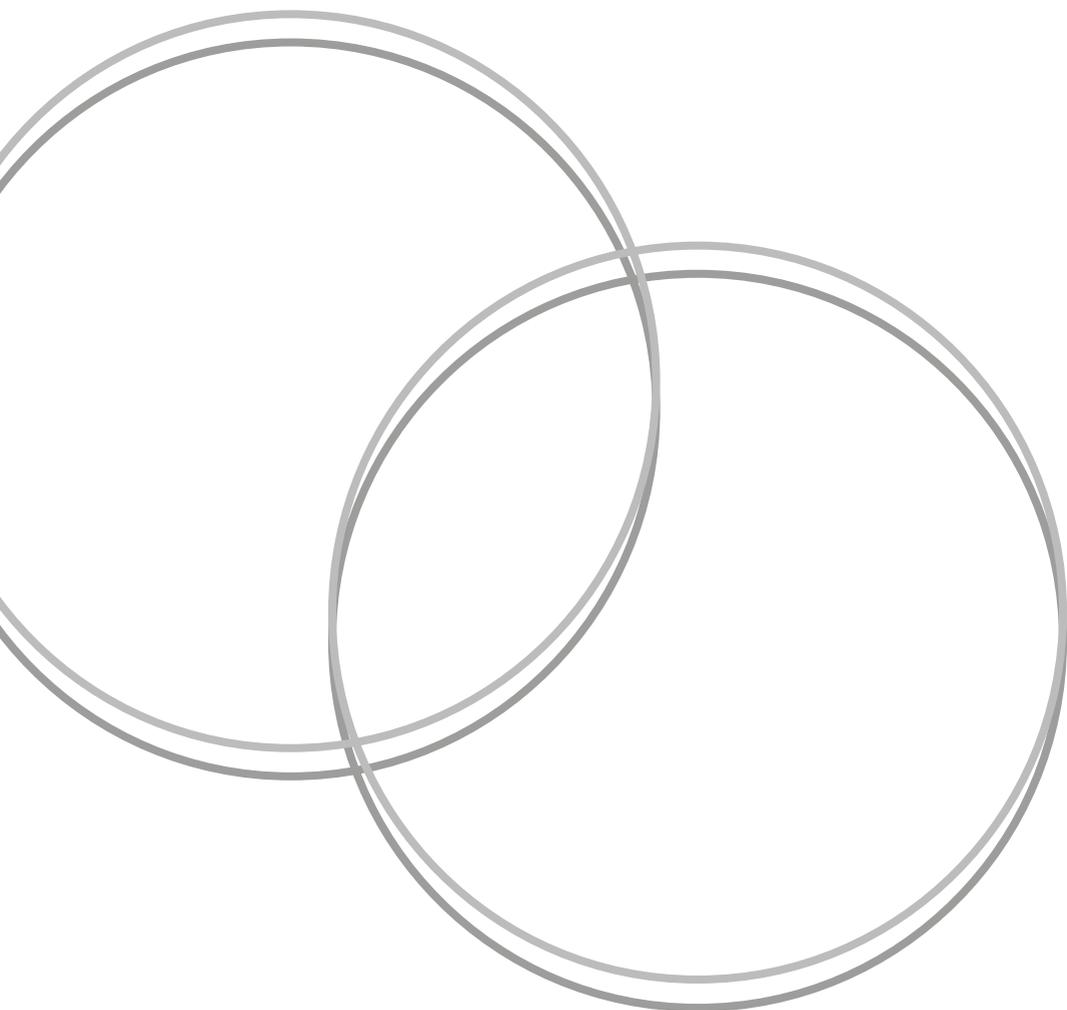




Oxford University Hospitals
NHS Foundation Trust

Pregnancy and Type 1 Diabetes

Information leaflet



This is an information and advice leaflet about pregnancy and type 1 diabetes.

Is this information leaflet relevant to me?

Yes, if you are a woman or pregnant person with Type 1 diabetes and you want to become pregnant or are pregnant.

Pregnancy and type 1 diabetes

- Good blood glucose control is the best way to keep you healthy and ensure the best outcome for your baby.
- Pregnancy increases your blood glucose and can make blood glucose control more difficult.
- Blood glucose monitoring prior to and during pregnancy is essential.
- Insulin requirements increase greatly in pregnancy (and at the end of pregnancy you may be on 2 to 3 times as much insulin as you were on before pregnancy).
- Diabetes in pregnancy needs close monitoring, so this may mean appointments every 1 to 2 weeks in the specialist diabetes in pregnancy clinic (these may be in person or by telephone).

Things to consider before getting pregnant

Good blood glucose control is always important for a person with diabetes, however when planning a pregnancy this is especially important. We therefore recommend you have your HbA1c measured before getting pregnant to see how well controlled your diabetes is. This can be done by your GP or your hospital diabetes specialist team.

Your doctor will discuss appropriate targets for your glucose and if your readings are not at this level, will discuss what you can do to help achieve this. In some situations, they will advise you not to get pregnant until this is under control.

- **We recommend that you have a blood test to check HbA1c levels pre-pregnancy or in early pregnancy.**

All women and pregnant people with diabetes are also recommended to take high dose (5mg) folic acid before and during pregnancy. This is discussed in more detail further on in this leaflet.

How will my pregnancy affect my diabetes?

There are several ways pregnancy can affect your diabetes:

- Pregnancy can make you **less aware of low blood glucose** (hypoglycaemia), particularly in the first trimester (the first 12 weeks of pregnancy). The symptoms you normally get with a low blood glucose level, such as shakiness, dizziness, sweating, hunger, irritability or moodiness, anxiety or nervousness, headache, may be less noticeable than before.
- **Your blood glucose level will increase** throughout pregnancy. At the end of pregnancy some women are on twice or three times as much insulin as they were taking before pregnancy.
- Pregnancy can cause **diabetic retinopathy** (problems at the back of your eye) to worsen. You will therefore be offered eye screening regularly during your pregnancy.
- Pregnancy can cause **diabetic nephropathy** (kidney problems associated with diabetes) to worsen. You will therefore be offered regular blood tests to check your kidney function.

We recommend that you:

- **Check you have eye screening appointments booked.**
- **Check you have blood tests regularly to check your kidney function.**

How will my diabetes affect my pregnancy?

There are several ways in which diabetes can affect your pregnancy:

First trimester (week 0 to week 12)

In the first trimester, if your blood glucose is poorly controlled this can result in your baby not developing properly. These are referred to as congenital abnormalities or birth defects and can range from very minor, such as cleft lip, to more major such as an abnormal heart structure. The higher your HbA1c when you become pregnant, the higher the chance of a congenital abnormality occurring.

Second and third trimesters (weeks 13 to 42)

Poor glucose control in the second and third trimester means your baby receives more glucose across the placenta. In response to this the baby can grow more quickly and so there is an increased chance of having a baby that is larger than average*. Giving birth to a baby that is larger than average can cause complications such difficulty in delivering the baby's shoulders after their head is born. This complication is called shoulder dystocia.

*This means if you have type 1 diabetes, there is an increased chance of the baby growing larger than average compared to the baby of a pregnant person that does not have type 1 diabetes. What is considered average will also vary from person to person.

There is also an increased chance of miscarriage and fetal loss in early pregnancy, as well as an increased chance of stillbirth in later pregnancy (over 24 weeks) in women and pregnant people with diabetes.

These issues mean that the medical team may advise you to give birth between 37 weeks and 38 weeks and 6 days of pregnancy. This is usually achieved by having an induction of labour (when your labour is started artificially rather than being left to start naturally). However, you may be advised to have a caesarean section (an operation to deliver the baby) if the baby is anticipated to be very large, or there are other concerns (such as with the baby's position) that could make a vaginal delivery more difficult.

After the birth

After the birth, there is a chance that your **baby will develop low blood glucose**. The maternity team will support you to feed your baby soon after the birth to try to prevent this and will ask to monitor your baby's blood glucose levels. However, some babies may need to be cared for on the Neonatal (newborn) Baby Unit for a short time where they can receive glucose as an infusion (drip) into a vein.

At your 36 week midwifery appointment, your midwife will discuss hand expressing colostrum (the energy-rich breast milk that the body makes before the main milk supply comes in – this mostly happens on day 3 or 4 after the birth).

Hand expressing means you can start to collect small volumes of colostrum prior to the birth, which can then be given to the baby after the birth. This can be a good way of helping to keep their blood glucose at normal levels.

Blood glucose monitoring

This is the most important thing to be doing in pregnancy! This can be hard as it is required daily for the whole pregnancy. The target range for blood glucose during pregnancy is narrower than usual. Monitoring it really does make a difference to your baby.

We recommend that you:

- **Monitor your blood glucose, throughout your pregnancy and review the results regularly with the obstetric diabetes team (midwives, doctors and specialist diabetes nurses).**
- **Continue to use your continuous glucose monitoring (CGM) kit (if you are already using this).**
- **Have a meter, lancets and strips at home to double check low readings (and calibrate the CGM kit if needed).**

Is insulin safe in pregnancy?

Most types of insulin are safe and appropriate to use in pregnancy.

Do I need to take aspirin?

Women and pregnant people with diabetes have a higher chance of developing pre-eclampsia. This is a condition caused by the placenta not working as well it should, which results in high blood pressure and protein in the urine. This can make both you and the baby very unwell. All women and pregnant people with diabetes are therefore advised to take low-dose aspirin (150mg) from 12 weeks of pregnancy until the birth of the baby as this reduces the chance of pre-eclampsia developing.

Take 150mg aspirin daily from 12 weeks of pregnancy – ask your GP/diabetes clinic for a prescription.

- **Please seek medical attention if your insulin requirements go down rather than up, as this can be an indicator that the placenta is not working as well as it should.**

Do I need to take folic acid?

All women and pregnant people with diabetes are also recommended to take high dose (5mg) folic acid before and during pregnancy. This increases the chance of the baby developing normally (it specifically reduces the chance of a defect called a neural tube defect such as spina bifida). This high dose cannot be bought over the counter and must be prescribed by a doctor (this can be your GP or a hospital doctor).

We recommend:

- **You take 5mg folic acid for 3 months prior to conception and the first 12 weeks of your pregnancy.**

What about other medications?

If you are on medications such as statins (e.g. simvastatin, atorvastatin) or ACE inhibitors (e.g. ramipril), you will be advised to stop these as soon as a pregnancy test is positive (if not before) due to the potential effects on the baby.

- **We recommend that you discuss all medications with your GP or Diabetes consultant prior to conception and switch to alternatives if needed.**

What happens after the birth?

Your blood glucose control will quickly return to how it was before you were pregnant, so the dose of insulin you take after your baby is born is likely to be less than the dose you were on in pregnancy. The exact dose that you will be advised to take will be recorded in your maternity notes before the birth by your medical team. Breastfeeding can lower your blood glucose levels, so while you are breastfeeding, you will probably only need about two-thirds of your pre-pregnancy dose of insulin. If you feel you need to make any adjustments to the post-birth dose that was planned before having the baby, you can discuss this with your obstetric/diabetes team or GP.

- **After birth, stop taking your pregnancy doses and return to a lower dose as advised by the Obstetric diabetes team.**

Specific considerations for pregnancy if you are using an insulin pump

This section is only for those who have an insulin pump or hybrid closed loop during pregnancy. If you don't have an insulin pump or hybrid closed loop but feel you would like one, you can discuss this with your diabetes team.

You will be able to discuss the hybrid closed loop system with your diabetes team.

During pregnancy

- As you progress through pregnancy you may need help to site your cannula. Your diabetes specialist nurse will offer teaching and support with this.
- Cannula site changes are required every 24 to 48 hours.

Planning for birth

- Towards the end of pregnancy think about cannula sites that avoid the site where a caesarean section would be performed to prevent issues in the event of a caesarean section being needed in an emergency. Options include below your ribs, towards your back, the arms or buttocks. If you're unsure where a caesarean section site would be, speak to your midwife or obstetric team.
- When you come to hospital make sure you have with you:
 - A charger and at least 2 batteries for the pump
 - A full cartridge/reservoir x2
 - An infusion set and cannula (you will need to bring enough of these with you to last for the duration of your hospital stay. We recommend a minimum of 3)
 - Back up insulin pens (1 basal, 1 bolus pen or insulin vials)
 - A carbohydrate snack, your preferred hypoglycaemic treatment and needles for the pen.
- Could you teach your birth partner to have awareness of how to use your pump? This will be helpful during or after the birth.
- Set up a second program on your pump with your post-delivery basal infusion rates ready (this may be similar to your pre-pregnancy rates or a new program), or have it written down so you know where to find it. Your diabetes specialist nurse will help you with this

During the birth

You, your partner or the midwife will be monitoring and recording your blood glucose hourly during labour.

You will require different amounts of insulin during delivery. Basal insulin is continued to try and achieve the target blood glucose of 4 to 8 mmol/L.

At the start of labour make sure your battery is charged on your pump and the reservoir has sufficient insulin. If more than 24 hours have passed since the cannula and infusion set were sited, consider changing them.

Ideally, we aim to continue the insulin pump therapy during the birth. Situations where this may not be possible include:

- You or your birth partner are unable to manage the insulin pump (please tell your midwife if this is a problem).
- You are unable to achieve adequate blood glucose control.
- The senior hospital doctor feels it is no longer appropriate.

Following the birth

Your insulin requirements fall after the birth of the baby and the placenta. You will be advised to reduce to the post-birth basal rate within 60 minutes of delivery of the placenta (for a vaginal birth) or just prior to the procedure if a caesarean section is needed.

If you don't know what your post-birth basal rate should be, reduce the current basal rate by 50% over 24 hours. If you plan to breastfeed, a further 10% to 20% reduction is usually needed in addition to this. Overnight feeds will affect blood glucose and may require change to your basal rates. Advice about this can always be obtained from the Diabetes team.

Where can I go for more information?

Website:

www.diabetes.org.uk/guide-to-diabetes/life-with-diabetes/pregnancy

Website:

www.nhs.uk/conditions/pregnancy-and-baby/diabetes-pregnant

How to contact us

Diabetes Specialist Midwifery Team

Telephone: 01865 851 039

(Monday to Friday, 8am to 5.30pm)

You can also email the diabetes midwives on:

diabetes.midwives@oxnet.nhs.uk

You can also email the diabetes specialist nurse on:

diabetes.antenatal@ouh.nhs.uk

Silver Star Office

Telephone: 01865 221 710

(Monday to Friday, 8.30am to 5.30pm)

We would like to thank the Oxfordshire and Neonatal Maternity Voices Partnership for their contribution in the development of this leaflet.

Further information

If you would like an interpreter, please speak to the department where you are being seen.

Please also tell them if you would like this information in another format, such as:

- Easy Read
- large print
- braille
- audio
- electronic
- another language.

We have tried to make the information in this leaflet meet your needs. If it does not meet your individual needs or situation, please speak to your healthcare team. They are happy to help.

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Oxford University Hospitals NHS Foundation Trust
www.ouh.nhs.uk/information



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