NHS
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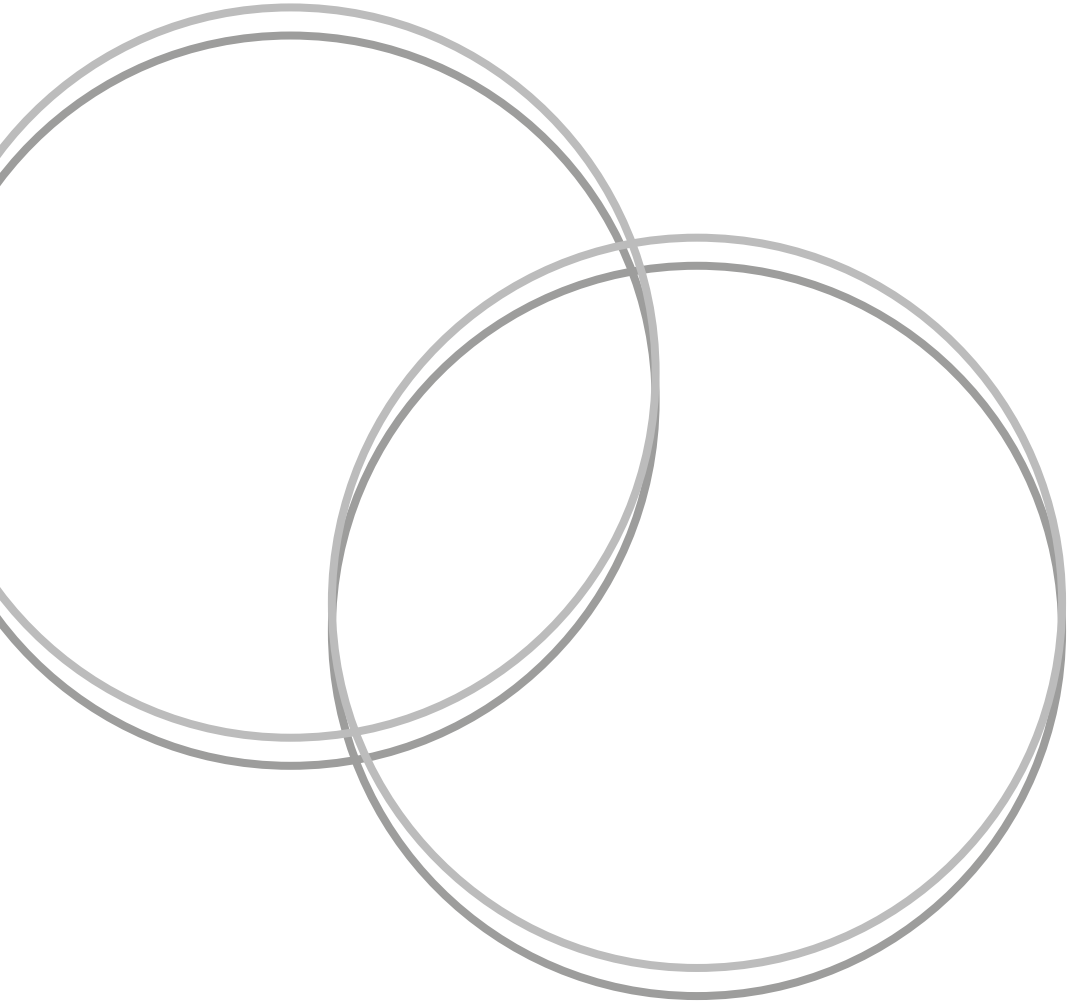
Pregnancy and type 1 diabetes mellitus



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 with Type 1 diabetes and you want to become pregnant or are pregnant.

What are some general things to consider about pregnancy?

- 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 makes 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 2-3 times as much insulin as you were on before pregnancy)
- Diabetes in pregnancy needs close monitoring, so this may mean appointments every 1-2 weeks in the specialist diabetes in pregnancy clinic (these may be in person but may be via video or telephone).

What do I need to think about before pregnancy?

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 becoming pregnant to see how well controlled your diabetes is, which can either be with 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**

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, such as shakiness, dizziness, sweating, hunger, irritability or moodiness, anxiety or nervousness, headache, may be less noticeable than before.
- **Your blood glucose 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 (every trimester).
- 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 blood glucose is poorly controlled this can result in your **baby not developing properly**. These are referred to as 'congenital malformations' 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 malformation occurring.

Second and third trimesters (weeks 13-42)

Poor glucose control in the second and third trimester means your baby receives more glucose across the placenta. In response to this it can grow more quickly and so there is an increased risk of having a baby that is larger than average. Delivering a baby that is larger than average can cause complications at delivery such as difficulty delivering the shoulders after the head has been delivered – known as 'shoulder dystocia'.

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

These issues mean that the medical team may advise you to deliver between 37 weeks and 38 weeks and 6 days of pregnancy. This is usually an 'induction of labour' (your labour would be 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 delivery

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

At your 36-week midwifery visit, your midwife will discuss hand expression of colostrum, the energy-rich breast milk that you produce before your milk comes in (which is normally day 3 or 4 after delivery). This means you can collect small volumes of colostrum prior to delivery, which can then be given to your baby after birth and may be helpful 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 and doctors).**
- **Continue to use your continuous glucose monitoring (CGM) kit (if you are already using this)**
- **Discuss flash glucose monitoring with the diabetes team (if not already using CGM)**
- **Have a meter, lancets and strips at home to double check low readings (and calibrate CGM if needed)**

Is insulin safe in pregnancy?

Most types of insulin are safe and appropriate to use in pregnancy. We have less experience of newer formulations such as Abasaglar® so prefer alternatives to this if possible. Metformin is commonly used in pregnancy, so this can be continued as normal.

We recommend:

- **If you are on tablets for your diabetes (other than metformin), discuss these with your GP or diabetes specialist prior to conception.**

Do I need to take aspirin?

Women with diabetes are more at risk of 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 and can make both you and your baby very unwell. All women with diabetes are therefore advised to take low-dose aspirin (150mg) from 12 weeks of pregnancy until delivery as this reduces the risk of pre-eclampsia developing.

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

- **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 with diabetes are also recommended to take high dose (5mg) folic acid before and during pregnancy. This increases the chance that your baby develops normally (specifically it reduces the chance of a particular 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 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 delivery?

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 documented in your maternity notes before delivery 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-delivery dose that was planned before your birth, 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 with an insulin pump

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

During pregnancy

- As you progress through pregnancy you may require help to site cannulas so consider teaching someone else who is supporting you with your pregnancy. The 45˚ angle cannula can be helpful. Ask your pump nurse for a trial.
- Cannula site changes are required every 24-48 hours

Planning for delivery

- 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 required in an emergency. Options include below your ribs towards the back, your 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:
  - New batteries for pump x2
  - Full cartridge/reservoir x2
  - Infusion set and cannula (more than 3)
  - Back up insulin pens (1 basal, 1 bolus pen)
  - Carbohydrate snack and your preferred hypoglycaemic treatment
- Could you teach your birth partner to use your pump? This will be helpful if you are struggling during or after delivery.
- 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.

During delivery

You or the midwife should monitor and record your blood glucose hourly.

You will require different amounts of insulin during delivery. Basal insulin is continued to try and achieve the target blood glucose of 4-8 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 delivery. 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 consultant obstetrician feels it is no longer appropriate in the current clinical context.

Delivery

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

If you don't know what your post-delivery basal rate should be, reduce the current basal rate by 50% over 24 hours. If you plan to breastfeed, a further 10-20% reduction is usually required 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?

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

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

How to contact us

Diabetes Specialist Midwifery Team

Tel: **01865 851 039**
(Monday to Friday 0900-1700)

Silver Star Office

Tel: **01865 221 710**
(Monday to Friday 0830-1730)

Notes

Notes

If you need an interpreter or would like this information leaflet in another format, such as Easy Read, large print, Braille, audio, electronically or another language, please speak to the department where you are being seen. You will find their contact details on your appointment letter.

Authors: Medical student
Consultant Obstetric Physician

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