

Understanding NICE guidance

Information for people who use NHS services

Diabetes in pregnancy

NICE 'clinical guidelines' advise the NHS on caring for people with specific conditions or diseases and the treatments they should receive.

This booklet is about the care and treatment of pregnant women with diabetes in the NHS in England and Wales. The booklet also covers the care of their newborn babies. It explains guidance (advice) from NICE (the National Institute for Health and Clinical Excellence). It is written for women who have diabetes or develop it in pregnancy, but it may also be useful for their families or for anyone with an interest in the condition.

The booklet aims to help you understand the care and treatment options that should be available in the NHS. It does not describe diabetes in pregnancy or the tests or treatments for it in detail. A member of your healthcare team should discuss these with you. There are examples of questions you could ask throughout this booklet to help you with this. Some sources of further information and support are on page 23. Medical terms printed in **bold** type are explained on pages 20–22.

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The advice in the NICE guideline covers:

- the treatment and care of women with diabetes who are planning to become pregnant
- the treatment and care of women who are pregnant who already have diabetes or develop it during pregnancy
- initial care of the newborn babies of women with diabetes.

It does not specifically look at:

- usual care for women with diabetes
- usual care for women before and during pregnancy and birth
- care of the newborn babies of women with diabetes after discharge from hospital.

Your care

Your treatment and care should take into account your personal needs and preferences, and you have the right to be fully informed and to make decisions in partnership with your healthcare team. To help with this, your healthcare team should give you information you can understand and that is relevant to your circumstances. All healthcare professionals should treat you with respect, sensitivity and understanding and explain your care simply and clearly.

Any information you receive, and discussions you have with your healthcare team, should include explanations and details about the care and treatments you receive, and about their possible advantages and disadvantages. You can ask any questions you want to and can always change your mind as your treatment progresses or your condition or circumstances change. Your own preference is important and your healthcare team should support your choice of care wherever possible.

Your treatment and care, and the information you are given about it, should take account of any religious, ethnic or cultural needs you may have. It should also take into account any additional factors, such as physical or learning disabilities, sight or hearing problems, or difficulties with reading or speaking English. Your healthcare team should be able to arrange an interpreter or an advocate (someone who supports you in putting across your views) if needed. Your interpreter or advocate will keep anything you tell them private.

If people are unable to understand a particular issue or are not able to make decisions for themselves, healthcare professionals should follow the advice that the Department of Health has produced about this. You can find this by going to the Department of Health website (www.dh.gov.uk/consent). Your healthcare professional should also follow the code of practice for the Mental Capacity Act. For more information about this, visit www.publicguardian.gov.uk.

If you think that your care does not match what is described in this booklet, please talk to a member of your healthcare team.

About diabetes in pregnancy

Most women who have diabetes or develop diabetes in pregnancy have healthy pregnancies and healthy babies. However, they may sometimes have serious problems, so it is important that they receive extra care and support to ensure that they stay well.

If you have diabetes and are planning to become pregnant, or are already pregnant and have diabetes or develop diabetes, your healthcare team should provide information, advice and support to help you manage your diabetes and reduce the risks to you and your baby.

- **Part 1** of this booklet is for women who already have diabetes who are planning to become pregnant.
- **Part 2** is for women whose diabetes started during pregnancy or who developed diabetes during an earlier pregnancy.
- **Parts 3 and 4** are for all women who have diabetes during pregnancy.

Part 1 Before you become pregnant

Part 1 of this booklet is for you if you already have **diabetes** and are planning to become pregnant.

Why preparing for your pregnancy is important

Pregnant women with diabetes are at high risk of serious health problems for themselves and their babies. Your healthcare team should discuss the risks with you and explain that they can be reduced (but not removed completely) if your **blood glucose levels** are well controlled. They should explain that the risks are higher if you have had diabetes for a long time, and give you help before and during your pregnancy to reduce the risks.

If you have diabetes already, you may be at risk of:

- having a large baby, which increases the likelihood of birth problems, having your **labour induced** and **caesarean section**
- having a **miscarriage**
- problems with your eyes (called **diabetic retinopathy**) and your kidneys (called **diabetic nephropathy**), which can become worse during pregnancy.

Your baby may be at risk of:

- not developing normally
- being stillborn or dying shortly after birth
- health problems following birth that may require hospital care
- developing obesity and/or diabetes in later life.

How you can prepare for pregnancy

Information, advice and support

Talk to a member of your healthcare team (usually your GP) 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 receive information, care and advice to prepare for pregnancy before you stop using contraception.

Your healthcare team should explain how diabetes can affect your pregnancy and how your pregnancy can affect your diabetes. They should explain that you might find it more difficult to recognise when your blood glucose level is getting low (known as **hypoglycaemia** or having a **hypo**) during pregnancy, and give you advice on how to manage your blood glucose levels if you are sick or feel ill during your pregnancy.

You should receive advice from your diabetes care team about avoiding unplanned pregnancy, starting from adolescence.

Talk to a member of your healthcare team before you stop using contraception.

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

You should be offered information, advice and support, and your partner or a family member should be encouraged to attend appointments with you. You should be offered a place on a diabetes education course if you have not already been on one.

Your blood glucose levels

Good blood glucose levels before and during pregnancy will reduce the risks to you and your baby.

Your healthcare team should talk to you about how to keep your blood glucose at a satisfactory level. If you don't already have one, you should be offered a kit for testing your own blood glucose levels.

You should discuss your blood glucose levels with your healthcare team and agree on an ideal (or target) blood glucose level that you feel is manageable.

Your healthcare team will give you advice about how often to test your blood glucose levels. If your healthcare team changes your medications to try and reduce your blood glucose level, you should test your glucose levels more often than usual (before breakfast and before and/or after meals).

Your healthcare team should offer you a blood test called an **HbA_{1c} test** every month. This assesses how good your blood glucose levels have been over the past few months. You should aim to have an HbA_{1c} of below 6.1% before you become pregnant. Even if this is not possible, any decrease in your HbA_{1c} that you can achieve will help reduce the risks to your baby, and the lower your HbA_{1c} is, the more likely you are to reduce the risks. If your HbA_{1c} results are very high, your healthcare team will talk to you about your plans for pregnancy.

If you have **type 1 diabetes**, you should be offered **ketone** testing strips to test your blood or urine if your blood glucose level becomes high (known as **hyperglycaemia**) or you are unwell (for example, if you are being sick or have diarrhoea). You can use the strips to check for a serious condition called **diabetic ketoacidosis** or **DKA**, which can develop if your blood glucose level becomes high.

Your diet, body weight and exercise

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

Taking folic acid supplements

Your healthcare team should advise you about taking **folic acid** tablets. You should take a higher amount (one 5 mg tablet a day) than you can buy from the chemist and so your healthcare team should offer you a prescription. You should take folic acid while you are trying to get pregnant and for the first 12 weeks of pregnancy. This will help to reduce the risks of having a baby with a serious **birth defect** such as a **neural tube defect** (for example, spina bifida).

Changes to your medication

Your healthcare team should discuss your diabetes medications with you, and may advise you to change them before and during pregnancy.

If you are taking tablets for your diabetes, you may have to stop taking them and start using **insulin** injections instead. However, you may be able to take **metformin** tablets instead of, or as well as, insulin injections.

If you take insulin for your diabetes, you may have to change the type of insulin that you usually take.

Your healthcare team should also talk to you about any other medications that you are taking. If you take certain tablets for high blood pressure, you may be advised to stop taking them, depending on the type, and you may be given different tablets that are safer to use before and during pregnancy. If you take **statins** for high **cholesterol** levels, you should be advised to stop taking them before and during pregnancy.

Eye screening

Your healthcare team should advise you about the need for eye screening before and during pregnancy, especially if you already have problems with your eyes (called diabetic retinopathy). Your healthcare team should offer to arrange an eye examination for you at your first visit if you have not had one in the past 6 months. Your healthcare professional will use eye drops to make your pupils bigger and then use a special digital eye camera to take photographs of the back of your eyes.

Your diet, body weight and the amount of exercise you take will have an effect on your pregnancy.

Kidney tests

Your healthcare team should advise you about the need for a kidney test before you stop using contraception. People with diabetes are at higher risk of having kidney problems (called diabetic nephropathy). Your healthcare team should take a urine sample to check for protein (a sign that the kidneys are not working as well as they should) and a blood sample to check that levels of substances filtered by the kidneys are normal.

Questions you might like to ask your healthcare team

- What are my target blood glucose levels? How can I safely achieve these?
- What can I do to improve my lifestyle before I become pregnant?
- What support can I get to help me lose weight?
- How will pregnancy affect my current medication?
- What is the best form of contraception to use while I improve control of my diabetes?
- Are there any situations when you would advise me against getting pregnant at all?
- How might pregnancy affect my diabetes and long-term risk of complications?
- Is my baby more likely to have diabetes?

Part 2 If you develop diabetes during your pregnancy

Part 2 of this booklet is for you if you have **diabetes** that started during pregnancy or if you developed diabetes during an earlier pregnancy.

Diabetes that develops during pregnancy

Diabetes that develops during pregnancy is known as **gestational diabetes**. It usually starts in the middle or towards the end of your pregnancy, rarely before 20 weeks of pregnancy. It occurs because your body cannot produce enough **insulin** to meet its extra needs in pregnancy. It may start earlier in pregnancy if you already have problems with your **blood glucose levels**.

Your healthcare team should give you information about gestational diabetes and how it may affect you and your baby before offering to check for gestational diabetes.

Checking for gestational diabetes during pregnancy

Certain characteristics can indicate that some women are more likely than others to develop gestational diabetes during their pregnancy. At your booking appointment your healthcare team will check if:

- you are overweight (**body mass index** or **BMI** 30 kg/m² or higher)
- you have given birth to a large baby before (weighing 4.5 kg or more)
- you have had gestational diabetes before
- you have a parent, brother or sister with diabetes
- your family origin is South Asian, black Caribbean or Middle Eastern (these groups have a higher risk of developing gestational diabetes).

If you have any of these characteristics, you should be offered a test for gestational diabetes.

If you have had gestational diabetes before, you should be offered a kit to check your own blood glucose levels early in pregnancy or a test called an **oral glucose tolerance test** (sometimes shortened to **OGTT** or **GTT**) at 16 to 18 weeks (plus an OGTT at 28 weeks if the first test is normal) to check for gestational diabetes. An OGTT involves a blood test before breakfast, then again 2 hours after a glucose drink.

You should be given an OGTT at 24 to 28 weeks if you have any of the other characteristics.

If gestational diabetes is not detected and controlled, your baby may become large, which can cause birth problems.

Gestational diabetes usually improves with changes to diet and exercise. However, some women may need to take tablets or give themselves insulin injections.

If you have been diagnosed with gestational diabetes

Women with diabetes are at risk of serious health problems for themselves and their babies. Your healthcare team should discuss the risks with you and explain that they can be reduced if your blood glucose levels are well controlled.

If you have gestational diabetes, you may be at risk of:

- having a large baby, which increases the likelihood of birth problems, having your **labour induced** and **caesarean section**
- having a **miscarriage**.

Your baby may be at risk of:

- dying during birth
- health problems following birth that may require hospital care
- developing obesity and/or diabetes in later life.

Your healthcare team should give you advice and information about gestational diabetes and how to stay healthy during your pregnancy. This should include:

- the risks for you and your baby
- how to check your own blood glucose level and what your ideal blood glucose level should be
- choosing foods that will help to keep your blood glucose at a healthy and stable level
- information about how to lose weight by changing your diet and taking exercise if you are overweight.

If your blood glucose does not reach a satisfactory level after 1 to 2 weeks, or if an ultrasound scan shows that your baby is large, you may need to take tablets or give yourself insulin injections.

Planning your pregnancy if you have had gestational diabetes before

Talk to your healthcare team if you are planning to become pregnant and have had gestational diabetes before. Your healthcare team should explain that you are at risk of having diabetes in pregnancy again and offer you a test for diabetes. If you become pregnant again, you should be offered a kit to check your own blood glucose levels early in pregnancy or be offered an OGTT at 16 to 18 weeks (plus an OGTT at 28 weeks if the first test is normal) to check for gestational diabetes.

Questions you might like to ask your healthcare team

- 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 foods should I eat?
- Should I do more exercise? What kind of exercise is safe while I am pregnant?
- Is it safe to lose weight if I am pregnant?
- How do I test my own blood glucose? What do the results mean?
- Will I need to take medicine? Will I have to inject myself?
- How long will I need to have treatment?
- Will my gestational diabetes continue after my baby is born?

Part 3 During your pregnancy

Part 3 of this booklet is for all women with **diabetes** in pregnancy, whether your diabetes developed in pregnancy or you already had diabetes before you became pregnant.

Your blood glucose levels

You should test your **blood glucose level** before breakfast and 1 hour after every meal during pregnancy.

Talk to your healthcare team about the blood glucose readings that you take yourself. You should agree on a target level during pregnancy that you feel is safe and manageable.

Ideally, your blood glucose level should be between 3.5 and 5.9 mmol/litre before breakfast and below 7.8 mmol/litre 1 hour after meals.

If your healthcare team thinks that you might have a serious condition called **diabetic ketoacidosis** or **DKA**, which can develop if your blood glucose level becomes high, you should be admitted immediately to a hospital that can care for you and your baby.

Managing your blood glucose levels if you take insulin

Check your blood glucose level at night before you go to bed, as well as before breakfast and after meals.

You might find it more difficult to recognise when your blood glucose level is getting low while you are pregnant, especially during the first 3 months. Your healthcare team should explain about the risks of **hypoglycaemia** and give you a gel containing glucose that you can swallow if your glucose levels are low. If you have **type 1 diabetes**, you should also be given **glucagon**, which can be injected into your body to raise your blood glucose level if it gets too low. You and your partner or family members should be shown how to use these in emergencies.

If your blood glucose levels are difficult to control using **insulin** injections, you may be offered an **insulin pump**.

If you have type 1 diabetes, you should be offered **ketone** testing strips to check your ketone level if your blood glucose level becomes high or you are unwell (for example, if you are being sick or have diarrhoea). It is important that you are checked urgently for diabetic ketoacidosis if you become unwell.

Antenatal appointments

Antenatal appointments should be arranged to cover general information about pregnancy and birth (as with antenatal appointments for women who do not have diabetes), and also things that are specific to women with diabetes.

At your antenatal appointments your healthcare team should check on you and your baby's progress. At each appointment you should be offered information and advice and have the chance to ask questions and discuss with your midwife or doctor any concerns you might have.

Details of the extra antenatal care that should be given to women with diabetes are described in this section.

If you already had diabetes before you became pregnant, a joint appointment with both your diabetes care team and your antenatal care team should be arranged for you when you first become pregnant. This appointment is especially for pregnant women with diabetes.

You should also have contact with your diabetes care team every 1 to 2 weeks during pregnancy (this may be by phone or in person) to discuss your blood glucose levels.

If you have **gestational diabetes** you should start receiving extra antenatal care as soon as your diabetes is diagnosed.

The table on page 14 gives a brief guide to the extra care that you should receive at your antenatal appointments.

The NICE booklet 'Routine antenatal care for healthy pregnant women' may also be useful (see back cover).

For details of routine antenatal appointments, see the NICE booklet 'Routine antenatal care for healthy pregnant women' (see back cover).

Special antenatal care for women with diabetes	
Appointment	Your healthcare professional should:
First appointment (joint diabetes and antenatal clinic)	<ul style="list-style-type: none"> • Give you information, advice and support about your blood glucose levels. • Ask you questions about your health and your diabetes. • Discuss your current medications. • Offer you an eye examination and a kidney test if these have not been done in the past 12 months.
7 to 9 weeks	<ul style="list-style-type: none"> • Check that you are pregnant and confirm the age of your baby.
Booking appointment	<ul style="list-style-type: none"> • Offer information, education and advice about how diabetes will affect your pregnancy, birth and early parenting.
16 weeks	<ul style="list-style-type: none"> • Offer you an eye examination if you had diabetes before pregnancy and were found to have diabetic retinopathy at your first antenatal appointment.
20 weeks	<ul style="list-style-type: none"> • Offer you a test to check the development of your baby's heart.
28 weeks	<ul style="list-style-type: none"> • Offer you an ultrasound scan to check your baby's growth. • Offer you an eye examination if you had diabetes before you became pregnant but were not found to have diabetic retinopathy at the first antenatal clinic visit.
32 weeks	<ul style="list-style-type: none"> • Offer you an ultrasound scan. • Give you routine antenatal care that would be given to women at 31 weeks if this is your first baby.
36 weeks	<ul style="list-style-type: none"> • Offer you an ultrasound scan. • Give you information and advice about: <ul style="list-style-type: none"> – planning the birth, including timing and types of birth, pain relief and anaesthesia, and changes to your medications during and after birth – looking after your baby following the birth, including starting breastfeeding and the effects of breastfeeding on blood glucose level – contraception and your care after the birth. • Arrange for you to see an anaesthetist to prepare for an anaesthetic to be given safely during birth, if an anaesthetic is likely to be needed.
38 weeks	<ul style="list-style-type: none"> • Offer to induce your labour, or offer you a caesarean section if it is the best option for you. • Offer to start regular tests to check your baby's health if you are waiting for your labour to start.
Every week from 39 weeks to birth	<ul style="list-style-type: none"> • Offer tests to check your baby's well-being.

What should happen at your appointments

Eye screening

If you already had diabetes before you became pregnant, and you haven't had an eye examination in the past 12 months, it should be arranged for you as soon as possible after you tell your doctor that you are pregnant.

You should also be offered an eye examination at your first antenatal clinic visit and again at 28 weeks if the first check is normal. If the first examination shows that you have **diabetic retinopathy**, your eyes should be checked again at 16 to 20 weeks.

Kidney tests

If you already had diabetes before you became pregnant, and you haven't had a kidney test in the past 12 months, a member of your healthcare team will take a urine sample and a blood sample to perform a kidney test at the appointment at which you tell them that you are pregnant.

Screening your baby for heart problems

You should be offered a special ultrasound scan to check that your baby's heart and other internal organs are developing normally. This is usually performed at 20 weeks.

Monitoring your baby's development

Your baby's development should be monitored during your pregnancy to check that he or she is growing normally. You should be offered an ultrasound scan every 4 weeks, from 28 to 36 weeks.

If your baby is growing slowly or too quickly, or if there are any other concerns on the scans, he or she may need to be monitored more closely, with extra tests to check his or her progress. If your diabetes has affected your heart or kidneys, you may be at increased risk of having a baby who is small.

Questions you might like to ask your healthcare team

- When should I test my blood glucose? What are my target levels?
- Where should I have my baby? What care might he or she need after birth?
- Why do I need to have more scans and antenatal appointments than other women?
- Will pregnancy affect my diabetes and my general health?
- How might my medications change during pregnancy? Why do I need more insulin during pregnancy?

The NICE booklet 'Care of women and their babies during labour' may also be useful (see back cover).

Part 4 Labour, birth and after your baby is born

Part 4 of this booklet is for all women with **diabetes** during and after labour and birth, whether your diabetes developed in pregnancy or you already had diabetes before you became pregnant.

Your labour and birth

Your healthcare team should advise you to have your baby in a hospital that can provide appropriate care for your baby 24 hours a day.

Some women with diabetes have problems during labour and birth because their babies are bigger than normal. If your ultrasound scans have shown that your baby is large, your healthcare team should discuss with you the risks and benefits of vaginal birth, **induced labour** and **caesarean section**.

If you have a caesarean section with this baby, it does not necessarily mean that you will not be able to have a vaginal birth if you become pregnant again.

If your labour starts before 37 weeks

If your labour starts prematurely, you may be given medications to delay the birth. You may also be given medications called **steroids** to help your baby's lungs to mature. Steroids can raise your **blood glucose level**, so you may need to take additional **insulin** and monitor your blood glucose closely.

If your pregnancy continues beyond 38 weeks

If labour has not started after 38 weeks, you should be offered induction of labour, or birth by caesarean section if your healthcare team thinks this is the best option for you. Induction of labour or caesarean section after 38 weeks may help to reduce risks for you and your baby.

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 level becoming low following birth (known as **neonatal hypoglycaemia**).

Your blood glucose should be monitored every hour during labour to ensure it stays at a satisfactory level.

If your blood glucose cannot be kept at a satisfactory level during labour, or if you have **type 1 diabetes**, you may be offered a drip to help control your blood glucose level.

After your baby is born

Your baby will be given to you to hold and will stay with you unless he or she needs extra care.

Some babies need to be cared for in a neonatal unit. Your baby may need to be looked after in a neonatal unit if he or she is unwell, needs close monitoring or treatment, needs help with feeding or was born prematurely.

Your baby's blood glucose levels

Your baby should have his or her blood glucose level tested (using a special hospital blood test) 2 to 4 hours after birth to make sure that it is not too low.

You should start feeding your baby as soon as possible after birth (within 30 minutes), and then every 2 to 3 hours to help your baby's blood glucose stay at a safe level (above 2 mmol/litre).

If your baby's blood glucose cannot be kept at a satisfactory level, he or she may need extra care. If your baby's blood glucose level remains below 2 mmol/litre for two tests in a row or if he or she is not feeding properly, your baby may need to be fed through a tube or given a drip to help increase his or her blood glucose.

If your healthcare team identifies signs of neonatal hypoglycaemia in your baby, they should give your baby a blood glucose test and treat him or her with a drip as soon as possible.

Checking your baby for heart problems

If your healthcare team is concerned that your baby might have a heart problem, they should arrange for an ultrasound examination of the heart called an **echocardiogram**.

The NICE booklet 'Care of women and their babies in the first 6–8 weeks after birth' may also be useful (see back cover).

You may be able to take your baby home as early as 24 hours after birth if he or she has a stable blood glucose level and is feeding well.

You should be reminded of the importance of contraception and the need for extra care when planning future pregnancies.

Your blood glucose levels

Your body will need less insulin to control your blood glucose level after your baby is born. If you already had diabetes and used insulin during your pregnancy, you should reduce the amount of insulin you take and monitor your blood glucose levels carefully until you are taking the correct dose. You are at increased risk of **hypoglycaemia** following birth, and especially when breastfeeding, so you should always have some food nearby to eat before or during breastfeeding.

If you were diagnosed with **gestational diabetes**, you should stop taking all diabetes medications immediately after birth.

If you have **type 2 diabetes**, you can start using **metformin** or **glibenclamide** again after your baby is born and while breastfeeding, if they were your usual tablets.

If your medications for high blood pressure or **cholesterol** were changed before you became pregnant, you will not be able to start taking your usual medications again while you are breastfeeding.

Follow-up care if you already had diabetes

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

Follow-up care if you had gestational diabetes

Before you go home, you or a member of your healthcare team should test your blood glucose level to make sure that it has returned to normal. You should be reminded of the symptoms of **hyperglycaemia** and how to recognise it.

A member of your healthcare team should give you information about changing your lifestyle, including diet, exercise and weight control. You should be offered a test that checks your blood glucose level after an overnight fast (called a **fasting plasma glucose test**) at your 6-week postnatal appointment and then every year afterwards to check for diabetes.

Your healthcare team should explain that you are at risk of having diabetes in pregnancy again and offer you a test for diabetes when planning future pregnancies. If you become pregnant again, you should be offered a kit to check your own blood glucose levels early in pregnancy or an **OGTT** at 16 to 18 weeks (plus an OGTT at 28 weeks if the first test is normal) to check for gestational diabetes.

Questions you might like to ask your healthcare team

- How can I make the birth of my baby as normal as possible?
- What are the risks of waiting for labour to start after 38 weeks?
- What are the risks of having labour induced at 38 weeks? Am I more likely to need a caesarean section?
- What are my options for controlling my own blood glucose during labour? What happens if my blood glucose levels are too low during labour?
- What happens to my baby if he or she has problems? Can my partner or family member stay with the baby?
- What special care do my baby and I need?
- How do I control my diabetes while I am breastfeeding?
- How much insulin (or other medications) should I take after my baby is born?
- Will my postnatal check be done at the hospital or with my GP?

Glossary

Birth defect: abnormal development of the baby's limbs or internal organs. Most birth defects happen during the very early stages of pregnancy.

Blood glucose levels: measurements (in mmol/litre) of the amount of glucose (sugar) in the blood. Glucose in the blood comes from the digestion of starchy foods such as bread, rice, potatoes, chapatis, yams and plantain, and from sugar and other sweet foods.

Body mass index or BMI: a measure of a person's weight in relation to their height, showing if they are overweight or underweight.

Caesarean section: a surgical operation in which an obstetrician makes an opening in the mother's abdomen and womb and removes the baby through it. (An obstetrician is a doctor who has had specialist training in the care of women during pregnancy and childbirth.)

Cholesterol: a fatty substance that is mainly made in the body from fat in the food that we eat. Cholesterol plays a vital role in the way cell walls work, but too much cholesterol in the blood can build up and cause narrowing in the artery walls.

Diabetes: is a common condition in which the amount of glucose in the blood is too high because the body is unable to use it properly. Normally a person's pancreas (an organ near the stomach) produces a natural hormone called insulin, which controls blood glucose levels. Diabetes occurs when the body does not produce enough insulin or produces insulin but cannot use it properly.

Diabetic ketoacidosis or DKA: untreated hyperglycaemia can lead to a serious condition called DKA. People with type 1 diabetes are particularly at risk of DKA, but it can affect anyone who depends on insulin injections. Without insulin, the cells in the body cannot use the glucose in the blood, so the body begins to break down its fat stores for energy instead. Using fat for energy produces harmful ketone acids which can build up in the blood. Ketoacidosis means acidity of the blood due to a high level of ketones.

Diabetic nephropathy: people with diabetes are at risk of developing kidney disease, known as diabetic nephropathy. The kidneys keep the right amount of water in the body and help filter out harmful waste, which then leaves the body as urine. Diabetes can cause damage to the small blood vessels that supply the kidneys and stop this filtering process from working properly.

Diabetic retinopathy: people with diabetes are at risk of developing eye problems, called diabetic retinopathy. Diabetes can cause damage to the small blood vessels that supply the retina, the seeing part of the eye. These blood vessels can become blocked or leaky, or grow haphazardly, which means that light cannot pass through to the retina.

Echocardiogram: or ultrasound of the heart, uses sound waves to create a moving image of the heart on a computer screen to check the way the heart chambers and valves are working.

Fasting plasma glucose test: this test uses a blood sample to check pre-breakfast (fasting) blood glucose levels. As well as diagnosing diabetes, the test can show whether there are problems in the way the body is using glucose.

Folic acid: or vitamin B₉, is very important for the development of a healthy baby. It reduces the risk of neural tube defects such as spina bifida.

Gestational diabetes: a type of diabetes that develops during pregnancy because the body cannot produce enough insulin to meet the extra needs of pregnancy.

Glibenclamide: a medicine (tablet) used to treat type 2 diabetes. Glibenclamide works by helping the body produce more insulin.

Glucagon: a hormone produced by the pancreas that raises blood glucose levels. It can be given to people with diabetes who have hypoglycaemia as an injection in emergencies.

HbA_{1c} test: the HbA_{1c} (pronounced H B A one C) test uses a blood sample to measure the average blood glucose level over the previous 2 to 3 months. The result is given as a percentage. In people without diabetes, it is usually below 6%.

Hyperglycaemia: means a higher than normal level of glucose in the blood. If left untreated, hyperglycaemia can lead to DKA.

Hypoglycaemia or a hypo: means a lower than normal level of glucose in the blood, usually less than 4 mmol/litre.

Induced labour/induction of labour: if labour is induced, it is started artificially.

Insulin: a hormone produced by the pancreas that helps glucose in the blood to enter the cells where it can be used for energy. Without insulin, the body can't use glucose properly and blood glucose levels rise.

Insulin pump: a pump worn on the body that gives a regular or continuous feed of insulin under the skin. It is an alternative to regular insulin injection.

Ketone: harmful ketones, or ketone acids, in the blood are produced when the body starts to use its fat stores to make energy. It is sometimes possible to smell ketones on the breath, a smell similar to pear drops or nail varnish remover. A simple test using urine or blood ketone testing strips can be used to check for ketones.

Metformin: a medicine (tablet) that is used to lower blood glucose levels in people with diabetes who do not require insulin.

Miscarriage: the loss of a pregnancy before 24 weeks. Most miscarriages occur during the first 12 weeks of pregnancy. Women who have a miscarriage usually go on to have a successful pregnancy next time.

Neonatal hypoglycaemia: a lower than normal blood glucose level in a newborn baby (neonate). There is a risk of neonatal hypoglycaemia in babies born to mothers with diabetes.

Neural tube defect: abnormal development of the brain or spinal cord, such as spina bifida, which can develop in the baby during very early pregnancy.

Oral glucose tolerance test (OGTT or GTT): an OGTT uses two blood samples, the first to check pre-breakfast (fasting) blood glucose levels, the second to check levels again 2 hours after a glucose drink. This is the usual test for diagnosing diabetes.

Statins: medicines (tablets) that reduce the amount of cholesterol made by the body and so lower the amount of cholesterol in the blood. They help to prevent heart disease, but are not safe to take during pregnancy.

Steroids: hormones that pregnant women can take to help their baby's lungs mature more quickly, if they are likely to have their baby prematurely. Steroids can raise blood glucose levels.

Type 1 diabetes: develops if the body's pancreas is unable to produce any insulin at all.

Type 2 diabetes: develops when the body can still make some insulin, but not enough for its needs, or when the insulin that is produced does not work properly (known as insulin resistance).

More information

The organisations below can provide more information and support for women with diabetes who are planning to become pregnant, and women who are pregnant who already have diabetes or develop it during pregnancy. Please note that NICE is not responsible for the quality or accuracy of any information or advice provided by these organisations.

- National Childbirth Trust, 0870 444 8707, www.nct.org.uk
- Insulin Dependent Diabetes Trust, 01604 622 837, www.iddtinternational.org
- Association for Improvements in the Maternity Services (AIMS), 0870 765 1433, www.aims.org.uk
- Diabetes UK, 0845 120 2960 (careline), www.diabetes.org.uk
- South Asian Health Foundation, 0777 193 3939, www.sahf.org.uk

NHS Direct online (www.nhsdirect.nhs.uk) may also be a good starting point for finding out more. Your local Patient Advice and Liaison Service (PALS) may also be able to give you further information and support.

About NICE

NICE produces guidance (advice) for the NHS about preventing, diagnosing and treating different medical conditions. The guidance is written by independent experts including healthcare professionals and people representing patients and carers. They consider the best available evidence on the condition and treatments, the views of patients and carers and the experiences of doctors, nurses and other healthcare professionals working in the field. Staff working in the NHS are expected to follow this guidance.

To find out more about NICE, its work and how it reaches decisions, see www.nice.org.uk/aboutguidance

This booklet and other versions of this guideline aimed at healthcare professionals are available at www.nice.org.uk/CG063

You can order printed copies of this booklet from NICE publications (phone 0845 003 7783 or email publications@nice.org.uk and quote reference N1485).

We encourage NHS and voluntary sector organisations to use text from this booklet in their own information about diabetes in pregnancy.

NICE has also produced the following booklets, which you may find useful. They are available at www.nice.org.uk or from NICE publications (phone 0845 003 7783 or email publications@nice.org.uk and quote the relevant reference number):

- 'Routine antenatal care for healthy pregnant women' available from www.nice.org.uk/CG062 (reference N1483)
- 'Care of women and their babies during labour' available from www.nice.org.uk/CG055 (reference N1327)
- 'Caesarean section' available from www.nice.org.uk/CG013 (reference N0479)
- 'Care of women and their babies in the first 6–8 weeks after birth' available from www.nice.org.uk/CG037 (reference N1075).