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Pregnancy Toolkit

Information about what to expect when you're expecting with type 1 diabetes.

Contents

This toolkit gives you information about what to expect when you're expecting with type 1 diabetes.

Introduction and goal of this guide

If you are reading this guide you have probably made the decision or are starting to think about the possibility that you would like to try for a baby.

If you're planning a pregnancy and have type 1 diabetes, you need to plan a few months in advance to have the best chance of having a healthy pregnancy. It's important to optimise blood glucose management when you have type 1 diabetes. By planning ahead, you can make sure you are ready for pregnancy, giving yourself enough time to make important changes.

This toolkit gives you information about what to expect when you're expecting with type 1 diabetes.

We'll talk about many of the factors that you need to consider when getting ready for a baby. In the next few chapters, we will discuss pregnancy with type 1 diabetes, with special emphasis on preconception planning, the pregnancy itself and delivery. We'll also explain the type 1 diabetes management goals for pregnancy and how to obtain the best possible support from healthcare providers at every stage.

Planning for a pregnancy with type 1 diabetes

Why plan?

Don't believe the stories you've heard about 'can't' and 'won't'. With careful planning and plenty of support, you can have a healthy, happy pregnancy.

The definition of 'right time' varies from person-to-person, but when type 1 diabetes is part of planning your family, there are a few extra things to consider to make sure you and your child are healthy.

The first eight weeks of pregnancy can be an important time in the baby's development. It's important to aim to have your type 1 diabetes as well managed as possible before you conceive so that you and your baby get the healthiest start possible.

It is really important that you should continue to use your normal method of contraception until you have spoken to your healthcare professional.

Pre-pregnancy goals for the mum-to-be

There are many things to consider as you plan for your pregnancy. Here is a pre-pregnancy checklist, with each topic expanded below:

- ☑ See your diabetes healthcare team and GP to talk to them about your plans
- ☑ Check your blood glucose management and have your HbA1c checked
- ☑ Check your medication
- ☑ Check your insulin
- ☑ Speak to your GP or diabetes healthcare team about taking folic acid. Pregnant people with type 1 need a higher dose than normal and this can't be bought over the counter.
- ☑ Have a retinal screening and also get your kidneys checked.
- ☑ Check if you have had your rubella vaccine
- ☑ Schedule a dental check
- ☑ Eat a varied balanced diet and keep active

☑ See your diabetes healthcare team and GP

When you're ready to plan a pregnancy, contact your diabetes healthcare team and let them know your plans. Schedule an appointment with your GP as well as it is important that they are aware of your plans too.

It is important that your GP or the team looking after your diabetes refer you to their specialist pre-pregnancy planning team, who will help you create a management plan. For example, they will review your medication and glucose targets. Once you are pregnant, you will spend a lot of time consulting with your diabetes healthcare team and tweaking your management plan. It's important to have a team you trust and feel comfortable with to discuss the physical and emotional aspects of your pregnancy.

As part of the team looking after you pre-pregnancy and throughout your pregnancy, there will be a diabetologist who specialises in assisting pregnant women with type 1 diabetes and an obstetrician who specialises in looking after women with type 1 diabetes.

A diabetes specialist nurse (DSN) and/or a diabetes specialist midwife (DSM) will also help you through every step from planning to delivery.

The team should also have a dietitian, who will help you balance food, insulin and the needs of your baby.

☑ Managing your blood glucose and HbA1c

It's never too early to be working towards your goal of optimal blood glucose management and HbA1c. Having the best possible blood glucose management before conceiving will help you and your baby be healthy. It's recommended that you aim to achieve and maintain the HbA1c goal advised by your diabetes healthcare team for a few months before becoming pregnant.

HbA1c shows your diabetes healthcare team what your overall blood glucose level is like over a period of weeks or months.

The National Institute for Health and Care Excellence (NICE) recommends that women who are planning a pregnancy with type 1 diabetes should be offered a monthly measurement of HbA1c.

HbA1c

If it is safely achievable, women with type 1 diabetes who are planning a pregnancy should aim to maintain their HbA1c below 48mmol/mol (6.5%). Women should be reassured that any reduction in HbA1c towards the target of 48mmol/mol is likely to reduce the risk of problems with the baby's development (congenital malformations). Women whose HbA1c is above 86 mmol/mol (10%) should be strongly advised to avoid pregnancy.

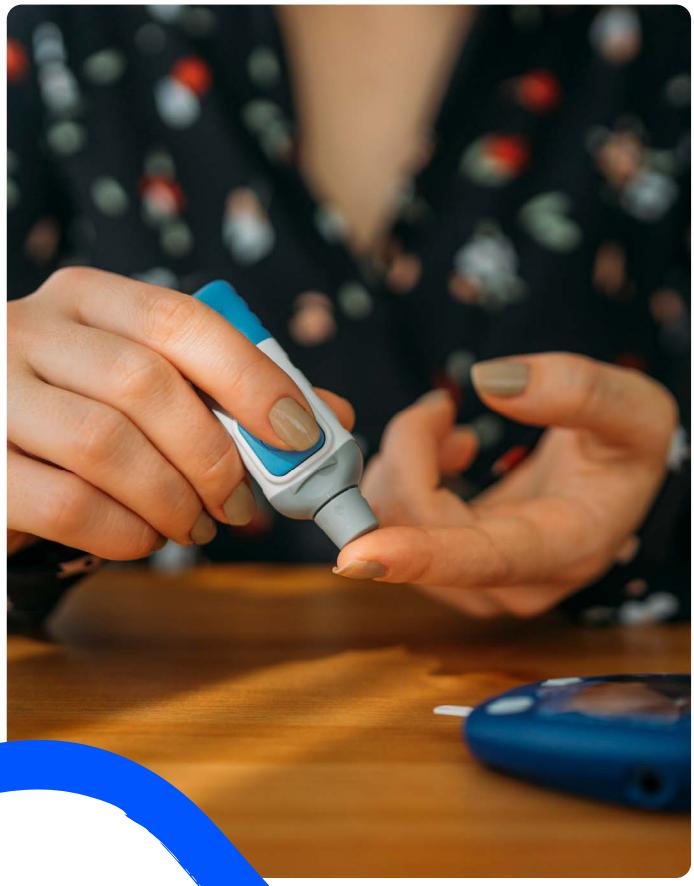
Blood glucose

You should agree your own pre-pregnancy targets with your healthcare team. As a general guide, during your pregnancy, you should be working towards these target levels*:

- **preprandial (before meals) blood glucose levels of 4.0 to 5.3mmol/L**
- **one hour postprandial (after meals) blood glucose levels below 7.8 mmol/L**

*It is important to agree individual targets that are right for you with your diabetes care team.

Source: NICE Diabetes in Pregnancy Guidelines



Time in range

If you are using a glucose monitor, time in range is a helpful indicator for glucose management. Time in range is the overall percentage of time that you spend with your blood glucose levels within target range.

Recommendations from the International Consensus on Time in Range suggests aiming for over 70% time in range (between 3.9-10.0mmol/L) and it's recommend that you should aim for:

- **Pre-pregnancy less than 4% time below range (less than 3.9mmol/L)**
- **During pregnancy these targets are tighter, aiming for over 70% time in range (between 3.5-7.8mmol/L) and less than 4% time below range (less than 3.5mmol/L).**

Source: Clinical Targets for CGM Data Interpretation: Recommendations from the International Consensus on Time in Range

While these are the targets recommended (by NICE 2020) it is important to remember that everyone is different. Therefore, it is important that you agree your individual targets with your pre-pregnancy healthcare team. You won't be alone in your journey to manage your blood glucose, and your pre-pregnancy healthcare team will work with you to help you achieve your targets.

The insulin needs of women with type 1 diabetes will constantly change throughout pregnancy. Prior to pregnancy, some women with type 1 may move to an insulin pump to improve the precision of their insulin doses and the ability to adjust basal rates. Some women may use a continuous glucose monitor (CGM) to better monitor glucose trends. Other women find that using a pump and CGM during their planning and pregnancy can help them to maintain steady HbA1c results.

Remember, any changes you make to your type 1 diabetes management routine are part of your unique circumstances, and these decisions must be discussed and considered carefully with your diabetes healthcare team to ensure you understand the benefits, drawbacks, and commitments required.

☑ Check your medication

Know your medications. Some medications and supplements are not considered safe during pregnancy, particularly during the first three months, so you will want to have an extensive talk with your diabetes healthcare team about each medication and supplement before conception.

Statins, angiotensin-converting enzyme inhibitors and angiotensin receptor blockers such as ramipril or atorvastin are medications for women with type 1 diabetes that are not recommended for use in pregnancy, meaning that they have a risk of causing harm to the baby.

"Before we started trying for a baby I remember asking my consultant if my HbA1c was low enough for us to proceed. We had been working hard to lower my HbA1c. It felt strange asking permission to try and get pregnant, but it was great when he smiled and said: 'Absolutely, these levels should be fine.'" **— Holly**

☑ Check your insulin

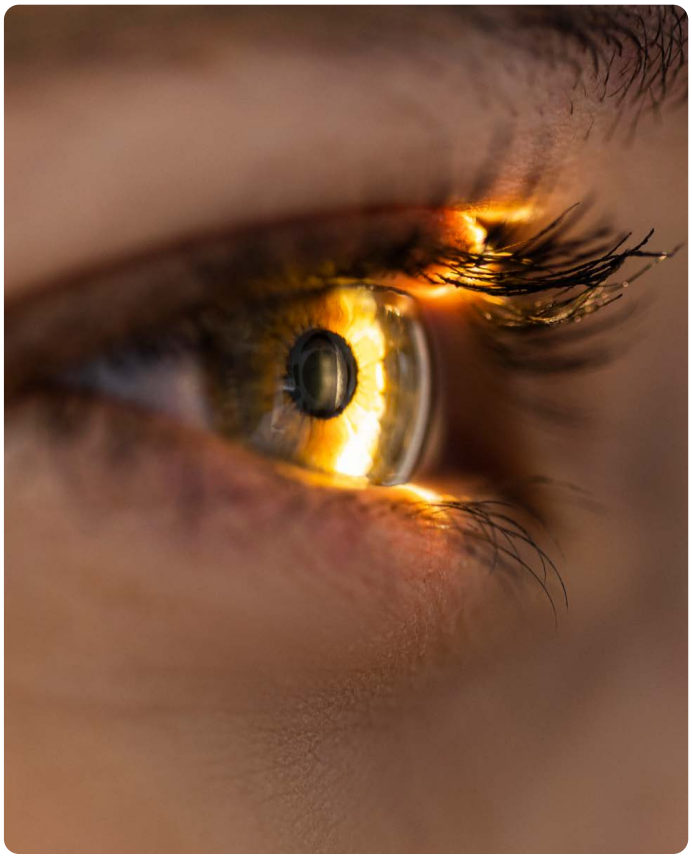
Some types of insulin are not suitable for use during pregnancy. Discuss this with your diabetes healthcare team to ensure you are on a suitable insulin for pregnancy. This is so that you can make the insulin dose adjustments and changes required as your pregnancy progresses.

☑ Take folic acid

Taking folic acid is important for all women planning a pregnancy to reduce the risk of neural tube defects. This is where the neural tube does not close properly and can occur early in pregnancy. It can lead to conditions including spina bifida, a fault in the development of the spine and spinal cord which leaves a gap in the spine. Neural tube defects are more common in women with type 1 diabetes than in the general public, so you're advised to take 5mg of folic acid when planning a pregnancy and up to at least 12 weeks during pregnancy. This dose is higher than that recommended for women without type 1 diabetes, so you'll need to ask your GP for a prescription.

☑ Have your eyes and kidneys checked

It is vital that your diabetes healthcare team check your eyes and kidney function (with a retinal screening to check your eyes and a blood test to check your kidney function) as part of your pre-pregnancy checks. Pregnancy puts extra pressure on the small blood vessels of the eyes and the kidneys, so it's important to minimise the impact on these organs as much as possible.



☑ Manage your dental health

Gingivitis (inflammation of the gums) during pregnancy is very common, affecting over 70% of women. Hormonal changes during pregnancy can exaggerate how gum tissue reacts to plaque, causing gums that are more likely to bleed. Patients with diabetes are more likely to develop periodontitis, a more serious form of gum disease. The best way to prevent oral complications is to:

- Have a routine dental check-up and professional clean to control any existing problems before your pregnancy
- Maintain good oral hygiene by brushing your teeth after each meal and using floss or interdental brushes. Using a toothpaste containing triclosan can also help reduce gingivitis during pregnancy

☑ Eat a varied, balanced diet and keep active

Get your weight in the healthy target range

Carrying too much weight can make conception difficult and increase the risk of pregnancy complications, such as pre-eclampsia.

To find out if you are carrying extra weight, you will need to check if your body mass index (BMI) is within the recommended weight range. Calculate your BMI using this online calculator:

Ideally, your BMI should be within the recommended range before you conceive to increase your chances of a healthy pregnancy.

Eat a healthy diet

Include whole grains, fruits, vegetables and low-fat dairy products in your diet, while reducing your intake of processed, salty, high-sugar and high-fat foods. It is important to aim for a healthy body weight to increase the chances of conception.

Eating a healthy, balanced diet can also stabilise blood glucose levels, which in turn improves your chances of conception.

Ask your DSN, DSM, dietitian or type 1 diabetes specialist for individual recommendations about calorie and carbohydrate intake during the conception phase.

Exercise regularly

Exercise is important for all women who want to be or are already pregnant. A good exercise programme gets your body in the best shape possible for the demands of carrying a baby. Regular exercise can also regulate your blood glucose levels, further enhancing your chances for conception, a healthy pregnancy and a healthy baby (it can also help lower stress). You will need to take extra care to monitor your blood glucose to avoid the negative consequences of low blood glucose levels.

Reduce your caffeine intake

It has been suggested that a high intake of caffeine during pregnancy may increase the risk of miscarriage. Be prepared to reduce your intake of caffeine during conception and pregnancy if you drink more than one or two cups of caffeinated coffee (or the equivalent in other beverages) per day.

Cut out alcohol and stop smoking

Both alcohol and smoking can have detrimental effects on an unborn child, so it is highly recommended that both be discontinued before trying to conceive. Help with stopping smoking should be available either through your GP or diabetes healthcare team. Visit the following websites for more information:
Alcohol while pregnant
Stop smoking

☑ Involve Health Care Professionals

Finally, you should ensure you have someone from your diabetes healthcare team you can contact as soon as you think you may be pregnant

Now you are fully aware of all the pre-pregnancy goals and you're attending the pre-pregnancy planning service, you are ready to try for a baby.

There is a lot to think about, especially when you're also managing your type 1 diabetes.

Your pregnancy can still be healthy and amazing, you may just need a little extra support before and during your pregnancy. At the pre-pregnancy planning appointments, you should receive a health check including blood tests, treatment for any conditions that may interfere with your pregnancy and you should also get your immunisations updated.

You should also receive additional assessments for diabetic neuropathy (nervous system), and cardiovascular disease (heart) prior to conception. It's important to have a baseline for these concerns before getting pregnant. Make note of your thyroid function level prior to conception and compare your results during and after your pregnancy. This is because you have an increased risk of developing thyroid disease.

It is also important that you, your partner and other family members know how to treat hypoglycaemia. Hypoglycaemia is common in pregnancy and may happen more often, and be more severe, than before you were pregnant.

IMPORTANT NOTE: If you do not already have a glucagon kit, now is the time to get a prescription from your doctor and familiarise yourself and your family members with how and when to use it.

Although it's recommended to put things in place before a pregnancy, sometimes the unexpected happens, and an unplanned pregnancy doesn't mean that there will necessarily be a negative outcome for you or your baby. Read on for more information about unplanned pregnancies.

An unplanned pregnancy: Important considerations

If you fall pregnant unexpectedly, it is best not to get bogged down trying to work out exactly what your blood glucose levels were or whether they were high enough to increase your risk of complications.

Even if you feel certain that your blood glucose was not within the recommended range, the most important step to take at this point is to get on track with your pregnancy by getting your levels where you need them to be as soon as possible. Start checking your blood glucose more frequently. If you are not using a flash or a continuous glucose monitor (CGM), ask your diabetes healthcare team about how technology can help. Contact them as soon as possible to make an appointment. Next, use our guide and other sources of information to find out what to expect during a pregnancy with type 1 and follow your diabetes healthcare team's recommendations.

Conception misconceptions

Myth: Everyone with type 1 diabetes who becomes pregnant is put on bed rest.

Fact: Women are put on bed rest for a number of reasons during pregnancy, but type 1 diabetes is not one of them. Common reasons for bed rest during pregnancy include risk of miscarriage, high blood pressure or early labour. There are also varying degrees of bed rest, from resting at home to resting in hospital either partially or completely. There is no evidence to suggest that complete bed rest is beneficial, and in fact, it may be better to keep exercising during pregnancy unless there are medical reasons for your doctor to ask you to stop. If you play a contact sport, speak with your doctor for advice about continuing this in pregnancy.

Myth: Having a blood glucose level above 10mmol/L during the first few weeks of pregnancy (before the pregnancy is confirmed) will cause the baby to have birth defects.

Fact: It is true that the first six weeks of pregnancy are critical because your baby's organs are forming during this time. Fortunately, birth defects are quite rare for women with type 1 diabetes. However, they occur more frequently than in the general population and high blood glucose is associated with the increased risk. One high reading should not cause concern; however, consistent high readings over time should be minimised. Optimising blood glucose management before a pregnancy and during the first trimester will reduce this risk significantly. If you are concerned about high blood glucose levels you've had during the first few weeks of your pregnancy, you should discuss these concerns with your diabetes healthcare team. There are routine antenatal screening tests including ultrasound screening which you can discuss with your maternity team.

As you move towards pregnancy

After pre-conception appointments and planning, take your time to digest the information.

Talk about your concerns with your partner, friends or family, and get support as your move towards your goals. Take the time you need to prepare emotionally and physically for pregnancy.

Once you have decided to start trying to get pregnant, you may feel heightened levels of excitement and anxiety. It might feel unfair at times that there is more to think about with a pregnancy and type 1, but try and remind yourself that it's all for one goal: a healthy baby and a healthy you.

Let's go over the people who will be involved in your care throughout your pregnancy.

Your multidisciplinary team

General Practitioner (GP)

Your GP is best for 'big picture' health moments. Although your pregnancy and diabetes will be best handled by your specialists, your GP is there for the before, during, and after, so keep them in the loop on your decision to have a baby.

"The diabetes specialist nurse who looked after me for both pregnancies was amazing. She was practical, reassuring and realistic about the demands of the day-to-day management of full-time work, pregnancy and type 1 diabetes" — Emily

Diabetologist

This doctor is your type 1 expert and during the preparation and duration of your pregnancy they will be invaluable in helping to keep your type 1 as well managed as possible. Inform your diabetologist that you're preparing for a pregnancy and, once you're pregnant, stay in close contact. Your diabetologist will be the one to work with you to monitor your insulin needs and adjust as needed.

Diabetes Specialist Nurse or Diabetes Specialist Midwife

You may have a diabetes specialist nurse (DSN) or a diabetes specialist midwife (DSM) on your team, or both. Your DSN or DSM will work with you and your diabetologist to help you manage your type 1 diabetes. Like any other midwife, your DSM will help you to manage all aspects of type 1 and pregnancy, including preparation for birth and breastfeeding, and will stay in close contact with you throughout your pregnancy.

Dietitian

A specialist dietitian will be available both before and during your pregnancy, supporting you and your type 1 management. This might include helping you to know which food choices are healthier or assisting you with carbohydrate counting.

Conception — things to think about

Contact your diabetes healthcare team as soon as possible to make an appointment to talk about your pregnancy.

Know your cycle

Pinpointing when you ovulate each month is the single most helpful task in improving your chances for conception. There are many ways to do this, like using the calendar, taking your body temperature or purchasing an ovulation predictor kit. Books, apps and websites offer a wide variety of options to help you better track your menstrual cycle and sexual activity, but most of all, relax and enjoy this special time.

Be patient

Pregnancy can happen today, in six months or in 12 months. There is no magic number.

Even if you follow all of the instructions you're given, pregnancy may not happen straightaway. If you're feeling frustrated with progress, speak to your diabetes healthcare team who maybe be able to provide simple fertility checks.

Even if you follow all of the instructions you're given, pregnancy may not happen straightaway.

Involving your support network

Talk

It is natural for a partner or loved ones to be concerned about the challenges type 1 diabetes can bring to a pregnancy in terms of your health and your baby's. Be open and discuss their concerns, as well as your own. Review your current daily requirements for managing type 1 diabetes and the ways you expect that your routine may change after you become pregnant.

Understand your roles

Make sure your partner or loved ones understand their role in your pregnancy. Teamwork and communication are important for any pregnancy, but especially important for anyone managing type 1 diabetes as well. The number of doctor visits and focus on your blood glucose level can be isolating for your partner or people in your support network, so you may consider taking them to your appointments.

Ask for and/or offer help

Consider ways to involve a partner, friend or family member and suggest specific ways they can help you. Rather than trying to do everything yourself, ask for help and support from others with

household tasks or weekly tasks such as shopping. During the time that you would normally spend completing these tasks, relax in a quiet place and spend time recording your blood glucose levels, reviewing your numbers for patterns and making necessary adjustments to help your pregnancy feel as stress-free as possible.

Plan ahead

It's important to make your type 1 diabetes management a priority rather than trying to force the extra tasks into your already busy schedule. Low blood glucose levels are more common during pregnancy due to the ever-changing insulin requirements so it is very important to prepare yourself and your partner for these changes. As well as making sure your partner knows where the food, juice and glucose tablets are to treat unexpected lows, make sure they know how to use a glucagon kit and when to use it.

Can you have IVF if you have type 1 diabetes?

Yes, with the right support, information, and preparation. Like any planning for pregnancy, there are some goals that you can work on about three months before beginning a cycle.

Getting the right insulin to carb ratios, how sensitive you are to insulin and how long your insulin works for all become very much a part of managing your type 1 and optimising IVF treatment. Your fertility team can advise on how to manage your diabetes to give the IVF the best chance of working.

Mind your moods

Mood swings and emotional changes are pretty common during pregnancy, and your blood glucose levels can affect your moods and emotions too. Try and work out a way for you and your partner or support network to be patient and considerate with each other.

Heavy-lifting

As your pregnancy moves along, there may be restrictions on what or how much you can lift, as well as limits on your activity. If you can, ask your friends or family for help with any activities that involve heavy-lifting or other tasks you've been advised not to do.

Paternity leave

Employers must now offer paternity leave, and there are others who offer maternity/paternity leave for same-sex couples. Find out from your respective employers what options are available to you and your family. Explore all leave options and consider how you will use the leave most effectively after the birth of your child. Some families take their leave together, while others stagger their days. Discuss these options with your partner and do what works best for your family.

Existing children

If you already have children you may need to consider the availability of additional support, as you manage your pregnancy with type 1.

Working and pregnancy

With the careful management of blood glucose levels that is need during pregnancy, if you work very irregular hours or do a lot of travelling, you may need to consider whether you will need to renegotiate your hours to have more of a 'standard' working day.

Look into your employer's benefit plan to see what it says about pregnancy.

Employers' benefits vary widely about the amount of time you are allowed to take off work with and without pay after giving birth.

Sometimes, type 1 diabetes can create complications during pregnancy that mean you may have to take time off work or have bed rest. Talk to your HR department and ask about your entitlement (for example, whether your paid time off after the birth might be affected by your doctor prescribing bed rest/time off work prior to the birth).

Familiarise yourself with the Equality Act 2010 (England, Scotland and Wales) and the Disabilities Discrimination Act if you are in Northern Ireland. Be prepared to advocate for what you need to make sure you have a healthy pregnancy. This can mean anything from having a scheduled snack time at work to taking time off.

To find out more about your rights at work, visit the following websites:

www.gov.uk/working-when-pregnant-your-rights

www.gov.uk/equality-act-2010-guidance

https://www.nidirect.gov.uk/articles/diversity-and-discrimination
(Northern Ireland only)

https://www.nhs.uk/pregnancy/keeping-well/your-health-at-work/

The first trimester (weeks 1 - 12)

Now that you have found out you're pregnant, you're starting one of the most exciting times in your life, but it's normal to feel overwhelmed, lonely or worried at times too.

If you feel like this, reach out to your partner, support network or diabetes healthcare team to speak about any concerns.

While you may not have a bump yet, your body is already changing in many other ways. You may notice that your skin is a little less prone to breakouts, that your hair seems thicker and shinier than before, and that your hair and fingernails are growing at a rapid rate. You will also see changes with your type 1 diabetes too.

Key things to know:

- **You might have more frequent fluctuations in blood glucose levels**
- **Morning sickness may occur**
- **You will have more appointments**
- **You will have regular screening appointments**
- **You can reach out and talk about any worries you may have**

Blood glucose management

Hypoglycaemia (low blood glucose)

In this first trimester, as the cells which are developing into your baby are growing and multiplying every day, your body may be more sensitive to insulin. This may result in an increase in hypos in the first trimester.

Check your blood glucose before every meal and one hour after every meal if on multiple daily injections (MDI).

Ideally your blood glucose should be between 4.0 and 5.3mmol/L before meals and below 7.8mmol/L one hour after meals (6.4mmol/L if you test two hours after meals). Always test before going to bed and before driving. If you are using a glucose monitor make sure you check readings regularly.

Make sure you have plenty of hypoglycaemia treatments available. Your diabetes healthcare team can give you a gel containing glucose that you can swallow if your glucose levels are low.

You should also make sure you have glucagon to inject in an emergency to raise your blood glucose, and that your partner or support network know how to use it.

You may also want to consider how to manage the increased risk of hypos at work. This is a delicate matter as you may not be ready to tell your employer that you are pregnant, but it's important that colleagues are aware of the symptoms and treatment for hypoglycemia. It's extremely important during this time that your partner or those close to you become familiar with the signs of a low blood glucose level. Some of these symptoms may be new to you or unusual, so it's important that they stay alert and be ready to act. Learn together by testing frequently and paying attention to subtle signs.

"Up until about week 23, my insulin requirements were less than before I was pregnant. I love that this is because my pancreas was able to produce its own insulin for the first time in 17 years! I went low a lot, but to me, that was fine. I knew that this wouldn't harm the baby." — Holly

Pregnant people find a glucose monitor to be really useful during these first few weeks of pregnancy, especially if low blood glucose levels happen more regularly. Talk with your doctor about getting access to glucose monitoring technology if you are not already using it.

Hyperglycaemia (high blood glucose)

It is important to pay close attention to high blood glucose readings during pregnancy. Diabetic ketoacidosis, which develops from a period of sustained high blood glucose, can be harmful to your baby, and you. If your blood glucose readings are above 10mmol/L remember to check for ketones. Your diabetes healthcare team will provide you with ketone testing strips and a meter to test your blood for ketones if you don't have one already.

Diabetic ketoacidosis can occur without you feeling seriously ill, making it a dangerous condition. If you are unwell (for example, if you are being sick or have diarrhoea) or if your blood glucose is over 10mmol/L and on rechecking after an hour still remains greater than 10mmol/L, you should test your blood for ketones. A blood ketone level above 0.6 mmol/L should be discussed with your diabetes healthcare team as soon as possible.

Blood glucose challenges

One of the biggest emotional hurdles in managing a pregnancy with type 1 diabetes is handling blood glucose variations. During pregnancy, some people may feel responsible for creating a safe environment for the baby to thrive in, and type 1 diabetes can make guilt and worry rise to a whole new level.

For many women with type 1 diabetes, new blood glucose thresholds are set, and these new goals can seem very intimidating. Your diabetes healthcare team may recommend that you set a fasting blood glucose goal between 4.0 and 5.3mmol/L. This may be a scary goal if you have because of hypoglycemia unawareness, fear of overnight blood glucose lows, and many other type 1 diabetes concerns.

Even if you've been managing your diabetes for a long time, pregnancy presents a whole new set of challenges. You will be working in partnership with your diabetes healthcare team to manage these challenges, so you are not alone.

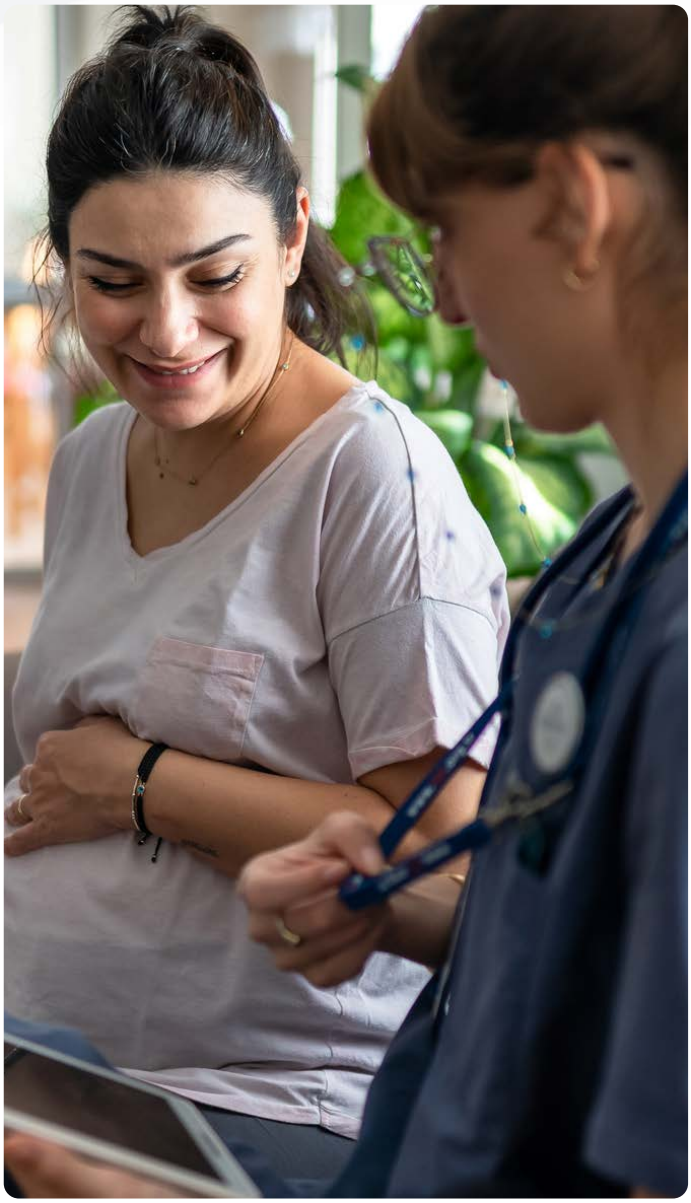
Morning Sickness

Morning sickness is common during the early stages of pregnancy. This is largely due to the hormonal changes happening during the first few weeks but can continue throughout pregnancy. Despite the name, morning sickness does not just occur in the morning. It can vary in severity from feeling nauseous to severe ongoing sickness and vomiting.

Eating smaller portions more often can help ease nausea.

Managing vomiting and sickness with type 1 diabetes can be challenging so ensure you have the sick day rules and follow these if you experience any sickness during your pregnancy. If you are experiencing any severe sickness, contact your GP who may be able to prescribe you anti-sickness medication.
Sick day rules can be viewed here

Antenatal visits



With every pregnancy comes plenty of appointments at the antenatal clinic. When you're pregnant with type 1 diabetes, you'll have a few extra appointments.

Women with type 1 diabetes are often given a list of all their scheduled appointments during the course of their pregnancy, and each is important in its own way. However, to make it as easy as possible, you should be seen by your diabetes healthcare team at a joint diabetes antenatal clinic, where all the healthcare professionals you need to see are in the same place.

Antenatal appointments

Just like any other pregnant woman, you'll have regular appointments to see your midwife. A routine pregnancy usually includes two or three ultrasounds, but with type 1 diabetes, you will have regular ultrasounds from around 28 weeks gestation to check the growth of your baby. Women with type 1 have an increased risk of a 'large for dates' baby. This is where the baby measures more than the ninetieth percentile on a personalised growth chart. This can result from high blood glucose levels during pregnancy but there are other factors too.

You may want to discuss with your employer the frequency of appointments you will be required to attend during your pregnancy and agree a plan to manage this.

Your diabetes healthcare team

Diabetologist and diabetes specialist nurse or midwife

You will most likely see your diabetologist every two weeks during pregnancy, virtually or in-person, to help you maintain your blood glucose level.

Together with the Diabetes Specialist Nurse (DSN) or Diabetes Specialist Midwife (DSM), they will help you manage blood glucose levels, help you with your blood glucose management and can help with insulin dose adjustment as needed. As your pregnancy progresses, your insulin requirements can change as often as every few days and insulin dose adjustments may be made regularly. Your team are there to help you throughout your pregnancy so let them know about any concerns you have.

Dietitian

Type 1 diabetes and pregnancy can also create some tricky food situations. For example, it can be challenging to manage cravings whilst choosing balanced food options.

What if you're dealing with morning sickness and don't want to eat breakfast, even though you've taken insulin for it? How about if you're craving a cheesecake every afternoon, but dealing with a stubborn high blood glucose trend? The dietitian on your diabetes healthcare team will be able to help.

There are certain foods that are not safe for a growing baby, including some soft cheeses, raw fish, liver and liver products such as pâté. Your dietitian can help you understand what's safe for baby, safe for you, and easiest on your blood glucose levels. Even if you meet with your dietitian only a few times throughout the pre-pregnancy and pregnancy it's very useful to update your skills on carb counting, learn how certain foods may impact your blood glucose and understand the benefits of incorporating low glycaemic index foods in your diet. With this knowledge, you can help manage cravings without adversely impacting blood glucose management and minimise postprandial (post-meal) glucose peaks over 7.8mmol/L which is often a particular problem after breakfast.

Specific appointments and screening in the first trimester

Eye examination

Everyone with type 1 diabetes should have regular eye examinations at least once a year, but when pregnant, you should have these examinations more regularly. Eye screening detects potential issues with the eyes, such as diabetic retinopathy.

Your diabetes healthcare team will arrange an eye examination for you if you have not had one in the previous three months. At the eye screening clinic, the healthcare professional may use eye drops to make your pupils bigger and then use a digital camera to take a photograph of the back of your eyes.

Pregnancy hormones can affect the blood vessels of the eyes, so even if you don't have pre-existing diabetic retinopathy, you need to be closely monitored during pregnancy for changes in eye health. If the changes reach a certain stage you may be offered treatment that is safe in pregnancy.

Very occasionally, it may be recommended that you avoid further stress on the eyes by having a caesarean delivery. This is why it's important that you are regularly tested and discuss any developments with your medical team.

Kidney test

People with type 1 diabetes are at higher risk of having kidney problems known as diabetic nephropathy. If your kidney function has not been checked in the previous three months then your diabetes healthcare team will test it. They will take a urine sample to check for protein, which is an indicator of how the kidneys are working. They will also take a blood sample to check that the levels of substances filtered by the kidneys are normal. As with all pregnant people, your urine will be checked at each clinic visit to check for urinary tract infection or signs of pre-eclampsia developing. Pre-eclampsia is persistent high blood pressure with proteinuria or swelling that develops during pregnancy or the post-partum period, and left untreated can lead to complications for both mother and baby.

Ultrasound scan

You will be offered an ultrasound scan between eight and 14 weeks of pregnancy to estimate when your baby is due and to check whether you are expecting more than one baby. This scan may also be part of a screening for Down syndrome should you decide to have the test.

Blood test and nuchal translucency scan for Down syndrome

Everyone who's pregnant should be offered a scan to see how far along they are in your pregnancy between weeks eight and 14 of pregnancy (called a dating scan). In addition, most clinics* offer a nuchal translucency scan and a blood test to screen for Down syndrome. If you choose have a screening for Down syndrome, the dating scan and the nuchal translucency scan can be carried out at the same time, after 11 weeks before the 14th week of pregnancy.
The blood test measures two proteins associated with pregnancy. At the ultrasound scan appointment, the sonographer measures the thickness of the nuchal translucency (a pocket of fluid) at the back of your baby's neck. The information from the blood test is combined with your age and the nuchal translucency measurement and used to work out your individual chance of having a baby with Down syndrome.

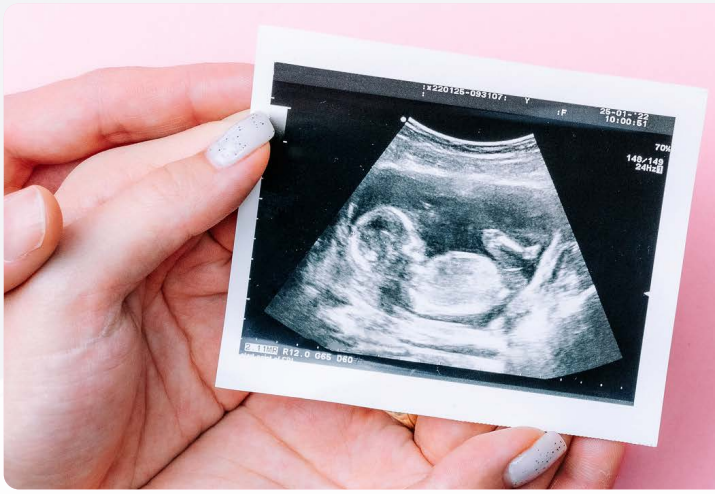
*This screening is not routinely offered in Northern Ireland.

Should I call my diabetes healthcare team?

One question you may ask yourself is:
"Should I call my diabetes healthcare team?". Here's a quick chart to help you make the decision.

My blood glucose is only a little elevated, but I have moderate ketones.	This is a good time to call your diabetes healthcare team to make them aware of the situation. You may be able to flush the ketones by drinking lots of water and closely monitoring both your hydration and your blood glucose levels. If your blood ketone level is above 0.6mmol/L call your diabetes healthcare team for advice.
I'm so nauseous and sick that I can't keep any food down or my blood glucose level regulated.	If you are vomiting due to morning sickness and you are experiencing low blood glucose levels that you are unable to bring up enough, call your diabetes healthcare team. They may want to adjust your insulin doses over the phone or want you admitted for observation until your nausea passes. Speak to them on the phone and see how they would advise handling this situation.
I had a bad low and now I'm scared that something is wrong with my baby.	Did you pass out due to your low blood glucose level? Did you fall and/or hit your stomach or bump? If so, you should call your GP or diabetes healthcare team as soon as possible so that you and your baby can be checked out.
I am low every morning and high almost all afternoon. What can I do?	If you and your diabetes healthcare team are comfortable with you adjusting your insulin doses and basal rates yourself, make your dose changes in small increments so that you can keep track of what works and what needs more or less. You should be able to call them and have an over-the-phone consultation. The constantly changing insulin needs of pregnancy require teamwork, so don't be afraid to ask for help!

The second trimester — preparing for birth (weeks 13 - 27)



In the next three months, you will see your bump grow as your baby develops.

At this stage of your pregnancy, you may feel common symptoms which are not related to your diabetes, such as fatigue, indigestion, increased appetite or constipation.

You may also see continued breast enlargement, bleeding gums, mild swelling of the ankles and haemorrhoids.

Insulin requirements and blood glucose management

Insulin

Until now, you may have made very few changes to your insulin dosage. The second trimester will bring a number of changes in your type 1 diabetes management. Not only will you and your baby be growing, but you will start to need more insulin.

Most women will begin to feel their baby move between 18-24 weeks.

This increase in the insulin you need is because of the hormones produced by the placenta, which cause insulin resistance.

It is not uncommon for the amount of insulin you need to double during your second trimester and your insulin-to-carbohydrate ratio to change dramatically, so one unit of insulin will cover less carbohydrate. The exact point when this starts to change differs from person to person.

Using a glucose monitor will make it easier to adjust your dose and your insulin-to-carbohydrate ratio. Good nutrition and physical activity are important during pregnancy. Physical activity, such as walking, can help to increase insulin sensitivity. You may also notice an increase in your hunger levels and some new – and perhaps bizarre – food cravings. This is very normal. Eating lots of small meals is the best way to keep from feeling hungry and will help stabilise blood glucose levels. Since heartburn is common during this phase, eating more slowly may help you avoid this uncomfortable condition.

Blood glucose management

Most importantly, you should be prepared for fluctuations in your blood glucose levels. Set targets for both high and low glucose levels with your diabetes healthcare team for the alarms on your glucose monitor. It is important to store snacks and/or glucose tablets in places you may often be. Keep some in your car, bag, desk at work, beside your bed or anywhere else you may find handy.

Keep in contact with your diabetes healthcare team and get help from them if you are not confident making changes to your insulin doses during this rapidly changing phase. Discuss any concerns you have with them.

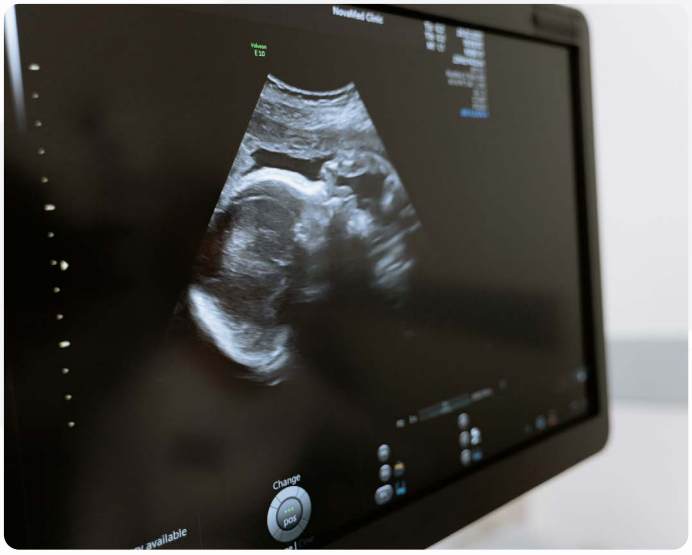
Talk with your partner, friends or family members about what you're experiencing, especially about low blood glucose levels.

It can be helpful to have a second set of eyes helping to keep you safe from unexpected lows. Pay close attention to any high blood glucose readings (above 10mmol/L) too. Test for ketones anytime your blood glucose is above 10mmol/L or you are feeling unwell, and contact your diabetes healthcare team if you have ketones or are unsure what you should do.

Antenatal visits

You will continue to have ultrasounds during your second trimester, and you will have more than someone without type 1 would have. This is because ultrasounds are the best way for your diabetes healthcare team to keep a close eye on your baby's development.

Ultrasounds can be fun because they provide in utero photos of your baby. Today's high-resolution photos provide lots of detail about your baby. You may be able to see your baby's face or see them sucking their thumb.



Second trimester misconceptions

Myth: Because I have type 1 diabetes, it is too dangerous for me to carry multiple births (i.e. twins, triplets).

Fact: Women with type 1 diabetes are no different than women who don't have type 1 diabetes when it comes to successfully carrying multiple births. There are numerous cases of successful multiple births on record for people with type 1.

Myth: I am pregnant and I have type 1 diabetes, therefore I should not get the flu vaccination.

Fact: Everyone with type 1 diabetes, including pregnant women, should get a flu vaccination every year to protect themselves and their unborn child. The best time to get a flu vaccination is between October and mid-November, before the flu season begins. People with type 1 diabetes are entitled to a free flu vaccination.

Specific appointments and screening in the second trimester

Eye examination

At 16 - 20 weeks, you will be offered another eye examination if you were found to have diabetic retinopathy at the first antenatal appointment. It is really important that eye screening is carried out if it's needed and you discuss any developments with your diabetes healthcare team.

"I've had more scans than my non-diabetic pregnant friends, which has been fun. It's lovely to be reassured that everything is progressing fine, but also to see our little one again."

— Holly

Quadruple screening test

If it has not been possible for you to have the combined screening test for Down syndrome in the first trimester (perhaps because of a late booking appointment or fetal position), you may be offered the quadruple screening test in the second trimester.* The test is offered between 15 - 20 weeks. This is a blood test that measures four proteins associated with pregnancy. This information is combined with your age and used to work out your individual chance of having a baby with chromosomal conditions such as Down syndrome. This test only measures risk and is not a diagnostic tool.

Type 1 does not increase your risk of having a baby with Down syndrome.

For more information visit nhs.uk

* This test is not routinely offered in Northern Ireland.

Anomaly scan

You will be offered this ultrasound scan at around 20 weeks. This is a detailed scan which checks for major physical abnormalities with your baby and is offered to all pregnant people. Your type 1 diabetes means you have a slightly higher risk of having a baby with heart problems, so particular attention will be given to scanning the heart.

Fetal growth scans

As previously mentioned, you may also be offered additional ultrasound scans throughout your pregnancy as they are the best way of monitoring your baby's growth, and these scans may start later on in the second trimester.

Mind, body and the second trimester

You will not only see your body beginning to change, but also likely notice some emotional changes. Feeling emotional is very common during this trimester. It can be easy to confuse the changes in mood caused by low blood glucose with the emotional rollercoaster of pregnancy. Similarly, weepiness, forgetfulness, and a scattered mindset are commonly seen during the second trimester and are easily confused with a low blood glucose level. However, if you are at all concerned about any of these issues, make sure to reach out to your diabetes healthcare team for help and support.

You may be accustomed to being the primary manager of your condition at all times, including the testing of your blood glucose levels. At this point in your pregnancy, talk with your partner, friends or family and consider temporarily adjusting their role in your type 1 diabetes management. Foster a sense of partnership in the pregnancy by discussing the likelihood of you experiencing fluctuations of blood glucose readings during the second trimester. Discuss the signs and symptoms of low blood glucose and review the use of your glucagon emergency kit. Consider encouraging your partner, friends or family to ask if they can help at any time.

Important facts:

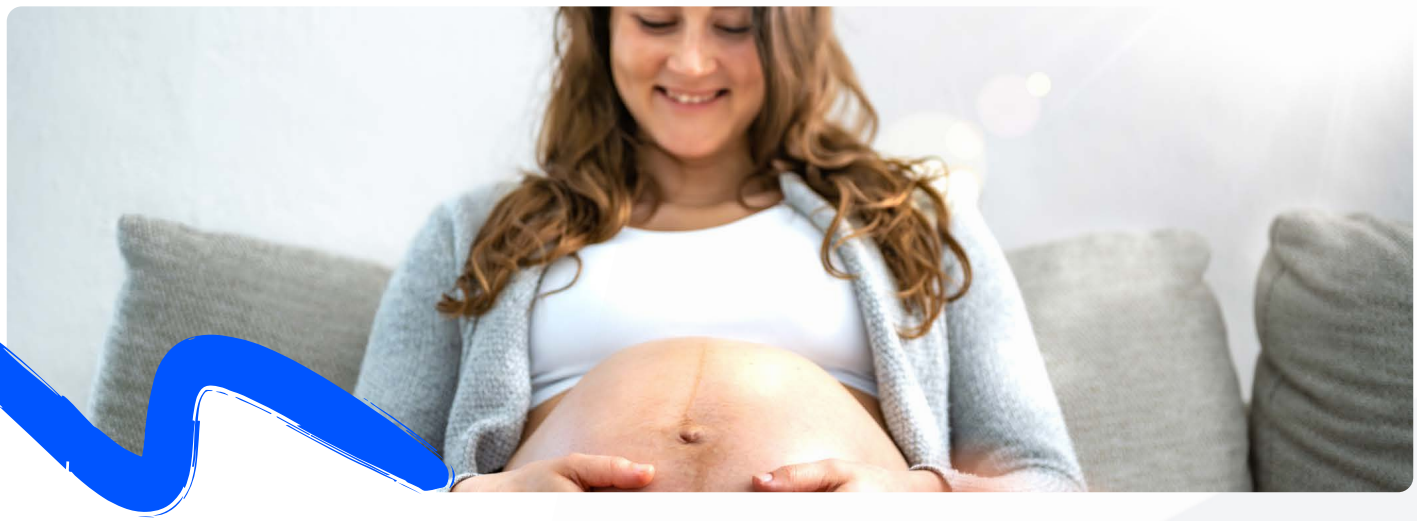
- **Women with type 1 diabetes are at an increased risk of delivering their baby early, but many women will not deliver earlier than guidance recommends**
- **Guidance recommends women with type 1 deliver their babies around 38 weeks if all is going well**
- **Appropriate nutrition is especially important for women with type 1 diabetes during pregnancy**
- **Women with type 1 diabetes are at a higher risk of developing pre-eclampsia (high blood pressure and protein in urine during pregnancy). Therefore, your blood pressure and urine should be checked during every antenatal visit and you will be advised to take 150mg of Aspirin from 12-36 weeks to help reduce the risk**
- **Women with diabetes are at an increased risk of infections such as urinary, vaginal, and kidney infections. During pregnancy, this kind of infection can be harmful and increase the risk of preterm delivery**
- **Pregnancy hormones can cause your gums to become swollen or inflamed or to bleed easily, leading to gum disease. Gum infections, such as gingivitis, are also more common in women with diabetes. Therefore, practicing good oral hygiene and visiting your dentist is even more important for women with diabetes who are pregnant, and dental care is free of charge during pregnancy**

Flying while pregnant

As with any pregnancy, you should discuss your plans to travel by plane with your diabetes healthcare team. After 28 weeks, airlines typically require medical clearance from your doctor or midwife. If complications in your delivery are expected, a further assessment form may be needed.

Find more general information here

The third trimester (weeks 28 - 40)



You're on the home stretch! The third trimester is when you will start feeling your baby moving around and your bump will be growing even more.

Insulin requirements and blood glucose management

Insulin resistance

During the third trimester, both you and your baby will be growing at a reasonably predictable, but rapid, rate.

The third trimester is when your baby will gain the majority of their size, both in length and in weight, and with their growth comes a resistance to insulin. For many women with type 1 diabetes, insulin needs are often tripled by the third trimester, so if you're taking much more than your normal dose, don't worry – that's normal.

It's very important to continue to monitor your glucose levels, as you may be adjusting your insulin needs on a weekly basis throughout this trimester. Make sure that you have plenty of insulin to hand to deal with these increasing insulin doses.

Keep in contact with your diabetes healthcare team to discuss any concerns you have and ask for advice on changing your insulin doses if you feel you need help.

Glucose management

If you are not using a glucose monitor, continue to measure your blood glucose before each meal and one hour after eating. Check your levels before you go to bed, before driving and also whenever you think that you may be high or low. Make sure you have plenty of treatments to hand to deal with low blood glucose. Monitor high blood glucose, testing for ketones if you feel unwell and/or your blood glucose levels are above 10mmol/L. Contact your diabetes healthcare team if necessary.

Antenatal visits: Preparing for the birth

At this point in your pregnancy, you and your diabetes healthcare team will be establishing the birth plan for your baby's arrival. The timing and type of birth will be one of the things you will want to discuss with your team. You may have questions about pain relief and anaesthesia and changes to your medication during labour.

Discuss with your midwife what your options are for labour. Guidance recommends that your baby is continuously monitored throughout labour using a cardiotocography (CTG) machine which records foetal heartbeat and uterine contractions.

Many women with type 1 diabetes are told that a caesarean section is their only delivery option, which is not the case. Many women with type 1 diabetes deliver healthy, happy babies vaginally. If you are anticipating a vaginal birth for your baby, antenatal classes may help prepare you for the experience.

Learning what to expect when your water breaks, understanding how a contraction may feel and working together with your birthing partner on how to deal with the birth experience may put you at ease and prepare you for the arrival of your baby.

Antenatal classes are an opportunity to discuss looking after your baby after the birth. Learning how to change a nappy and give a baby a bath can help prepare you for those first few weeks. Learning about breastfeeding and the effects this will have on your blood glucose levels will help prepare you as well.

Regardless of what delivery has been planned, antenatal education classes may help to prepare for the end of pregnancy, labour and the postnatal period.

"I'm nervous about the birth. I have to keep telling myself that most pregnant women, whether or not they have diabetes, are nervous about giving birth and that at the end of it all we should hopefully have a lovely healthy baby." — Emily

Specific appointments and screening in the third trimester

Eye examination

At 28 weeks, you should be offered another eye examination to check for diabetic retinopathy if you were found not to have diabetic retinopathy developing at the first antenatal clinic visit. It is important that an eye screening is carried out to detect any changes in the eyes as this can be more common during pregnancy. Any developments should be discussed with your antenatal team.

Ultrasound scans

At 28 weeks you will be offered an ultrasound scan to check your baby's growth.

Ultrasound scans will also be offered at 32 and 36 weeks to check your baby's growth and more frequently if there is concern over growth.

Delivery

At around 36 weeks or earlier, your diabetes and antenatal teams will discuss delivery options with you for the weeks ahead. The options of inducing labour and caesarean section will be discussed and a decision made together for what is best for you and your baby.

If you are waiting for your labour to start naturally, then your Antenatal Team will want to see you more frequently and may want to perform further checks on your baby's health.

"At my NCT (National Childbirth Trust) classes there was an emphasis placed on having a natural birth. I felt my type 1 made me less able to meet the expectations of the group as I knew I was likely to require more medical support at birth than the other women in the class. A group meeting or discussion of mums and mums-to-be with type 1 would have been really useful." — Emily

Your birth plan

A birth plan is a plan for how you'd like your baby to arrive into the world. Sometimes this is an official document, and other times it is a discussion, but regardless of the formality, it can help you feel prepared for the big day.

Some questions for your birth plan could be:

- **Do I want to receive pain medication or is my preference to give birth without medication?**
- **Who will manage my type 1 diabetes during the labour and delivery?**
- **How will my insulin be given to me and my glucose levels managed during labour and delivery?**
- **Do I want skin-to-skin contact with my baby immediately after delivery?**
- **What is going to happen to my insulin regime after delivery?**
- **If my baby experiences a low blood glucose level after delivery, what is the hospital's policy regarding treatment of neonatal hypoglycaemia?**
- **Who are the people I want present during my baby's birth?**

With all deliveries, not just those of women with type 1 diabetes, your birth plan may need to change depending on the situation. Remember that you may need to be open to changing the plan to respond to any changing circumstances.

The most important end result is a healthy mum and a healthy baby, and the goal of your medical team is to help you achieve that result.

What should you bring to the hospital on the big day?

- Comfortable clothes and shoes to wear in the hospital and on your journey home
- Several maternity pads to accommodate any post-birth bleeding (no tampons)
- A few overnight toiletries, such as a toothbrush, toothpaste, shampoo, hairbrush
- A camera or phone to capture your baby's first moments, and your first proud moments with baby
- A car seat for when you go home. Make sure you have the base properly installed and ready before your child is strapped in
- Clothes for your baby, new-born nappies and wipes
- Depending on the season, make sure you have a blanket and a hat to cover the baby on the walk to the car
- Your personal type 1 diabetes supplies: insulin and glucose testing kits, insulin pens or pump supplies, snacks, a record of your pre-pregnancy or post-birth insulin requirements

"I was told to expect to stay in hospital post birth to allow me and my baby's blood glucose levels to stabilise. I was put in the high-risk post-birth ward, which was normal procedure for mum's with type 1 diabetes. This meant I was monitored more often and had more support which I thought was great. There are so many unknowns when having a new baby and when also looking after your own health and diabetes post birth, there is a lot to manage, so it's great to have the extra support" — Rowena

Worries

Now that the baby is almost here, you may have some worries, along with the excitement and anticipation of the birth – and this is true for every parent-to-be. You may have some extra worries related to your type 1 diabetes and that's perfectly natural. Try to remember that you are doing the best you can. Talking to your support network and healthcare teams about your worries can really help, so don't be afraid to open up.

Labour and birth

Soon, you will be able to see and hold your baby. There is no reason why your birth experience should not be similar to that of women who do not have type 1 diabetes.

By this stage, you will have already discussed your delivery options with your antenatal team during the last few clinic appointments and developed a birth plan. The options of a natural vaginal birth, induction of labour, or an elective caesarean section will have been explored. Which option you follow will depend on how your pregnancy is progressing and the health of you and your baby. Your own preference is important and your choice of delivery will be supported wherever possible.

Timing of your delivery

Most obstetricians prefer to deliver babies of women with type 1 diabetes before their due date.

Guidance recommends that women with type 1 deliver around 38 weeks. It is recommended that if your baby has grown at the normal rate, you should be offered elective birth (choosing to have an induction of labour or caesarean section) by 38 complete weeks into the pregnancy. The risk of stillbirth is higher in women with type 1 diabetes which is another reason to deliver the baby before the expected delivery date. Your diabetes healthcare team will consider your health and your baby's when deciding the best time for your baby to be born.

A common complication in babies of mothers who have type 1 is that they can grow considerably larger than normal. This is called macrosomia. Macrosomia occurs more often when the baby has been exposed to prolonged high blood glucose levels during pregnancy and sometimes the baby is too large to be delivered vaginally and a caesarean section becomes necessary. Planning the timing of the birth can actually be a source of excitement as you will no longer have to wonder about when your baby will arrive.

If your labour starts prematurely, that is before 37 weeks, you may be given medication to try to delay the birth.

Premature labour - before 37 weeks

If there is an increased chance your baby will be born prematurely you may be offered a course of steroids. Premature babies have an increased risk of health problems, particularly breathing. Steroids are a type of medication that can help your baby's lungs mature and prevent breathing problems.

Steroids are a course of injections for you, given over a period of 24-48 hours. You may find that your blood glucose starts to rise following this treatment so you will need to monitor your blood glucose closely in hospital. Additional insulin may be needed to keep your glucose in range and this is often given intravenously. Your diabetes healthcare team will support you to maintain in-range blood glucose levels.

Spontaneous labour

If your labour starts spontaneously after 37 weeks and you have decided to have a vaginal birth, fantastic! Contact your maternity assessment unit if you experience any signs of labour.

Induced labour

Induced labour is a common procedure. Prior to formal induction, you may be offered a membrane sweep between 37 and 38 weeks. Membrane sweeping makes labour more likely to occur spontaneously and reduces the need for formal induction. A membrane sweep involves an internal examination, where a finger sweeps the cervix (neck of the womb) and hormones are released (prostaglandins) to try to kick-start labour.

If you are having an induced labour, you will be asked to attend the hospital at a scheduled time. You will have the opportunity to make informed decisions about your care and treatment. There are a few methods of induced labour, and these will be discussed with you whilst you are pregnant. The options include vaginal prostaglandins or balloon-catheter induction of labour, which are widely used to ripen the cervix in labour induction, both of which will be explained in detail by your team.

Some women may be offered breaking of the waters (Artificial Rupture of Membranes) or a hormone drip (Syntocinon) to stimulate contractions. You will be examined internally in the process of induction. The timing and number of examinations depends on which method of induction is chosen and how quickly you start to have contractions.

Blood glucose management during labour

The ideal blood glucose level during labour is between 4 and 7mmol/L (or 5-8mmol/L in some hospitals). It is important that your blood glucose levels are well managed as this will help prevent your baby's blood glucose from becoming too low (hypoglycaemic) after birth. You may be offered an intravenous drip of glucose and insulin and have the doses adjusted based on hourly tests. If your blood glucose starts to drop, your diabetes healthcare team can reduce the amount of insulin through the drip. If you wear an insulin pump or glucose monitor, you may be able to continue to wear it during the labour and delivery. It may be better to have it on your arm instead of your stomach, in case an emergency caesarean section is needed.

Caesarean Section

For any pregnant woman, a caesarean section may be a surprise addition to the birth plan. It may be planned (elective) when there is medical need for the operation, or it may be needed during delivery if a natural vaginal birth would put you or your baby at risk. Whatever the reason for a caesarean section, having your baby delivered by an operation may be the safest way. Your obstetrician will discuss the benefits and potential risks of the operation.

With an elected caesarean, you will be asked to attend the hospital at a scheduled time. An anaesthetist will see you before your operation and will review your medical history and discuss how your blood glucose will be managed. The anaesthetist will discuss your anaesthetic choices and will answer any questions you have. You may be given tablets to reduce acid in your stomach and prevent sickness, which you may need to take the night before the operation and on the morning of the operation. You will be asked to fast before the operation and will be advised to monitor your glucose closely at this time.

Your diabetes healthcare team will be able to support you. Your blood glucose will be monitored closely during the operation. This is to ensure your blood glucose levels remain in target range. You will be offered an intravenous drip of glucose and/or insulin during and after the caesarean section to keep your blood glucose levels in range. If you wear an insulin pump or glucose monitor, you may be able to continue to use it during the operation, however, this depends on the anaesthetist and your diabetes healthcare team.

After the operation, you are likely to keep the intravenous glucose and/or insulin drip to ensure stable blood glucose until you are eating and drinking normally. Women who are recovering well may be offered food and drink when they feel hungry and thirsty, usually 1-2 hours after the birth.

Further reading: Elective delivery in pregnant women with type 1 diabetes study

After your baby is delivered

Your baby has finally arrived! As most new parents do, you will be feeling many emotions, from elation to relief.

Because you have type 1 diabetes, your baby will have their blood glucose measured after the birth to make sure it is not too low. It is common for babies of women with type 1 diabetes to be born with low blood glucose. Keeping your glucose levels as much in-range as possible during pregnancy and birth can help prevent your baby having low glucose levels when they're born.

You are encouraged to feed your baby soon after birth to prevent them from having a low glucose level. Skin-to-skin contact immediately after birth is important to keep your baby warm, help bonding and encourage baby to breastfeed. Regular feeds in the first 24 hours help to prevent your baby's blood glucose dropping too low. Sometimes babies need to be transferred to the neonatal unit for treatment, but this does not mean that your child will have type 1 diabetes. If your baby needs to go to the neonatal unit, staff will help you learn how to hand-express and will encourage skin-to-skin contact when it is safe for your baby to do this.

Your blood glucose levels after birth

The amount of insulin you need is likely to drop dramatically after birth. Many women return to their pre-pregnancy insulin doses, so you should reduce your insulin immediately after you have given birth and monitor your glucose levels closely. Monitoring frequently is important to prevent hypos and help calculate how much insulin you need.

You are advised to test before and after meals, before bed and often during the night when you are woken up to feed your baby. This can be done via your glucose monitor, if you wear one.

Be aware that you have an increased risk of hypos at this time so always have fast-acting glucose treatments and snacks available to deal with low blood glucose.

"Together with my diabetes healthcare team, I chose elective caesarean births for both my children. I think all mums-to-be with type 1 should be offered and consider all the options for giving birth and be offered as much information as possible to make their choice." — **Emily**

Breastfeeding

There are many benefits to breastfeeding and there are a few things you need to know. Breastfeeding uses up a lot of calories so you are at increased risk of hypo. This means that you are advised to further reduce your insulin dose and monitor your glucose regularly. Your diabetes healthcare team can support you with this so ask for their help.

From 36 weeks, you can collect colostrum, the first breastmilk your body makes up, via antenatal hand expression. Colostrum is the perfect source of nutrition for your baby and contains antibodies, aids digestion and helps to encourage your baby to open its bowels. Discuss this with your midwife as there are some reasons this would not be recommended, for example, if you have experienced premature labour in the past.

With close glucose monitoring and support from your diabetes healthcare team, you will find what works best for you.

“My journey had a bit of a rough start but once we got going it has been such a special experience for us both and I feel so lucky to have been able to do this.”

“The one thing I was sure of during my pregnancy was that I wanted to breastfeed. I spent my third trimester reading up as much as I could on breastfeeding trying to prepare myself.

I knew it would be a steep learning curve, so I found lots of different places I could get support including Facebook groups, the National Breastfeeding Support helpline and support groups in my local area, before my baby arrived. From 37 weeks I harvested colostrum which gave me so much confidence in hand expressing. It also helped me feel reassured that I had some milk ready for my baby in case they had to go to the neonatal unit or my milk took some time to come in. Once my baby was born I had skin to skin and fed her as soon as possible. We had some challenges in her latching and quite quickly she was experiencing a hypo. Luckily we were able to give her the colostrum I had collected. My milk was delayed in coming in (around five days) but I continued to latch my baby, hand express and use the hospital grade pump to help get the milk started. Once it came in, the feeling of feeding my baby was amazing.

I found I experienced lots of hypos so kept reducing my insulin and we got there. 10 months on and I am still breastfeeding. My journey had a bit of a rough start but once we got going it has been such a special experience for us both and I feel so lucky to have been able to do this.”
— Emma

- **Harvesting colostrum can help develop the skill of hand expressing which can be useful during the first few days of breastfeeding. The colostrum you collect can be given to your baby if they experience a hypo during the first few days or if your milk is delayed in coming in.**
- **Having skin-to-skin contact as soon as possible can really help in establishing breastfeeding. Have as much time skin-to-skin with your baby as you can to help stimulate milk production and help your baby learn how to feed from you. Having type 1 diabetes, thyroid conditions or a caesarean can mean your milk is delayed in coming in.**
- **It is important to ensure your baby gets the milk they need so they may need to be supplemented with either colostrum you have expressed or formula. To stimulate continued milk production, feed your baby, hand express and use a hospital-grade breast pump as much as possible to ensure your body produces enough milk for your baby.**
- **Breastfeeding has many benefits for both you and your baby but can be challenging. Building a support system can be really beneficial early on. Many support groups and helplines are available to answer questions and concerns over the phone. Tell your midwife if you are going to breastfeed so they can also let you know of any local support groups or networks.**

Post-birth and back at home

You've made it! You're going home for the first time with your new baby. You have successfully navigated a pregnancy with type 1 diabetes and you should feel very proud.

What's next? Well, you now have a beautiful new baby to take care of. This is a joyful and happy time but can also be challenging and stressful. As well as looking after a newborn baby, you still have your type 1 diabetes to manage.

There will be a lot of change at this time, and you may find you miss some of the intensive support you had while you were pregnant. It might feel like you're suddenly flying solo, but remember that your diabetes healthcare team are still there to support you. You can still contact them if you need extra support.

Things you need to think about after the birth

- **managing type 1 diabetes for one again**
- **contraception**
- **eating well**
- **sleep**
- **anxiety and stress**
- **emotions**
- **6 week check-up**

Take time to look at patterns in your glucose measurements, and start by making some small and simple changes to help adjust your management for life after the birth.

Managing type 1 diabetes for one again

In addition to the physical changes your body has gone through, you also experienced a different way of managing your diabetes through each stage of pregnancy. How often did you see your diabetes healthcare team before your pregnancy? Once every 6 months? When you were pregnant, this increased dramatically, and near the end of pregnancy, you were probably going in for checks and consultations every one or two weeks.

Your diabetes healthcare team is there to help you, so ask them for help with the transition to your post-pregnancy diabetes regime.

It will probably take time to adjust to your post-pregnancy diabetes management regime. But there are things you can do to help you feel better.

Start at your own pace. Set aside time every couple of weeks to check in with yourself on how you're doing (marking this time on a calendar and asking someone to help look after the baby during this time can help you stick to it). How are you feeling? Are you happy and comfortable with your type 1 diabetes management? Do you need to re-evaluate things and build in some strategies to help you get closer to where you want to be?

If you are worried about something, come up with a plan which has small, manageable steps. Talk to your diabetes healthcare team about any concerns you are having. It may also be helpful to speak to other new mums with type 1 and the people in your support network. Remember you're not alone.

Picture this

You have been trying for an hour to get your baby to fall asleep for a long-overdue nap. You're walking back and forth, rocking and swaying, like parents do, working hard to soothe and calm the baby. After a while, the two of you settle into your favourite chair or spot on the sofa, and finally they drift off to sleep. You know if you move a single muscle, they will wake again.

And then you feel that your glucose is going low or your glucose monitor alarm starts beeping. If you have to move to get them, you might wake your baby again, which is the last thing you want to do right now.

Have glucose tablets, or other sources of fast-acting glucose, stashed everywhere throughout your home. If you have extra meters and strips, put them nearby too and keep your phone on you so you can check readings on your glucose monitor. Your hands will be full most of the time until your baby grows a bit, and you'll need to be able to deal with low glucose without disrupting them.

By planning ahead a little bit, and envisioning these scenarios beforehand, you can put glucose tablets where you can get to them quickly and easily. Remember to refill your supplies on a regular basis too.

Talk to your diabetes healthcare team about any concerns you are having. It may also be helpful to speak to other new mums with type 1 and the people in your support network. Remember you're not alone.

Contraception

Be aware that you can become pregnant while you are breastfeeding and before your period starts again. You can discuss options for contraception with your diabetes healthcare team.

Taking care of yourself is really important at this time.

Eating well

Try and eat wholesome foods and follow a nutritious diet. Nutrition is very important, especially if you are breastfeeding, because it uses a lot of energy. Remember to eat regular carbohdyrate snacks whilst breastfeeding to avoid having a hypo. Your dietitian can advise you on this. Make sure you are checking your glucose regularly. In time, you may want to return to your pre-pregnancy weight because it's good for your blood glucose management. But there is no need to rush. Talk to your diabetes healthcare team when you're ready and see how they can support you.

Sleep

Your sleep pattern is going to be set by your baby, at least for a little while. Although it's tempting to get your long list of jobs done while your baby is sleeping, it may be better to sleep when your baby sleeps. Even if you can't nap, at least put your feet up and take a few minutes to yourself.

Not getting enough sleep can affect the management of type 1. Blood glucose levels may run higher as a result of the stress of missed sleep, and you may tend to snack more and/or eat things that spike your blood glucose levels. Lack of sleep can also make it more difficult to find the time and energy to look after your type 1 diabetes.

Anxiety and stress

New parents can worry about many things. At times like these, make sure to reach out to friends and family, or if you need further support around anxiety or stress, be sure to flag to your health visitor or GP for help and support.

As you probably already know, stress can affect your blood glucose levels. Stress levels can increase in response to a baby's cry. So if you have unexplained high or low blood glucose readings, remember to consider the effect stress may have had. In some cases, you can proactively deal with stress-related blood glucose levels, but many times there's nothing you can do. You just have to react to what your glucose monitor is telling you.

Emotions

After the delivery, you will experience hormonal changes as your body recovers. These changes, along with all the other stresses looking after a new baby can bring, can have an impact on you psychologically.

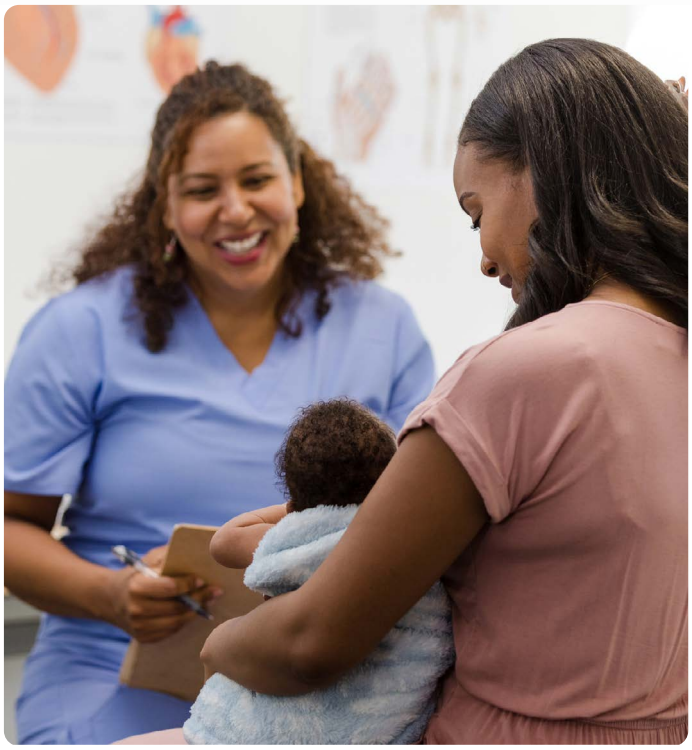
Talk about how you are feeling with your partner, support network and your diabetes healthcare team. Most worries will resolve themselves.

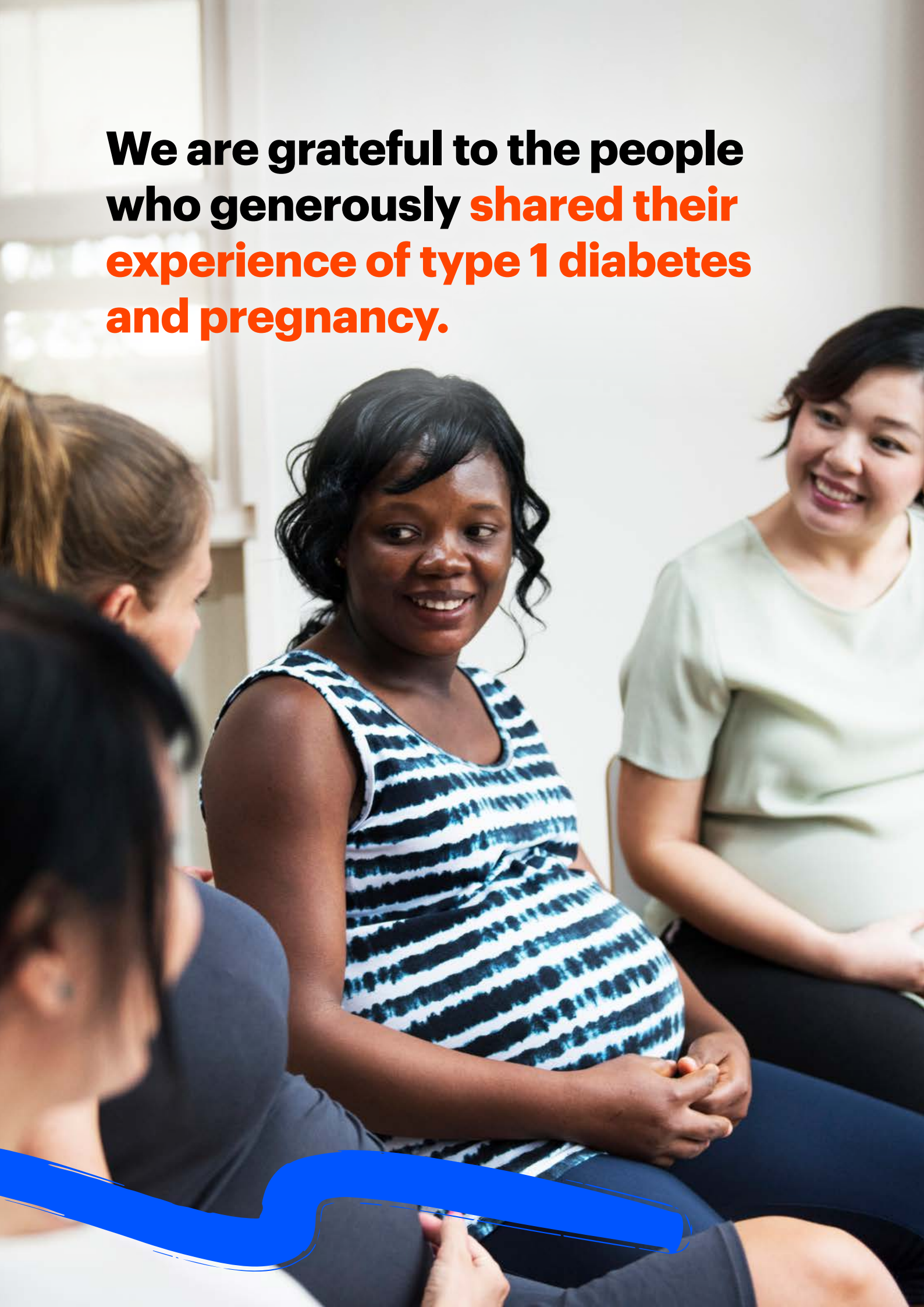
Be aware of the symptoms of post-natal depression. These can include persistent and overwhelming feelings of hopelessness, guilt, stress, not being able to sleep, eating too much or too little, exhaustion, low energy, and feeling easily frustrated.

If you are feeling this way, speak to your partner, support network, GP or diabetes healthcare team. There is support out there to help you with these feelings.

Six-week check-up

You will have a check-up with your GP and diabetes healthcare team approximately six weeks after giving birth. At this appointment, you will be assessed to make sure that you feel well and are recovering properly. Your diabetes healthcare team will arrange to have your eyes and kidneys checked.





We are grateful to the people who generously shared their experience of type 1 diabetes and pregnancy.

“Throughout my journey, I had a tribe of people to answer all my questions, big and small. People with type 1 who gave birth 20 years ago and 20 days ago.”

Visit the JDRF website

Get more information about type 1 and pregnancy and read personal stories on our website. You can also find ways to connect with others experiencing pregnancy with type 1.

SCAN ME

Use the QR code or visit jdrf.org.uk/pregnancy

Our work

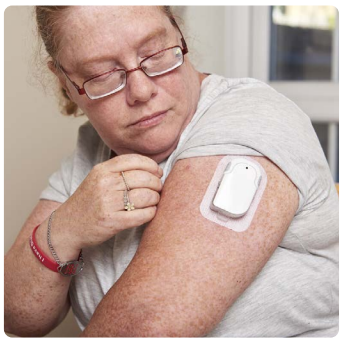
JDRF is the leading global type 1 diabetes charity.

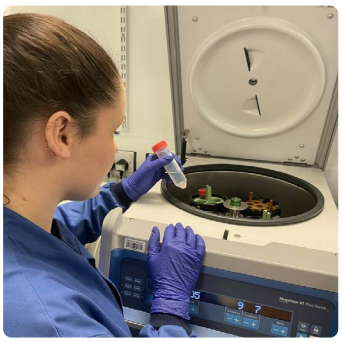
We work every day to help people live better with the type 1, prevent people ever developing it and one day, find cures.

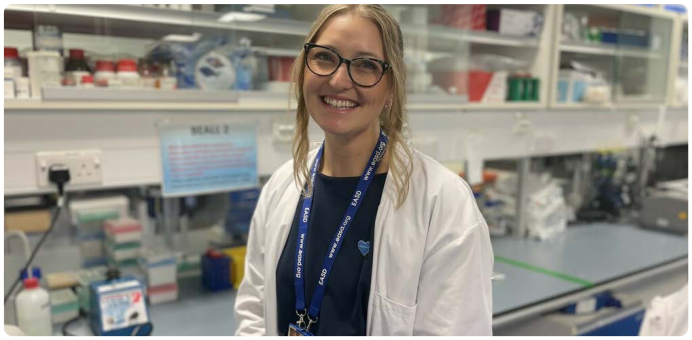
We do this by funding research, campaigning for access to all treatments and connecting and supporting the type 1 community.

Find out more about our research by scanning the QR code or visiting jdrf.org.uk/ourresearch

SCAN ME







Registered office: 19 Angel Gate, City Road, London, EC1V 2PT

T: 020 7713 2030 E: info@jdrf.org.uk W: jdrf.org.uk

Join us on social media

jdrfuk jdrfuk jdrf_uk

Acknowledgements

The Pregnancy Toolkit from JDRF in the USA has been used to help develop this UK edition.

Contributors and reviewers in the UK

- Cathy Campbell — Diabetes Specialist Midwife, University Hospital of Leicester NHS Trust
- Michael Skarlatos — Senior SpecialistDietician, University Hospital of Leicester NHS Trust
- Emma Doble — Patient Editor, British Medical Journal
- Dr Leticia Casanova — Diabetes Oral Health Expert, Diabetes Dental Care, Specialist Clinical Teacher, Kings College London, Guy's Hospital
- Dr Valerie Holmes — Senior Lecturer, Centre for Public Health, School of Medicine, Dentistry and Biomedical Sciences, Queen's University, Belfast
- Professor Graham Leese — Consultant and Professor in Diabetes and Endocrinology Ninewells Hospital and Medical School, Dundee
- Dr Michael J A Maresh — Consultant Obstetrician, St Mary's Hospital, Manchester
- Pauline Mitchell — Diabetes Specialist Midwife, Ninewells Hospital, Dundee
- Dr Helen R Murphy — Honorary Consultant/ Senior Research Associate, University of Cambridge
- Susan Quinn - Diabetes Specialist Midwife, St Mary's Hospital, Manchester
- Mary Roberston — Senior Diabetes Specialist Nurse, Honorary Teaching Fellow, Biomedical Research Institute, Ninewells Hospital, Dundee
- Rowena Gracey — JDRF volunteer and type 1 mum
- Holly Davies — Case study participant
- Edelle Irwin — JDRF Community Content and Information Lead
- Brie Barrios — JDRF Community Engagement Officer
- Kate Gerrard — JDRF Content Manager