetes nurses and dietitians, as well as your GP, and you may also see other healthcare professionals.

Working with you

Your care team should talk with you about your care when planning pregnancy (if you already have diabetes) and during pregnancy and birth. They should explain any tests, treatments or support you should be offered so that you can decide together what is best for you. Your family or carer can be involved in helping to make decisions, but only if you agree. There are questions throughout this information that you can use to help you talk with your care team.

You may also like to read NICE's information for the public on [patient experience in adult NHS services](#). This sets out what adults should be able to expect when they use the NHS. We also have more information on the NICE website about [using health and social care services](#).

Some treatments or care described here may not be suitable for you. If you think that your treatment does not match this advice, talk to your care team.

Using this information

Much of the care for women with diabetes who are having a baby is the same whether they already have diabetes before getting pregnant or develop diabetes during pregnancy (gestational diabetes). But there are some differences, which are described in this information.

- If you already have diabetes before getting pregnant, see [women who already have diabetes and care for all women with diabetes during pregnancy and during and after the birth](#).
- If you are being tested for and/or are diagnosed with gestational diabetes, see [women who develop diabetes during pregnancy and care for all women with diabetes during pregnancy and during and after the birth](#).

Women who already have diabetes

The next few sections explain what you and your care team should do if you have diabetes and are planning to try for a baby:

- [Contraception and planning pregnancy](#)
- [Preparing for pregnancy](#)
- [Your blood glucose levels before pregnancy](#)
- [Your medication before and during pregnancy](#)
- [Checking for complications of diabetes before pregnancy](#)

See also [care for all women with diabetes during pregnancy and during and after the birth](#) for information about care when you are pregnant.

Contraception and planning pregnancy

Contraception

If you have diabetes, your care team should give you information from puberty onwards about why it is important for you to avoid an unplanned pregnancy. They should talk with you and help you choose the best contraception for you. You can use the oral contraceptive pill if you have diabetes, unless you have other conditions that make it unsuitable for you.

Why planning pregnancy is important

Although most women with diabetes have healthy pregnancies and healthy babies, you and your baby have an increased chance of health problems if you have diabetes. The risk is higher the longer you have had diabetes. But you can lower the risk of problems – although not remove it completely

– by having good blood glucose control before and during pregnancy. Your care team can help you with this, including reviewing your blood glucose targets and any treatments you are having.

Preparing for pregnancy

Information, advice and support

Talk with a member of your diabetes care team before you start trying for a baby, so that you can plan for a healthy pregnancy and reduce the risks for you and your baby. It is important to get information, care and advice to prepare for pregnancy before you stop using contraception. Your partner or a family member should be encouraged to come with you to appointments about preparing for pregnancy.

Your care team should explain that you should carry on using contraception until you have good blood glucose control. Good control reduces the chances of you having a miscarriage and of your baby not developing properly, being stillborn or dying soon after birth. It will also lower your baby's risk of having temporary health problems after the birth and of being obese and/or having diabetes in later life.

You should be given information about how having diabetes may affect your pregnancy, and how being pregnant may affect your diabetes. Extra time and effort is needed to manage diabetes during pregnancy, and you will see your care team a lot.

You might find it harder to tell when your blood glucose level is getting low ([hypoglycaemia](#), or having a hypo) when you are pregnant. Vomiting or feeling sick during pregnancy can affect your blood glucose levels.

Your care team should explain that the complications of diabetes – such as problems with your eyes ([diabetic retinopathy](#)) or your kidneys ([diabetic nephropathy](#)) – can get worse during pregnancy. You may be at risk of having a large baby, which means that you are more likely to need help with the birth – for example, having your labour induced or a caesarean section.

You should be offered a place on a diabetes education course as soon as possible if you have not already been on one. You should also be given information about where you will be able to go for support in your area when you are pregnant, including emergency contact numbers.

Diet, body weight and folic acid

You should be given advice about your diet, and about how to lose weight if you are overweight.

You should be advised to take folic acid while you are trying to get pregnant and for the first 12 weeks of pregnancy. This helps lower the chances of your baby having a condition called a neural tube defect, for example spina bifida (where parts of the backbone do not form properly and damage the baby's central nervous system). You should take a higher amount of folic acid (one 5 mg tablet a day) than women without diabetes. Your care team should give you a prescription, because this high-dose tablet isn't available over the counter.

Your blood glucose levels before pregnancy

Testing your blood glucose, and target levels

Having good blood glucose control before and during pregnancy will help to keep you and your baby healthy.

You should be offered a monitor and testing strips to test your blood glucose if you don't already have them. Your diabetes care team will give you advice about how often to test. If your medications are changed to try to lower your blood glucose level, you should test more often than usual.

Your care team should talk with you about how to control your blood glucose, and agree ideal (or target) levels with you that are manageable without causing [hypoglycaemia](#). You should usually aim for the following levels:

- between 5 and 7 mmol/litre before breakfast ('fasting' level)
- between 4 and 7 mmol/litre before meals at other times of the day.

The targets might be different before you go to bed and if you need to test after meals.

HbA1c levels

Your care team should offer you an [HbA1c test](#) every month. This tells you your average blood glucose level over the last 2–3 months. You should usually aim for a target HbA1c of below 48 mmol/mol (or 6.5%) before you get pregnant, as long as this doesn't cause problems with hypoglycaemia. Even if getting your HbA1c to this level is not possible, any decrease towards the

target will help reduce the risk of problems for your baby. If your HbA1c is very high (above 86 mmol/mol, or 10%), your care team should strongly advise you not to try for a baby until it has fallen, because of the increased risk of serious problems.

Ketone testing

If you have type 1 diabetes, your care team should give you testing strips and a monitor so that you can test your blood ketone levels if your blood glucose levels are too high (known as hyperglycaemia) or if you are unwell (for example, if you are vomiting or have diarrhoea). The strips are used to check for a serious condition that can affect people with diabetes, called diabetic ketoacidosis, or DKA for short.

Your medication before and during pregnancy

Your care team should talk with you about your diabetes medications, and may advise you to change them when trying for a baby and during pregnancy.

If you are taking tablets to control your diabetes, you should usually switch to insulin injections instead. But you may be able to take metformin tablets before and during pregnancy as well as, or instead of, insulin injections.

If you take insulin, you may be able to carry on as before, or you may be advised to change to another insulin. Your care team will talk with you about this.

Your care team should also talk with you about any other medications that you are taking. You may be advised to stop taking certain tablets for high blood pressure and replace them with others that are safer to use when trying for a baby and during pregnancy. If you are taking statins (for lowering your cholesterol), you should be advised to stop before trying for a baby or as soon as your pregnancy is confirmed.

Checking for complications of diabetes before pregnancy

Eye checks

Everyone who has diabetes is offered eye screening every year. Your care team should advise you that screening is important before and during pregnancy, especially if you already have problems with your eyes related to diabetes (diabetic retinopathy). At your first visit to talk about planning pregnancy, you should be offered an appointment for eye screening if you have not had this in the

last 6 months. You should then have eye screening every year if there are no problems. You should wait until eye checks and any treatment are complete before trying to improve your blood glucose control.

Kidney tests

People with diabetes are at higher risk of having kidney problems (called [diabetic nephropathy](#)), so your care team should offer you tests to check that your kidneys are working properly before you stop using contraception. Depending on the results, you may be referred to a kidney specialist.

Questions you might like to ask your diabetes care team before trying for a baby

- What problems might there be if my blood glucose control isn't good before pregnancy?
- What are my target blood glucose levels? How can I achieve these safely?
- Are there any lifestyle changes I can make before I get pregnant that would reduce the risks for me and my baby?
- What support can I get to help me lose weight?
- How might pregnancy affect my diabetes and long-term risk of complications?
- How might pregnancy affect my medication?
- Are the insulins I'm on safe to use during pregnancy?
- Might I have to change my insulin?
- When and why should I test my blood ketones?
- Is my baby likely to have diabetes?
- What should I do if I get pregnant but haven't talked to my diabetes care team beforehand?

Women who develop diabetes during pregnancy

Gestational diabetes is diabetes that develops during pregnancy. It usually starts around the middle or towards the end of pregnancy, but it may start earlier.

The next 2 sections explain NICE's advice about gestational diabetes:

- [Checking for gestational diabetes](#)
- [If you have been diagnosed with gestational diabetes](#)

See also [care for all women with diabetes during pregnancy and during and after the birth](#) for information about ongoing care during pregnancy.

Checking for gestational diabetes

Risk factors

Some women are more likely than others to get gestational diabetes. You are at higher risk if any of the following apply to you:

- you have had gestational diabetes before
- you have had a large baby before (weighing 4.5 kg – about 10 pounds – or more)
- you are very overweight ([BMI](#) above 30 kg/m²)
- you have a parent, brother or sister with diabetes
- your [family origin](#) means you have a higher risk of developing diabetes.

Testing

Your care team will ask about these risk factors at your [booking appointment](#), and offer you a test for gestational diabetes if any apply to you. To help you to decide whether to have the test, your care team should tell you what it involves, and explain that:

- if you have gestational diabetes, you will be offered more care during both pregnancy and labour, to help reduce the risk of problems
- if gestational diabetes is not treated, there is a small increased risk of serious complications during the birth
- for some women, gestational diabetes can be improved by changes in diet and doing more exercise
- if changes in diet and doing more exercise don't improve gestational diabetes, medication will be offered.

If you have had gestational diabetes before, you should be offered a choice of the following tests to see if you have it again:

- a kit so that you can check your own blood glucose levels from early in pregnancy, or
- a test called an [oral glucose tolerance test](#) (sometimes shortened to OGTT) as soon as possible after your booking appointment, and another OGTT at 24–28 weeks if the first test is normal.

If you haven't had gestational diabetes before, but have a high risk of developing it (as described above), you should be offered an OGTT at 24–28 weeks of pregnancy.

You will be diagnosed with gestational diabetes if your blood glucose is over a certain level – your care team will explain about this.

Questions you might like to ask about testing for gestational diabetes

- Does my family origin mean that I am more likely to get gestational diabetes?
- Why does being overweight make me more likely to get gestational diabetes?
- What does the test involve?
- What can be done to help if I do have gestational diabetes?

If you have been diagnosed with gestational diabetes

Advice, information and support

If you have gestational diabetes, your care team should tell your GP, and you should be referred to a joint diabetes and antenatal clinic within 1 week.

Your care team should explain to you what having gestational diabetes means for you and your baby. You are more likely to have a large baby, which means there is a greater chance of problems for you and your baby during the birth. You may need to have your labour induced and/or a caesarean section. Your baby is also more likely to have low blood glucose ([hypoglycaemia](#)) when he or she is born.

However, keeping your blood glucose at the right level reduces the chances of these problems. Your care team should give you advice and information about gestational diabetes and how to stay healthy during pregnancy. This should include the following:

- How to check your blood glucose, and what levels to aim for.
- Advice about a healthy diet, including eating foods with a low glycaemic index (GI) – that is, foods that have a small effect on blood glucose levels. You should be referred to see a dietitian.
- Advice about taking regular exercise, such as walking for 30 minutes after a meal.

Treatment

The treatments you are offered will depend on your blood glucose levels and your own preference. Many women will start with changes to their diet and taking more exercise. But if your blood glucose is very high, or doesn't fall enough after 1 to 2 weeks, you may be offered medication:

- a tablet called metformin
- insulin injections as well as or instead of metformin
- a tablet called glibenclamide – but only if metformin and insulin don't work very well or aren't suitable for you.

Questions you might like to ask if you are diagnosed with gestational diabetes

- What is gestational diabetes? How will it affect me and my baby?
- How should I change my diet? Which foods should I avoid and which ones should I eat?
- How much exercise should I do? What kind of exercise is safe while I am pregnant?
- Is it safe to lose weight when I'm pregnant?
- How do I test my own blood glucose? What do the results mean?
- Will I need to take medication? Will I have to inject myself?
- How long will I need to have treatment for?
- Will I still have diabetes after my baby is born?
- How long will I need to stay in hospital for after the birth?
- Will my baby have diabetes?

Care for all women with diabetes during pregnancy and during and after the birth

The remaining sections are for women who had diabetes before pregnancy and for women with gestational diabetes:

- [Your blood glucose levels during pregnancy](#)
- [Diabetic ketoacidosis](#)
- [Antenatal appointments](#)
- [Labour and birth](#)
- [Care of your baby](#)
- [Your care after the birth](#)
- [Follow-up care and future pregnancy](#)

Your blood glucose levels during pregnancy

Testing your blood glucose levels

Your care team should talk with you about when you should test your blood glucose levels during the day.

Diabetes type and treatment	When should I test?
Women with type 1 diabetes	<ul style="list-style-type: none">• Fasting (before breakfast)• Before other meals• 1 hour after all meals• Bedtime

<p>Women with type 2 diabetes or gestational diabetes having 2 or more insulin injections a day</p>	<ul style="list-style-type: none"> • Fasting (before breakfast) • Before other meals • 1 hour after all meals • Bedtime
<p>Women with type 2 diabetes or gestational diabetes having any of the following:</p> <ul style="list-style-type: none"> • changes to diet and exercise • tablets (metformin and/or glibenclamide) • 1 insulin injection a day 	<ul style="list-style-type: none"> • Fasting (before breakfast) • 1 hour after all meals

Blood glucose target levels

You and your care team should agree ideal (or target) blood glucose levels that are right for you and are manageable without causing problems with [hypoglycaemia](#).

If you are taking metformin or glibenclamide tablets, or you are on insulin, you should be advised to aim for the following target blood glucose levels, unless this leads to difficulties with hypoglycaemia:

- fasting: below 5.3 mmol/litre

and

- 1 hour after meals: below 7.8 mmol/litre.

If you are not able to test until 2 hours (rather than 1 hour) after a meal, the target glucose level at that time should be below 6.4 mmol/litre.

If you are on insulin or glibenclamide, you should also be advised to keep your blood glucose above 4 mmol/litre, because of the risk of hypoglycaemia.

HbA1c levels

An HbA1c test tells you your average blood glucose levels over the last 2 to 3 months.

- **If you already have diabetes**, you should be offered an HbA1c test at your booking appointment. HbA1c tests might also be carried out later in pregnancy, although they are a less precise estimate of your blood glucose levels as pregnancy goes on. Your care team can explain more about this.
- **If you are diagnosed with gestational diabetes**, you should be offered an HbA1c test as soon as possible once diabetes is confirmed, to make sure that you don't have type 2 diabetes.

Managing your blood glucose levels if you are on insulin

Your care team will review your insulin treatment with you, and may suggest a different type to help you achieve your blood glucose targets.

Your care team should explain how being pregnant can make it harder for you to recognise hypoglycaemia, especially in the first 3 months. You should make sure you have fast-acting forms of glucose, such as sugar-containing drinks or dextrose tablets, to hand in case your blood glucose gets too low.

If you have type 1 diabetes, your care team should also provide you with glucagon. This can be injected to increase your blood glucose in an emergency. Your partner or family members should be shown how to do this.

If you are finding it hard to keep your blood glucose at the right level or hypoglycaemia is affecting your day-to-day activities, you may be offered an insulin pump (a small device that delivers a steady flow of insulin through a fine tube inserted under the skin) instead of injections.

Occasionally, pregnant women are offered a machine for 24-hour monitoring of glucose levels – called continuous glucose monitoring, or CGM – but only if they have serious problems with hypoglycaemia or controlling their blood glucose. If you have CGM, you should be given a phone number so that you can contact a member of your care team who is expert in its use for advice and support if needed.

Diabetic ketoacidosis (DKA)

If you have type 1 diabetes, you should be given [ketone](#) testing strips and a monitor. Your care team should advise you to test the ketone levels in your blood if your blood glucose is too high (known as [hyperglycaemia](#)) or if you are unwell. This is because you are at risk of a serious condition called [diabetic ketoacidosis \(DKA\)](#). People with type 1 diabetes are at higher risk of DKA (although anyone with diabetes can get it).

If you have any form of diabetes, your care team should advise you to get urgent medical advice if you have hyperglycaemia or you are feeling unwell, to make sure you don't have DKA. Your ketone levels should be checked as soon as possible. If you are thought to have DKA you should be admitted straight away to a unit where you can get specialist care.

Antenatal appointments

At your antenatal appointments you should get extra care because of your diabetes as well as the normal antenatal care that all pregnant women get. Your care team should check on you and your baby. At each appointment you should be offered information and advice, and have the chance to ask questions and to talk with your midwife or doctor about any concerns you might have.

You should have contact with your care team every 1 to 2 weeks to talk about your blood glucose control.

You may also find the NICE information for the public on antenatal care useful (see [other NICE guidance](#)).

If you already had diabetes before getting pregnant

An appointment with a joint diabetes and antenatal care team should be arranged for you straight away when you first get pregnant.

The table below gives a guide to the extra care that you should receive at your antenatal appointments.

Appointment	The extra antenatal care that your care team should offer
-------------	-----------------------------------------------------------

<p><u>Booking appointment</u> – ideally by 10 weeks of pregnancy</p>	<ul style="list-style-type: none"> • Information, advice and support about your blood glucose levels and about how diabetes will affect pregnancy, birth and early care of the baby • Ask about your diabetes, current medications and general health • Eye examination (unless you have had one in the last 3 months) • Kidney test if you have not had one in the last 3 months. • <u>HbA1c test</u> • At 7–9 weeks, check how far along your pregnancy is • Advise you to take 75 mg of aspirin daily from 12 weeks until the birth of the baby, to reduce the risk of pre-eclampsia (high blood pressure in pregnancy)
<p>16 weeks</p>	<ul style="list-style-type: none"> • Eye examination at 16–20 weeks if you had <u>diabetic retinopathy</u> at your first visit
<p>20 weeks</p>	<ul style="list-style-type: none"> • Ultrasound scan to confirm that your baby is developing normally, including checks on your baby's heart
<p>28 weeks</p>	<ul style="list-style-type: none"> • Ultrasound scan to check your baby's growth • Eye examination
<p>32 weeks</p>	<ul style="list-style-type: none"> • Ultrasound scan • If this is your first baby, routine antenatal care that would be given at 31 weeks

<p>36 weeks</p>	<ul style="list-style-type: none"> • Ultrasound scan • Information and advice about: <ul style="list-style-type: none"> – planning the birth, including timing and types of birth, pain relief, and changes to your medications – changes to your treatments for diabetes during and straight after the birth – looking after your baby, including starting breastfeeding and the effects of breastfeeding on your blood glucose – follow-up care and contraception • Advise you to have your labour induced, or a caesarean section if this is the best option, before 37 weeks if there are complications
<p>37 weeks</p>	<ul style="list-style-type: none"> • Advise you to have your labour induced, or a caesarean section if this is the best option, during week 37 or week 38 if there are no complications
<p>38 weeks (and every week thereafter)</p>	<ul style="list-style-type: none"> • Tests to check your baby's wellbeing if he or she has not been born yet

Treatments for eye and kidney problems

If eye screening shows that you have diabetic retinopathy, this shouldn't affect treatment to improve your blood glucose levels in early pregnancy if this is needed. It also doesn't mean that you can't have a 'normal' (vaginal) birth.

If a kidney test shows that you have [diabetic nephropathy](#), you should be offered treatment and you may be referred to a kidney specialist.

It is possible that you might need extra scans and more detailed checks on your baby's growth and development if you have circulatory or kidney problems.

If you are at risk of or have gestational diabetes

The table below gives a guide to the testing and extra care that you should receive at your antenatal appointments. You should start having extra antenatal care as soon as gestational diabetes is diagnosed.

Appointment	The extra antenatal care that your care team should offer
<u>Booking appointment</u> – ideally by 10 weeks of pregnancy	<ul style="list-style-type: none"> • Test for gestational diabetes if you have had it before and are booking in the first 13 weeks • Advice, information, support and treatment if you are diagnosed
16 weeks	<ul style="list-style-type: none"> • Test for gestational diabetes if you have had it before and are booking after 13 weeks • Advice, information, support and treatment if you are diagnosed
20 weeks	<ul style="list-style-type: none"> • Ultrasound scan to confirm that your baby is developing normally, including checks on your baby's heart
24–28 weeks	<ul style="list-style-type: none"> • Test for gestational diabetes if you haven't had it before but are at high risk of getting it • Advice, information, support and treatment if you are diagnosed
28 weeks	<ul style="list-style-type: none"> • Ultrasound scan to check your baby's growth
32 weeks	<ul style="list-style-type: none"> • Ultrasound scan • If this is your first baby, routine antenatal care that would be given at 31 weeks

<p>36 weeks</p>	<ul style="list-style-type: none"> • Ultrasound scan • Information and advice about: <ul style="list-style-type: none"> – planning the birth, including timing and types of birth, pain relief, and changes to your medications – changes to your treatments for diabetes during and straight after the birth – looking after your baby, including starting breastfeeding and the effects of breastfeeding on your blood glucose – follow-up care and contraception
<p>38 weeks</p>	<ul style="list-style-type: none"> • Tests to check your baby's wellbeing • Advise you to have your labour induced, or a caesarean section if this is the best option, before 40 weeks if there are complications
<p>39 weeks</p>	<ul style="list-style-type: none"> • Tests to check your baby's wellbeing • Advise you have to have your labour induced, or a caesarean section if this is the best option, before 41 weeks if you haven't had your baby by then

Questions you might like to ask your care team about care during pregnancy

- How soon should I contact my diabetes care team once I find that I'm pregnant?
- Will pregnancy affect my diabetes and my general health?
- Why do I need to have more scans and antenatal appointments than women without diabetes?
- When should I test my blood glucose? What are my target levels?
- How might my medication change during pregnancy?
- Why do I need more or different insulin during pregnancy?
- Where should I have my baby? What care might my baby need after birth?

Labour and birth

See [other NICE guidance](#) for NICE information for the public on care for women and their babies during labour (intrapartum care), induction of labour and caesarean section.

Planning the birth

You should be advised to have your baby in a hospital that has special facilities to care for sick babies 24 hours a day, in case these are needed.

During your pregnancy (and especially in the last 3 months), your care team should explain about your options for giving birth. This should include information about the benefits and risks of having your labour induced compared with letting the pregnancy carry on, and of having a 'normal' (vaginal) birth compared with a caesarean section. This is especially important if you are having a large baby. If you have had a caesarean section before, you may still be able to have a vaginal birth this time.

If you have certain health problems (such as being very overweight or having spinal nerve-related problems such as sciatica), you may be advised to see an anaesthetist to talk about the best method of pain relief during the birth.

When to have your baby

Timing of the birth is important, because if your pregnancy carries on for too long this may increase the chance of problems for you and/or your baby.

If you have type 1 or type 2 diabetes

You should be advised to have your labour induced, or a caesarean section if this is the best option for you, during week 37 or week 38 of pregnancy. You may be advised to have your baby earlier than this if there are complications (such as high blood pressure or a slowing down of your baby's growth).

If you have gestational diabetes

You should be advised to have your labour induced, or a caesarean section if this is the best option for you, before 41 weeks of pregnancy if you have not had your baby by this time. You may be advised to have your baby earlier than this if there are complications (such as high blood pressure or a big baby).

If your labour starts before 37 weeks

If your labour starts early, you may be offered medication to delay the birth. You may also be offered medication called steroids to help your baby's lungs to mature. If you are on insulin and have steroids, your insulin dose will need to be increased and your blood glucose monitored closely, because steroids can raise your blood glucose.

Your blood glucose levels during labour and birth

It is important that your blood glucose is well controlled during labour and birth, to help prevent your baby's blood glucose becoming low after she or he is born (known as neonatal hypoglycaemia).

Your blood glucose should be measured at least every hour to make sure it stays at a safe level, or every 30 minutes if you have a general anaesthetic.

If there are problems with blood glucose during labour and birth, you should be given insulin and glucose through a drip to help with this. If you have type 1 diabetes, you may be offered a drip from the start of established labour (which is when your cervix is at least 4 cm dilated and you are having regular painful contractions).

Questions you might like to ask your care team about labour and birth

- How can I make the birth of my baby as normal as possible?
- What kind of pain relief can I have during labour?
- What are the possible risks of waiting for labour to start on its own?
- What are the possible risks of being induced?
- Am I likely to need a caesarean section?
- What are my options for controlling my blood glucose during labour? What will happen if my blood glucose is too low or too high?

Care of your baby

This section is about care of your baby because of your diabetes. You may also find the NICE information for the public on postnatal care useful (see [other NICE guidance](#)).

Your baby will be given to you to hold immediately after the birth. You should be able to keep your baby with you unless she or he needs extra care.

Your baby may need extra care in a neonatal unit if she or he is unwell, needs close monitoring or treatment, has to be fed through a tube or a drip, or is premature.

Your baby's blood glucose levels

You should start feeding your baby as soon as possible after birth (within 30 minutes), and then every 2 to 3 hours, to help his or her blood glucose stay at a safe level.

Your baby's blood glucose should be tested (using a special hospital blood test) between 2 and 4 hours after birth, to make sure it is not too low. Other blood tests may also be carried out if your care team feels these are necessary.

If your baby's blood glucose is low in 2 tests in a row, or if there are problems with feeding, he or she may need to be fed through a tube or given a drip to help increase their blood glucose.

If the care team spots signs of [neonatal hypoglycaemia](#), they should test your baby's blood glucose. If hypoglycaemia is found, she or he should be put on a drip as soon as possible.

You and your baby should stay in hospital for at least 24 hours after the birth, to check that the baby has stable blood glucose and is feeding well.

Checking your baby for heart problems

Babies of women with type 1 or type 2 diabetes have an increased risk of heart problems. If your care team suspects a possible problem, a child specialist will check your baby carefully. This may include a special ultrasound of the baby's heart called an echocardiogram.

Your care after the birth

This section is about diabetes-related care. You may also find the NICE information for the public on postnatal care useful (see [other NICE guidance](#)).

If you had diabetes before you were pregnant

If you already had diabetes and used insulin during your pregnancy, you should reduce the amount you are taking straight after the birth, and check your blood glucose levels carefully until you are taking the right dose. This is because your body will need less insulin to control your blood glucose after your baby is born. Your care team will help you with this.

You will be at increased risk of [hypoglycaemia](#) after giving birth, particularly if you are breastfeeding. So you should always have some food nearby in case you need it before or during breastfeeding.

If you had type 2 diabetes before you were pregnant and have been taking [metformin](#) or [glibenclamide](#), you can carry on doing so – or you can start taking them again straight after the birth if you stopped during pregnancy. But if you are breastfeeding you shouldn't start taking any other tablets for lowering your blood glucose.

If you changed treatments for complications of diabetes (for example, changing your medication for high blood pressure, or stopping statins) before you got pregnant, you should not usually start taking your usual medication again if you are breastfeeding, unless your care team says it is safe to do so.

If you had gestational diabetes

If you had gestational diabetes, you should stop taking all medication for diabetes straight after the birth.

Before you go home, your blood glucose level should be tested to make sure it is back to normal. Your care team should remind you about the symptoms of high blood glucose and what to do if they occur.

Follow-up care and future pregnancy

If you had diabetes before you were pregnant

After you go home, you should go back to having your usual appointments for diabetes care.

If you were diagnosed with [retinopathy](#) when you were pregnant, you should be offered checks for at least 6 months after the birth.

Your care team should remind you about [the importance of using contraception, and advise you to plan well ahead for any future pregnancy](#).

If you had gestational diabetes

Having a healthy lifestyle

A member of your care team should give you advice about your lifestyle, including taking more exercise, improving your diet, and losing weight if necessary.

Checking for type 2 diabetes

Women who have had gestational diabetes are at high risk of developing type 2 diabetes. You should be offered a test a few weeks after the birth to make sure you don't have type 2 diabetes or a condition called 'glucose intolerance' (or 'pre-diabetes'). Ideally this should be a [fasting plasma glucose test](#) between 6 and 13 weeks after the birth. If the test does not take place until after 13 weeks, you should still be offered a fasting plasma glucose test, but if this test is not possible an [HbA1c test](#) may be used instead. Ordinarily you should not be offered an [oral glucose tolerance test \(or OGTT\)](#).

If your blood glucose or HbA1c levels are above normal, this indicates that you are at high risk of developing type 2 diabetes, or you may even have it already. You may have more tests to check this. You should be offered advice and treatment as needed.

If your blood glucose or HbA1c levels are normal, it is unlikely that you have type 2 diabetes at present. You should be advised to continue to follow lifestyle advice, as well as being offered an annual HbA1c test to check that diabetes hasn't developed, because you remain at risk.

Your care team should explain that you are at risk of getting gestational diabetes again, and you should be offered testing for diabetes in future pregnancies – see the section on [checking for gestational diabetes](#) for more information about this.

Terms explained

BMI

BMI, or body mass index, is a measure of a person's weight in relation to their height. A person with BMI of 25 kg/m² or over is overweight, and a person with a BMI of 30 kg/m² or over is classed as obese.

Booking appointment

Your first official antenatal appointment. It normally takes place between 8 and 10 weeks of pregnancy, and you 'book in' for maternity care with a midwife and/or your GP. It may be earlier if you have diabetes before getting pregnant.

Diabetic ketoacidosis (DKA)

High blood glucose ([hyperglycaemia](#)) that is not treated can lead to a serious condition called DKA. People with type 1 diabetes are more at risk of DKA, but anyone with diabetes can get it. It is caused by the build-up of harmful [ketones](#) in the blood. People with DKA need to be treated in hospital as an emergency.

Diabetic nephropathy

People with diabetes are at risk of kidney disease, known as diabetic nephropathy. Diabetes can damage the small blood vessels in the kidneys and stop them from working properly. The earliest

sign is having a protein called albumin in the urine. Women with nephropathy are at high risk of developing high blood pressure in pregnancy (called pre-eclampsia).

Diabetic retinopathy

People with diabetes are at risk of having eye problems, called diabetic retinopathy. Diabetes can damage the small blood vessels around the retina (the seeing part of the eye), which can cause blurred vision. The early stages of retinopathy do not cause symptoms, so it is very important to have regular checks which can detect any changes.

Family origin

Your ethnic background. Some women have an increased risk of gestational diabetes because of their ethnicity, including (but not only) women with a South Asian, African–Caribbean or Middle Eastern family origin.

Fasting plasma glucose test

A blood test to check fasting (usually before breakfast) blood glucose levels. As well as being used to diagnose diabetes, the test can show whether there are problems in the way the body is using glucose.

Glibenclamide

A medicine (tablet) for treating type 2 diabetes and gestational diabetes. Glibenclamide helps the body to produce more insulin. Because of this, it can cause [hypoglycaemia](#). At the time of publication, glibenclamide may be recommended for '[off-label](#)' use in this guideline. Your doctor should tell you this and explain what it means for you.

Glucagon

A hormone that raises blood glucose levels. It can be given as an injection in emergencies to people with diabetes who have [hypoglycaemia](#).

HbA1c test

A blood test that measures the average blood glucose level over the previous 2 to 3 months. The result is usually given in mmol/mol (it used to be given as a percentage). In people without diabetes,

it is usually below 42 mmol/mol (or 6%). An HbA1c test is a less precise measure of blood glucose levels after about 12 weeks of pregnancy.

Hyperglycaemia

A higher than normal level of glucose in the blood. Symptoms include feeling thirsty and hungry, and increased urination. If it is not treated, hyperglycaemia can lead to [diabetic ketoacidosis](#).

Hypoglycaemia or a hypo

A lower than normal level of glucose in the blood – usually less than 4 mmol/litre. The symptoms of a hypo include feeling dizzy (or even losing consciousness), feeling tired, feeling hungry, shaking and sweating. It is important to recognise the warning signs of a hypo. You are at risk of hypoglycaemia if you are on insulin or glibenclamide, but not otherwise.

Ketones

Harmful ketones in the blood are produced when the body starts to use its fat stores to make energy. It normally only does this during starvation or if the body doesn't have enough insulin. High levels of ketones can lead to [diabetic ketoacidosis](#). Blood ketone testing strips are the easiest way to check for ketones.

Metformin

A medicine (tablet) that lowers blood glucose levels in people with diabetes. Because of the way it works, metformin does not increase insulin levels, and does not cause [hypoglycaemia](#) unless you are also on insulin or glibenclamide. At the time of publication, metformin may be recommended for ['off-label' use](#) in this guideline. Your doctor should tell you this and explain what it means for you.

Neonatal hypoglycaemia

A lower than normal blood glucose level in a newborn baby ('neonate'), defined as below 2 mmol/litre. There is a risk of neonatal hypoglycaemia in babies born to mothers with diabetes, particularly if the woman is taking insulin or glibenclamide.

'Off-label' use

In the UK, medicines are licensed to show that they work well enough and are safe enough to be used for specific conditions and groups of people. Some medicines can also be helpful for conditions or people they do not have a licence for (such as pregnant women). This is called 'off-label' use. Off-label use might also mean the medicine is taken at a different dose or in a different way to the licence, such as using a cream or taking a tablet. There is more information about licensing medicines on [NHS Choices](#).

Oral glucose tolerance test (OGTT)

An OGTT uses 2 blood samples: the first to check fasting (usually before breakfast) blood glucose levels, and the second to check levels again 2 hours after a glucose drink. This is the usual test for diagnosing gestational diabetes.

Sources of advice and support

- Diabetes UK, 0345 123 2399, www.diabetes.org.uk
- Black and Ethnic Minority Diabetes Association (BEMDA), www.bemda.org
- InDependent Diabetes Trust, www.iddtinternational.org
- National Childbirth Trust (NCT), 0300 330 0700, www.nct.org.uk

You can also go to [NHS Choices](#) for more information.

NICE is not responsible for the quality or accuracy of any information or advice provided by these organisations.

Other NICE guidance

Published

- [Type 2 diabetes in adults](#) (2015) NICE guideline NG28
- [Type 1 diabetes in adults](#) (2015) NICE guideline NG17
- [Intrapartum care](#) (2014) NICE guideline CG190

- [Postnatal care](#) (2014) NICE guideline CG37
- [Caesarean section](#) (2011) NICE guideline CG132
- [Hypertension in pregnancy](#) (2010) NICE guideline CG107
- [Induction of labour](#) (2008) NICE guideline CG70
- [Antenatal care](#) (2008) NICE guideline CG62

Changes after publication

December 2015: Other NICE guidance section amended to refer to updated NICE guideline on [type 2 diabetes in adults](#).

August 2015: Blood glucose target levels have been added, which are taken from the NICE guideline on [type 1 diabetes in adults](#).

ISBN: 978-1-4731-0994-0

Accreditation

