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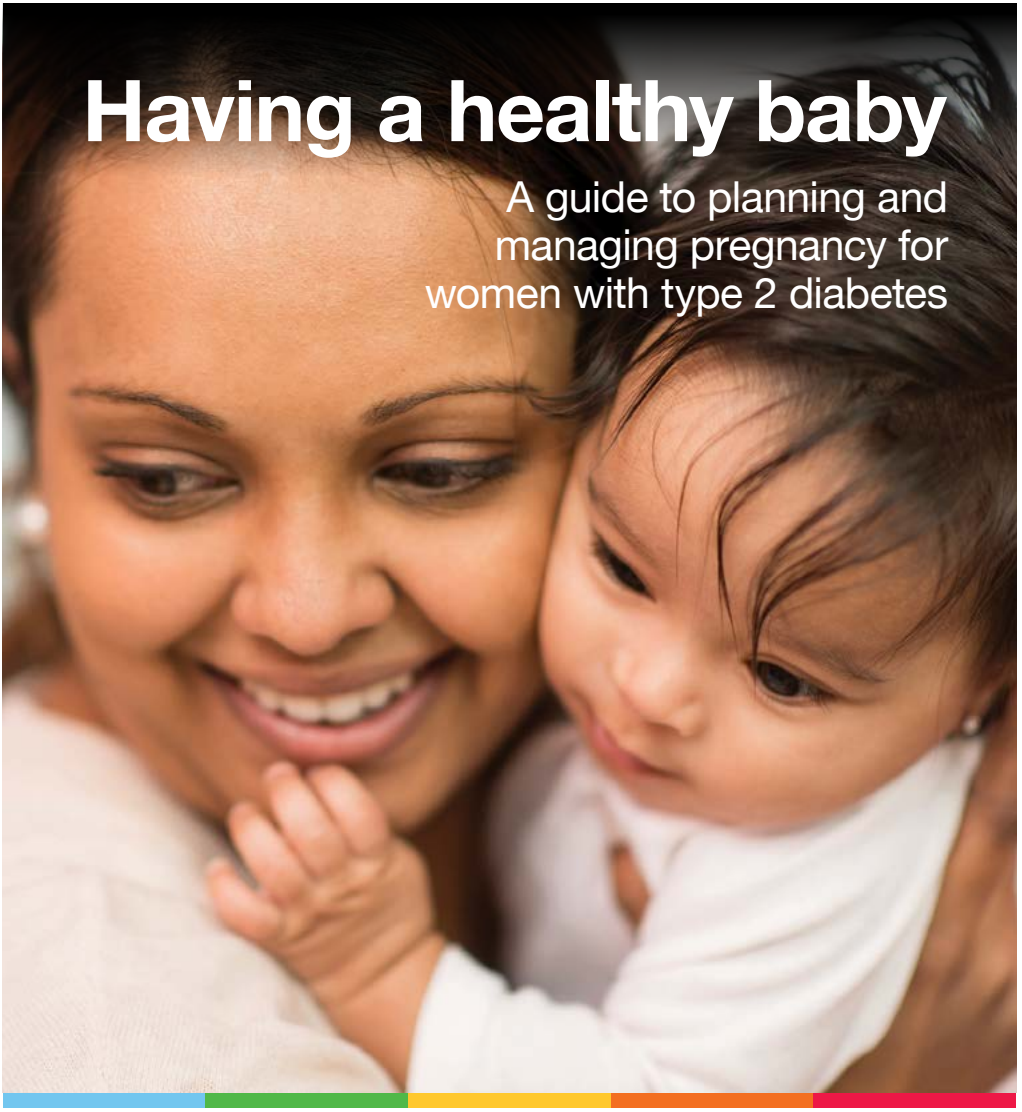
National Diabetes Services Scheme
An Australian Government Initiative

NDSS Helpline 1800 637 700
ndss.com.au

Having a healthy baby

A guide to planning and managing pregnancy for women with type 2 diabetes



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Contents

For more information go to the NDSS website:
ndss.com.au/pregnancy

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About this booklet

This booklet is for women with type 2 diabetes who are planning a pregnancy now or in the future, or who are already pregnant. It has information on preparing for pregnancy, as well how to manage diabetes during pregnancy and once the baby is born. Tips from women who have kindly shared their experience of pregnancy with type 2 diabetes, are also included throughout this booklet.

Separate booklets are available from the National Diabetes Services Scheme (NDSS) for women with type 1 diabetes or gestational diabetes.

Encourage your partner, family and friends to read this booklet as well, to help them understand more about diabetes and pregnancy. If you have any questions or need more information contact your endocrinologist, general practitioner, obstetrician, credentialled diabetes educator or accredited practising dietitian.

Planning for pregnancy

Women with diabetes can have a healthy baby, but there are some extra risks during pregnancy for both mother and baby. The good news is, that planning and preparing for pregnancy can help reduce these risks.

It's recommended that you have a review of your diabetes, and your general health, at least three to six months before you start trying for a baby and seek out specialist pre-pregnancy care. There are other aspects of planning for a healthy pregnancy too, such as, taking vitamin supplements, having a review of your current medications and routine pre-pregnancy blood tests. These topics will be discussed further in this chapter.

Why plan?

Having diabetes during pregnancy can increase the risk of health problems in your developing baby, including the risk of birth defects and early pregnancy loss (miscarriage). This risk is higher if your blood glucose levels before and during early pregnancy have not been within the target range. There is also an increased risk of complications for the mother during pregnancy, such as developing high blood pressure and pre-eclampsia, as well as having a large baby.

Research shows that planning and preparing for pregnancy, and well-managed diabetes before and during pregnancy, reduces the risk of health problems for mother and baby.

Remember that with careful planning, and with support from a team of health professionals, women with diabetes will usually have a healthy pregnancy and a healthy baby.

"For a long time, I was doing a lot of internet research to understand the implications of having a baby when I have type 2 diabetes. It was not until I raised this topic with my GP that I felt confident to travel down the path."

Your diabetes in pregnancy team

The best preparation for a healthy pregnancy starts with getting the right information and advice before you become pregnant.

When planning for, and during your pregnancy, you will benefit from the support of a 'diabetes in pregnancy team' which may include the following health professionals:

- endocrinologist (diabetes specialist doctor)
- obstetrician (pregnancy doctor)
- credentialled diabetes educator/nurse practitioner (diabetes)
- accredited practising dietitian
- general practitioner (GP)
- midwife
- psychologist
- social worker.

If needed, your doctor may also refer you to other specialists such as a renal (kidney) physician or an ophthalmologist (eye specialist).

Make an appointment with your diabetes health professionals as soon as you start thinking about having a baby. Ideally, at least three to six months before trying to conceive. Your health professionals can provide pre-pregnancy care to help you with managing your diabetes and organise the health checks you need to prepare for pregnancy. If you are not already seeing these health professionals, ask your GP for the referrals you need. These services may be available to you through your local diabetes centre or hospital.

All major hospitals with maternity services in Australia can provide information about pregnancy and diabetes, and some also have specialised diabetes in pregnancy services. You could also see a private endocrinologist with expertise in diabetes in pregnancy.

"Once we decided we wanted to try for a baby, my GP's first recommendation was to do pre-pregnancy planning with an endocrinologist. My endocrinologist was able to guide me through expectations and target levels before and during pregnancy..."

If you live in a rural area with limited services, ask your GP about the best options. You may consider travelling to a major hospital that has a diabetes in pregnancy service, especially if you have had any complications from diabetes. Or, you may be able to access a shared care system between your local services and a diabetes in pregnancy team in a major hospital. Telehealth may also be an option to link you and your local health professionals with specialist diabetes in pregnancy services.

If you are not sure how to access health professionals in your area, ask your GP or call the NDSS Helpline on **1800 637 700**.

Planning and preparing for pregnancy

Contraception

Timing your pregnancy is important. Contraception helps you to plan your pregnancy around your personal circumstances, general health and diabetes management. No single method of contraception is perfect for everyone. Different methods suit different couples and there are many forms of contraception suitable for women with diabetes.

Only stop using contraception when you are ready to start trying for a baby. It's possible to become pregnant as soon as you stop using contraception. Discuss the most appropriate contraception for your individual needs with your GP, endocrinologist or obstetrician.

More information on contraceptive choices for women with diabetes is available on the NDSS website **ndss.com.au/pregnancy**.

Blood glucose targets

The first eight weeks of pregnancy is the time when a baby's major organs develop. So, it's important for your blood glucose levels to be as close to target as possible when you conceive and in early pregnancy. This will help to lower the risk of health problems in the developing baby and the risk of miscarriage.

Have your blood glucose meter checked and upgraded, if necessary, to make sure your blood glucose readings are accurate.

Your diabetes in pregnancy team will discuss individual blood glucose targets and a recommended haemoglobin A1c (HbA1c) with you. HbA1c is a measure of your average blood glucose levels over the past three months.

Current guidelines recommend an HbA1c of 6.5% (48mmol/mol) or less before pregnancy.

For some women this can be difficult to achieve, so seek as much support as you need from your diabetes health professionals to help you during this time.

"Understanding that maintaining target glucose levels will help in managing the pregnancy as normal as possible, there has been a strong focus in my life on maintaining those levels."

Folate

Folate (also known as folic acid) is an essential vitamin for a healthy pregnancy. It is needed for the growth and development of your baby, especially in the early stages of pregnancy. Folate is needed for the normal development of a baby's neural tube in the spine, which occurs around 4 weeks after conception.

Folate can be found in a varied diet that includes green leafy vegetables, fruit, breads and cereals, nuts and legumes. However, it's difficult to get enough folate for pregnancy from your diet alone, so folic acid supplements are recommended for all women before and during early pregnancy. Taking folic acid supplements has been shown to reduce the risk of birth defects for all women, not only those with diabetes. Ideally, you would start taking your folic acid supplement three months before your pregnancy, and continue taking it for the first three months of pregnancy (the first trimester).

Women with type 2 diabetes are advised to take a higher dose of folic acid than other women because of the increased risk of birth defects. In Australia, current guidelines recommend a total dose of 5 milligrams (5mg) folic acid supplementation a day for women with diabetes (this includes the amount contained in your folic acid supplement plus any pregnancy multivitamins). Your doctor may suggest you take one 5mg tablet each day, or just a half (2.5mg) if you are also taking other pregnancy multivitamins or supplements containing folic acid.

Talk to your diabetes health professionals about taking a folic acid supplement. You don't need a prescription to buy folic acid, but make sure you tell the pharmacist you need to buy the 5mg tablet, not the usual 0.5mg tablet.

Review of medications

Not all medications are safe to use during pregnancy, so a review of all medications you are taking is an important part of planning and preparing for pregnancy.

Some medications will need to be stopped or changed before pregnancy and then only restarted after pregnancy, or sometimes not until after you have finished breastfeeding. This is because they are not safe during pregnancy or breastfeeding.

All medication that you are taking, including medication for managing diabetes, cholesterol and blood pressure, must be reviewed before you become pregnant, or as soon as possible after you find out you are pregnant. This includes those prescribed by your doctor, as well as those bought over the counter from your pharmacy or supermarket.

Many women with type 2 diabetes will have been prescribed metformin. Metformin is generally considered to be a safe medication during pregnancy. Many doctors will recommend that you continue to take metformin during your pregnancy. Discuss this with your doctor or diabetes in pregnancy team.

If you are taking any other diabetes medications (apart from insulin), your doctor will recommend these be stopped before pregnancy, or as soon as you know you are pregnant. Your doctor may suggest you start insulin to help you manage your blood glucose levels.

Insulin

If you are taking insulin to manage your diabetes, talk to your GP or diabetes health professionals when planning your pregnancy. Ask about the types of insulin you are currently using and their suitability during pregnancy. Also discuss your insulin dose(s) and the number of injections you need to help you achieve your target blood glucose levels in pregnancy.

Occasionally, women with type 2 diabetes may choose to use an insulin pump while pregnant. However, pumps are generally only used by women with type 1 diabetes. Pumps would only be considered for use in type 2 diabetes under special circumstances. The cost of the pumps and the related consumables is relatively high and there are currently no subsidies available for people with type 2 diabetes through NDSS. For more information about insulin pumps, including cost and availability, talk to your diabetes health professionals.

Diabetes-related complications screening

Before pregnancy, it's important to be checked for any diabetes-related complications in your kidneys, eyes and nerves. Some women may also be advised to have a check of their heart health prior to pregnancy. You will need to have your kidneys and eyes checked during your pregnancy as well.

Kidneys

Your doctor will ask you to have a urine test to check the amount of protein/albumin passing through your kidneys. You will also have a blood test to check the function of your kidneys. If there are any problems, you may need to see a kidney specialist before pregnancy and you will need to be monitored carefully during your pregnancy (especially in relation to your blood pressure). Even minor kidney problems (such as slightly increased levels of albumin or protein in the urine) can increase the risk of developing high blood pressure during pregnancy. If you have any problems with your kidneys during pregnancy, your baby's growth will need to be monitored carefully.

Eyes

Make an appointment to see an optometrist or an ophthalmologist (a specialist eye doctor) to have the back of your eyes checked. Make sure they know you have diabetes. If you have damage to the small blood vessels at the back of the eye (diabetic retinopathy), this needs to be stable before pregnancy. Ask your eye specialist if you need any treatment before you become pregnant.

Eye problems may appear or worsen during pregnancy. So, you will need to have your eyes checked regularly throughout your pregnancy and again, a couple of months after you have had your baby. Usually, eye problems that occur during pregnancy improve after your baby is born.

Heart

You may be advised to have check of your heart health before pregnancy. This includes checking for symptoms of heart problems. If you have any symptoms of heart problems or history of heart disease further checks will be recommended before pregnancy.

Nerves

Your podiatrist, credentialled diabetes educator or doctor can test for nerve damage in your feet (peripheral neuropathy), using simple physical checks such as a tuning fork or a 'monofilament' that measures pressure sensation.

Advanced diabetes-related complications

If you have any advanced diabetes-related complications, discuss the risks of pregnancy with your endocrinologist/diabetes specialist, as well as other medical specialists (such as your ophthalmologist and kidney specialist), **before** planning to become pregnant. Pregnancy can put additional stress on your body and some diabetes-related complications can worsen during pregnancy, such as kidney disease and retinopathy (eye damage). Your specialist medical professionals can provide information and advice suited to your individual circumstances.

Blood pressure

If you have high blood pressure, see your doctor before becoming pregnant, especially if you are taking any medication.

High blood pressure needs special attention as it increases the risk of problems in pregnancy for you and your baby. You may need to stop certain blood pressure medications or change your blood pressure medications before trying to become pregnant.

Dental check

The hormonal changes during pregnancy can affect your teeth and gums. It's a good idea to visit your dentist for a check-up before you become pregnant and keep up good dental hygiene before, during and after pregnancy.

A healthy weight

Aim for a healthy weight before becoming pregnant. A healthy eating plan and regular physical activity can help with weight management.

The weight gain recommended for pregnancy depends on your weight range before you conceive. It's a good idea to see an accredited practising dietitian for guidance on pregnancy specific nutrition needs and your personal weight gain target. Some weight gain is expected during a healthy pregnancy. It's not advisable to aim to lose weight while you are pregnant. However, you also need to take care to not 'eat for two' and continue to be active during pregnancy (see page 15).

The table below shows the recommended weight gain targets for pregnancy depending on your pre-pregnancy weight range. This is calculated using your body mass index (BMI) which is your weight (kg) divided by your height (m) x height (m).

Pre-pregnancy BMI	Weight range	Recommended pregnancy weight gain
< 18.5	Underweight	12.5–18kg
18.5–24.9	Healthy weight	11.5–16kg
25–29.9	Overweight	7–11.5kg
> 30	Obese	5–9kg

Institute of Medicine, 2009

Nutrient supplements

As well as a folic acid supplement, it is recommended that all women who are considering pregnancy, currently pregnant or breastfeeding take an iodine supplement of 150 micrograms (150ug or mcg) a day. Women with an overactive thyroid or Graves' disease should see their doctor for advice before taking an iodine supplement.

If you are concerned about other nutrients, speak to your accredited practising dietitian about your usual dietary intake and ask whether you need multivitamins or other supplements.

Immunisation

Your GP will arrange blood tests to check your immunity to rubella (German measles) and varicella zoster (chickenpox). Contracting rubella when you are pregnant can lead to blindness, deafness and abnormalities in your baby. If you are not immune, you should be vaccinated at least one month before becoming pregnant. Your doctor will also check your exposure/immunity to other conditions such as hepatitis B, and may recommend you get vaccinated if you have no immunity. You will be advised to have influenza (flu) and whooping cough (pertussis) vaccinations during your pregnancy. Discuss immunisations for pregnancy with your doctor, including current recommendations regarding COVID-19 vaccination.

"I had done a lot of pre-work to ensure I was healthy before we even became pregnant."

Blood tests

Your doctor will check your thyroid function and may do some additional tests such as checking your vitamin D and B12 levels.

Smoking, drugs and alcohol

Smoking increases the risk of damage to blood vessels in the heart, brain, feet and kidneys. The risk is higher in people with diabetes. Smoking also harms the growth and development of your unborn baby. You can ask your diabetes in pregnancy team about strategies to quit, or you can call the QUITLINE on **13 78 48** or visit **quit.org.au**. Alcohol and recreational drugs increase the risk of miscarriage and can harm your baby, and should be completely avoided.

Emotional health

For some women, it can be demanding and stressful to achieve blood glucose levels within the target range before conceiving, and maintain these levels throughout the early stages of pregnancy. It's common to feel worried, overwhelmed and uncertain at times.

This can be a challenging time in your life, so be sure to seek the support you need. Talk to your partner, family, friends and health professionals about how you are feeling. If you need additional support, your health professionals can also advise you about support services available in your local area.

"…always remember, at the end of the day your goal is a healthy baby, and that is worth every single minute you ever spent planning, or stressing about your levels, or change in your diet or any other sacrifice you might have to make for almost 1½ years of your life!"

Unexpected pregnancy

If you find you are pregnant sooner than you intended, organise an immediate appointment at your closest maternity hospital or contact your endocrinologist or credentialled diabetes educator. These health professionals will work with you to achieve the best outcome for you and your baby.

ACTION:

The following checklist summarises the advice in this section.

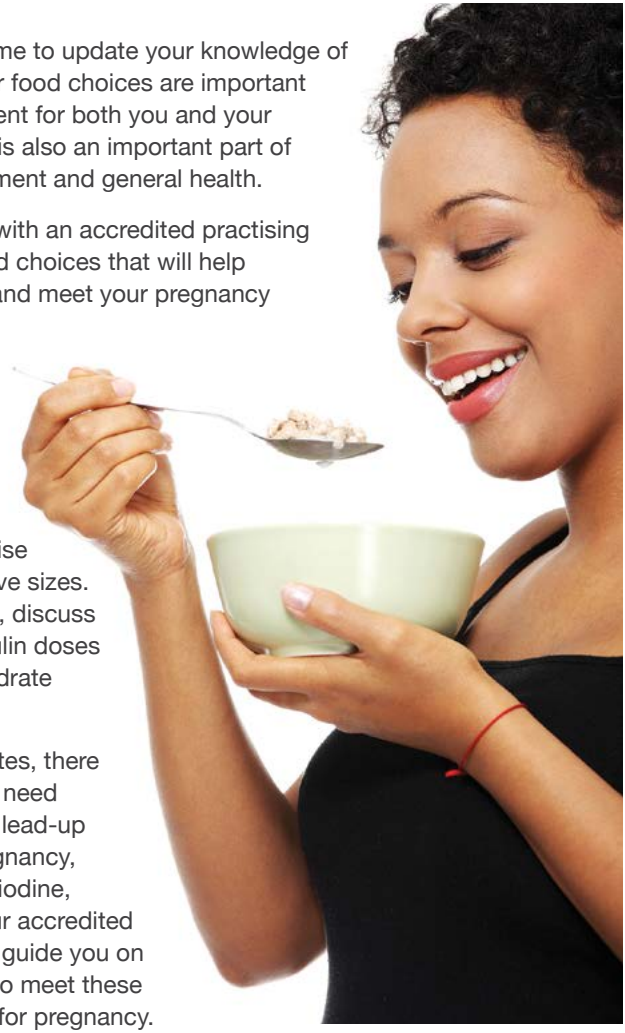
- **Contraception and general pregnancy advice**: Ask your GP, endocrinologist or obstetrician for help to choose the best contraception for you and your partner while you are planning and preparing for pregnancy.
- **Referrals**: Ask your GP for referrals to see diabetes health professionals such as an endocrinologist, credentialled diabetes educator/diabetes nurse practitioner and accredited practising dietitian, and discuss your options for specialised maternity care.
- **Blood glucose targets**: Aim for an HbA1c of 6.5% (48mmol/mol) or less before pregnancy. Discuss individual targets with your health professionals.
- **Folic acid supplements**: Start taking high-dose (2.5-5mg/day) folic acid ideally three months before becoming pregnant and continue during the first three months of pregnancy.
- **Review insulin therapy**: If you are taking insulin to manage your diabetes, ask your doctor whether the types of insulin or your insulin doses need any changes.
- **Medications**: Ask your doctor to review all of the medications you are taking to check if they are safe to take during pregnancy.
- **Diabetes-related complications**: Have a full complications screening, and any complications treated and stabilised before becoming pregnant.
- **Blood pressure**: Have your blood pressure checked and stabilised before becoming pregnant.
- **Weight management**: Aim for your weight to be as close as possible to the healthy range before pregnancy, and discuss pregnancy weight gain with your health professionals.
- **Diet and supplements**: Take a supplement that contains at least 150 micrograms (150ug or mcg) of iodine and check with your doctor and/or accredited practising dietitian whether you need to take multivitamin or other supplements.
- **Vaccinations**: Make sure your vaccinations are up to date.
- **Smoking**: If you are a smoker, stop smoking - ask your health professionals for help.
- **Alcohol and other drugs**: Avoid alcohol and other drugs completely during pregnancy.

Eating well and physical activity

Healthy eating and regular physical activity are essential for your good health, and the growth and development of your baby.

Healthy eating

Pregnancy is a good time to update your knowledge of food and nutrition. Your food choices are important for providing nourishment for both you and your baby. Your eating plan is also an important part of your diabetes management and general health.



Make an appointment with an accredited practising dietitian to discuss food choices that will help you manage diabetes and meet your pregnancy nutritional needs. They can advise you on weight gain targets during your pregnancy, the best carbohydrate food choices for managing blood glucose levels and advise you on appropriate serve sizes. If you are taking insulin, discuss how to adjust your insulin doses to match your carbohydrate intake.

Aside from carbohydrates, there are other nutrients that need special attention in the lead-up to and during your pregnancy, including protein, iron, iodine, calcium and folate. Your accredited practising dietitian can guide you on the best food choices to meet these extra nutritional needs for pregnancy.

Protecting yourself from exposure to high-risk foods that can cause infections and harm your developing baby is very important. These infections can be caused by listeria, salmonella and toxoplasmosis which can be present in high-risk foods.

Certain types of fish also need to be limited during pregnancy due to their high mercury content. Seek advice from your accredited practising dietitian and/or state health department on guidelines for food safety during pregnancy.

Alcohol can cause damage to an unborn baby, and should be avoided throughout your pregnancy.

An accredited practising dietitian can discuss the most appropriate foods for you during your pregnancy, provide information on food safety, give you advice on pregnancy weight gain, and work with you to help manage your diabetes during pregnancy.

Physical activity

Becoming pregnant does not mean you have to give up exercise or other physical activity. In fact, women with diabetes benefit from regular physical activity in pregnancy. It's a great way to relax and spend time with family and friends, and can help you with managing your diabetes.

Physical activity can help you manage your blood glucose levels and pregnancy weight gain, as well as keep you fit to prepare for the birth of your baby. It also has other benefits, such as managing pregnancy symptoms like heartburn, constipation and lower back pain. Regular physical activity is good for your emotional health and wellbeing, and can help you return to a healthy weight after you have had your baby.

Your goal, while pregnant, should be to maintain your general health and fitness. Pregnancy is not the time to begin a new or strenuous exercise routine.

Many types of physical activity are suitable during pregnancy. Talk to your doctor or midwife before starting or continuing any form of physical activity while you are pregnant.

For women with type 2 diabetes without any other medical or pregnancy complications, aim for 30 minutes of moderate physical activity on most days of the week. This can also be broken up into shorter periods of at least 10 minutes, three times a day. 'Moderate physical activity' means that while being active you will have a slight but noticeable increase in breathing and heart rate (but you should still be able to hold a conversation).

Moderate activities could include swimming, brisk walking, aqua fitness classes, stationary cycling, prenatal exercise classes or light to moderate resistance exercise.

Pelvic floor exercises during pregnancy can help with recovery after your baby is born. As your pregnancy progresses, you may find that some activities are more suitable than others.

Monitoring your daily activity by keeping an exercise diary or using a device such as an activity tracker can also encourage you to be active. To exercise safely remember to:

- check your blood glucose levels before, during (if needed) and after exercise
- if you are taking insulin, have treatment available for low blood glucose levels (also known as hypoglycaemia or a hypo)
- check that your blood glucose levels are not low before you start exercising
- include a 5-10 minute warm up and cool down
- drink plenty of water during and after physical activity
- wear loose, light clothing to avoid overheating
- avoid exercise when you are hungry, unwell, have high blood glucose levels or a high temperature
- when exercising during pregnancy, STOP and seek medical advice if you experience chest pain, dizziness, back or pelvic pain, calf pain or sudden swelling of ankles, hands or face, contractions or vaginal bleeding or a decrease in fetal movements.

If you are already physically active, discuss your current activities with your GP or other health professionals. In many cases you may be able to continue your activities as long as it is comfortable to do so. During pregnancy, avoid activities that involve lying flat or increase the risk of falling, as well as contact or extreme sports.

HELPFUL HINTS: Physical activity

You can enjoy physical activity by incorporating activity into your daily routine. Start with 10 minutes, two or three times a day. For example, you could:

- walk your dog (or a friend's dog)
- join a pregnancy aqua fitness class
- swim or walk in water
- try pregnancy yoga or Pilates
- walk along the beach or in the park
- walk your children to and from school
- take the family to the park for a ball game
- find out about low-impact aerobics or light resistance gym programs available in your area.

Remember that you will need to consider the effect of physical activity on your blood glucose levels. Exercise generally lowers blood glucose levels, so if you are taking insulin you may need to make adjustments to your doses. It's important to discuss physical activity with your health professionals.

"Keep a food diary, try to walk every day and try to get to a healthy weight before conception."

Diabetes and your pregnancy

There are a number of ways that pregnancy will affect your body and your diabetes. There are also some extra risks associated with pregnancy for women with diabetes. Looking after yourself and your diabetes can help to reduce these risks.

Blood glucose targets

Your diabetes in pregnancy team will discuss individual pregnancy blood glucose targets with you. They will encourage you to check your blood glucose levels frequently and will work with you to keep these as close to the target range as possible. This includes trying to limit the swings in your blood glucose levels and if you are taking insulin, minimising the risk of low blood glucose levels (hypoglycaemia or a hypo).

Towards the end of the first trimester of pregnancy, blood glucose levels are generally lower in pregnant women. At this stage of your pregnancy, slightly lower blood glucose targets may be suggested, depending on your risk of hypoglycaemia. The recommended HbA1c in the second and third trimester is usually 6% (42mmol/mol) or lower. Your target HbA1c should be discussed with your diabetes in pregnancy team.

Managing diabetes during pregnancy can be challenging - the aim is to try to keep glucose levels within your individual target range. Discuss your individual targets with your diabetes in pregnancy team.

Insulin

Some women with type 2 diabetes may already be taking insulin before becoming pregnant. Other women may need to start taking insulin during pregnancy to help manage their blood glucose levels. Most women with type 2 diabetes will need insulin at some stage during their pregnancy. Insulin does not cross the placenta and is completely safe for mother and baby.

If you are taking insulin, the amount you need is likely to change throughout your pregnancy, as different hormones take effect and your baby grows. Be prepared to adjust your doses regularly. It's not uncommon to need to make adjustments to your insulin dose at least every few days, especially in the second half of pregnancy.

If you are not sure how to adjust your insulin doses, ask your diabetes in pregnancy team for advice. Adjusting insulin doses in pregnancy can be more challenging than usual. Make sure you have the contact details for your diabetes team and be prepared to contact them more often.

As pregnancy progresses, it is common to need more insulin. Hormones made by the placenta interfere with the way your insulin normally works, so as the pregnancy hormones rise, so does your need for insulin.

Insulin requirements often continue to rise until about 34 to 36 weeks, when they may plateau or start to fall a little. If you notice your insulin requirements fall significantly and rapidly in late pregnancy, promptly contact your diabetes in pregnancy team for advice.

"…there was a definite increase in monitoring my levels (testing at least 6 times a day). Since my diabetes was managed with insulin, the doses gradually increased throughout the pregnancy. The team of endocrinologist, obstetrician and dietitian had mentally prepared me for this increase, which gave me a lot of reassurance that what was happening was expected."

Every woman's experience with managing diabetes during pregnancy will be different. Keep in close contact with your diabetes in pregnancy team to discuss changes to your diabetes management throughout pregnancy.

Low blood glucose levels (hypoglycaemia)

If you are taking insulin to manage your diabetes, you may be at risk of low blood glucose levels (hypoglycaemia or a hypo). A hypo occurs when blood glucose levels fall below 4mmol/L. It's important to treat hypos quickly to stop the blood glucose level from falling even lower.

Hypos can be caused by:

- delaying or missing a meal
- not eating enough carbohydrate
- unplanned physical activity
- more strenuous exercise than usual
- too much insulin.

In some cases, it can be difficult to identify why a hypo has occurred.

Symptoms of a hypo can vary from person to person and may include:

- weakness, trembling or shaking
- sweating
- light headedness
- headache
- lack of concentration
- dizziness
- feeling irritable or tearful
- hunger
- numbness around the lips and fingers
- palpitations.

Treating mild to moderate hypos

It is important to treat hypos quickly. Have some easily absorbed carbohydrate, for example:

- glucose tablets or gel equivalent to 15 grams of carbohydrate OR
- 6–7 regular size jellybeans OR
- 1/2 a can (150ml) of regular soft drink (not 'diet') OR
- 3 teaspoons of sugar or honey OR
- 1/2 a glass (125ml) of fruit juice.

If possible, re-check your blood glucose levels to make sure they have risen above 4mmol/L. It may take 10–15 minutes for this to happen.

If symptoms persist, or your blood glucose level is still below 4mmol/L, repeat the treatment.

If your next meal is more than 20 minutes away, you will need to have some extra carbohydrate food such as a piece of fruit, glass of milk or tub of yoghurt.

Frequent blood glucose monitoring can help you reduce the risk of hypos. You also need to remember to check that your blood glucose levels are above 5mmol/L before driving. For more information, refer to the NDSS booklet Diabetes and Driving.

Hypos have not been shown to cause harm to the baby. However, hypos can be a risk to the safety of the mother. So, treat low blood glucose levels without delay.

Very occasionally, women taking insulin may experience severe hypos. A severe hypo is when you can't treat a hypo yourself and you need help from someone else. Severe hypos rarely occur in type 2 diabetes, however your partner, family and friends need to know about hypo symptoms and treatment. Your diabetes in pregnancy team can help with more information about hypos.

ACTION:

- If you are taking insulin, make sure you carry a supply of hypo treatment such as glucose tablets, glucose gel or jelly beans, as well as your blood glucose meter, with you at all times. It's also a good idea to have your hypo treatment close by your bed at night.

High blood glucose levels (hyperglycaemia)

It's important to aim for blood glucose levels in your target range throughout your pregnancy. If your blood glucose levels are tending to be higher than your target, contact your diabetes in pregnancy team for advice.

If you are taking insulin, you may be advised to adjust the doses you are taking. If you are managing your diabetes with metformin or lifestyle management, the plan for managing your diabetes may need to be reviewed to help keep your blood glucose levels in your target range.

As your pregnancy progresses, it's common to need more medication to keep your blood glucose levels in your target range.

If you can't get your blood glucose levels close to the recommended target range for pregnancy, you may need to have more frequent appointments with your diabetes in pregnancy team.

Sick days

Everyday illnesses, such as the flu and infections, can cause your blood glucose levels to rise. If you get sick while you are pregnant you will need to be careful. When you are unwell, check your blood glucose levels more often.

If you are taking insulin, you may also need to adjust your doses to manage your blood glucose levels. If your insulin doses increased when you are sick, the doses often need to be reduced, once you are better.

Talk to your diabetes health professionals about what to do when you are sick. Ask them to develop a sick day management plan with you. This will help you to manage your blood glucose levels when you are unwell.

HELPFUL HINTS: Illness and infection

- Develop a sick day management plan with your diabetes health professionals and follow this plan if you are unwell or have morning sickness.
- Check your blood glucose levels at least every 2 hours when you are unwell. If you are using continuous or flash glucose monitoring (see page 30), it's important to also check your glucose levels with finger prick blood glucose monitoring.
- If you are taking insulin, discuss hypo management with your diabetes health professionals. If your blood glucose level is low, treat the hypo then check your blood glucose level again in 10-15 minutes to make sure it is back in the target range. If your blood glucose level is still below 4mmol/L re-treat treat the hypo.
- If you are taking insulin, continue to take your long-acting insulin even if you are vomiting or not eating. Talk to your diabetes health professionals about adjusting your insulin dose in this situation.
- If you are taking metformin, you should stop taking this medication temporarily if you have severe vomiting - ask your doctor for advice.
- Make sure you continue to drink plenty of fluids. If your blood glucose levels are low, include carbohydrate containing fluids. If your glucose levels are high, choose carbohydrate-free fluids. Refer to your sick day management plan.
- See your doctor to find out the cause of the illness.
- Call your doctor or credentialled diabetes educator immediately, or go to the Emergency Department of your nearest hospital if you:
  - are vomiting or unable to keep food or fluids down for more than 2 hours
  - have high blood glucose levels that are not improving after 2 hours, despite following your sick day management plan
  - are worried about high blood glucose levels
  - need advice about your medication
  - are having trouble keeping your blood glucose levels above 4mmol/L
  - are unable to follow your sick day management plan.

Morning sickness

During the first 12 to 14 weeks of pregnancy, some women feel sick first thing in the morning, some in the evenings and others in the afternoon. Other women feel sick all day long and may vomit frequently. Occasionally this may continue well into the pregnancy. If you have ongoing morning sickness, ask your health professionals about suitable nausea medication.

HELPFUL HINTS: Morning sickness

- Keep your fluids up: sip on drinks such as water, flat diet (sugar-free) lemonade, diluted diet cordial, or diet icy poles.
- If you have been vomiting or unable to eat, or your blood glucose level is low you may need to include ordinary soft drinks and cordial instead of diet drinks (refer to your sick day management plan).
- Eat small, frequent meals. If you are taking insulin, talk to your doctor or credentialled diabetes educator about changing insulin doses to allow for this.
- Avoid strong food odours and rich, fatty foods.
- If mornings are a problem snack on food like dry toast or dry biscuits before getting out of bed.
- Eat and drink slowly.
- You may find you can tolerate cold foods better than hot foods.
- Some women find ginger (tea, biscuits or tablets) to be useful.
- Ask your accredited practising dietitian for some suitable food suggestions when you have morning sickness.
- If you are taking metformin you should stop this medication temporarily if your vomiting is severe - ask your doctor for advice.

Medical checks and monitoring during pregnancy

Throughout your pregnancy you will need to have a number of tests to check your general health and the wellbeing of your baby, including:

- HbA1c to assess your average glucose levels during pregnancy
- full blood count to check to for anaemia
- iron studies, to make sure you are not iron deficient– your doctor will advise whether you need to take an iron supplement (most women will in the later part of their pregnancy)
- kidney function tests.

Your doctor will arrange other checks as needed.

Ultrasound scans

The main scans offered during pregnancy will include:

- **An early dating scan** – at 7 to 8 weeks to estimate your due date.
- **11 - 14 week scan** – you may be offered an ultrasound which includes a nuchal translucency scan to estimate the risk of chromosomal abnormalities (such as Down syndrome).
- **Anatomical ultrasound (second trimester scan)** – at 20 weeks to check your baby's spine, limbs and organs.
- **Growth scan** – in the last 3 months, scans will usually be done every 2 to 4 weeks to monitor the baby's growth and wellbeing, as well as to check the fluid around the baby.
- **Cardiac scan** – may sometimes be recommended to check your baby's heart.

Your doctor may also recommend extra scans if there are any additional concerns.

Non-invasive prenatal screening

Some women also choose to have a non-invasive prenatal screening (NIPS) done in early pregnancy. This blood test, which can be done as early as 10 weeks, is used to identify the risk of a number of genetic abnormalities, including Down syndrome. While more women are choosing to have this test done, it is expensive and is not covered by Medicare.

Urine tests

You will be asked to give urine samples at antenatal visits during your pregnancy. The samples are tested for albumin and protein. They can also identify the presence of any infection that may be present, that would need prompt treatment. A small amount of protein in the urine is not uncommon in pregnancy. However, a larger amount may indicate that the pregnancy has affected your kidneys or, in later pregnancy, that you are developing pre-eclampsia.

Fetal heart rate monitoring

Sometimes your obstetrician may recommend that you have cardiotocography (CTG) monitoring, to check your baby's heart rate. This test may be recommended in the later stages of pregnancy. A CTG takes about 30 minutes and involves two sensors being placed on your stomach. These sensors record an electronic trace as a graph of your baby's heart rate, and detect any contractions in your uterus.

Blood glucose monitoring

It is essential to monitor your blood glucose levels frequently during your pregnancy. You will be asked to monitor before meals and one to two hours after meals. You may, at times, be advised to do some extra monitoring, such as before bed and overnight.

Monitoring will help you and your diabetes in pregnancy team to get a better understanding of your blood glucose levels so you can achieve the best possible management of your diabetes. If you are taking insulin, monitoring can help you make decisions about adjusting insulin doses. Extra monitoring can also help you avoid hypos.

Your diabetes in pregnancy team will discuss your blood glucose levels with you at each appointment. Writing these in a record book or testing diary can help you and your team better understand patterns in your blood glucose levels. You may also be asked to keep a food diary. Be sure to take your record book and blood glucose meter with you to all appointments.

"During pregnancy I had to go on insulin and therefore had to check my glucose levels up to 6 times a day, which can be exhausting. I had to maintain a scheduled eating plan."

Continuous glucose monitoring

Continuous glucose monitoring (CGM) or flash glucose monitoring (Flash GM) may be suggested during your pregnancy. CGM and Flash GM use a sensor placed under the skin to continually detect changes in glucose levels and to provide additional information about glucose patterns. This can be useful, but it does not replace the finger prick monitoring you do yourself.

While CGM or Flash GM can be very helpful during pregnancy, these devices are not subsidised through the NDSS for people with type 2 diabetes. They are considerably more expensive than finger prick blood glucose monitoring. Ask your diabetes in pregnancy team for more information.

Diabetes-related complications screening and monitoring

Your doctor will advise you to have a baseline screening for all diabetes-related complications before pregnancy. If there are any complications, they should be assessed and stabilised before your pregnancy. You will also be advised to have further screening, or monitoring of, diabetes-related complications throughout your pregnancy.

Kidneys

Diabetes-related complications affecting the kidneys increase the risk of your blood pressure becoming a problem in the second half of pregnancy, usually after 26 weeks. If you have no signs of kidney problems or only very mild problems before pregnancy, it's unlikely that a pregnancy will have any long-term effects on your kidney function. If you already have diabetes-related kidney disease, pregnancy may cause your kidney function to worsen.

Eyes

Rapid improvements in blood glucose levels can increase the risk of developing eye problems or make any existing eye complications worse. Gradually reducing your HbA1c towards the target level before you become pregnant can reduce the risk of these problems occurring. If you have eye problems that become worse during pregnancy, laser treatment (to prevent or treat bleeding behind the eye) is safe if you need it. Eye problems that have developed during pregnancy may improve after the birth, usually by the time the baby is one year old.

If you have diabetes-related complications, it's particularly important to have specialised management of your diabetes during pregnancy. It is best for your pregnancy to be managed in a major hospital that has a lot of obstetric and diabetes medical support, as well as the best facilities for babies if they are born early or have any problems when they are born.

Pre-eclampsia and high blood pressure

Pre-eclampsia is a potentially dangerous complication of pregnancy. It includes the development of high blood pressure, protein in the urine, and swelling or puffiness in the legs, fingers and face. It is more common in women with diabetes.

Pre-eclampsia is dangerous for you and your baby. It can cause problems for your baby's growth and is a major cause of premature birth. Well-managed blood glucose levels before and throughout pregnancy can reduce the risk of pre-eclampsia but not fully prevent it.

Your doctor or diabetes in pregnancy team will check your blood pressure and urine, and look for any signs of pre-eclampsia at each visit in the later stages of your pregnancy.

You may be advised to take low-dose aspirin from early pregnancy to reduce the risk of pre-eclampsia.

ACTION:

- Visit or call your diabetes in pregnancy team regularly and understand the signs and symptoms of pre-eclampsia.

Your emotional wellbeing

Becoming a mother is one of the most memorable moments in a woman's life. For women with diabetes, pregnancy also involves a lot of planning, preparation and hard work. It's not surprising that women with diabetes sometimes feel worried, stressed, anxious and uncertain during pregnancy and once the baby is born. These feelings are very normal and may come and go at different stages of your pregnancy.

It can also be a time in your life when you feel motivated and empowered to take care of yourself. It's about finding a balance between the responsibilities of taking care of your diabetes and your unborn baby and enjoying one of the most memorable times in your life.

Being pregnant and giving birth is a team effort involving you and your partner, your family, friends and health professionals. There will be more medical appointments than usual, which may feel overwhelming at times. However, these visits are also an opportunity to let your diabetes in pregnancy team know how you are feeling and to discuss any concerns or issues you have.

Your diabetes in pregnancy team is well equipped to assist you with the emotional ups and downs you might go through during pregnancy. They are there to listen to your concerns and to help you get the support you need. It's best not to ignore these feelings or to delay seeking help. Looking after your emotional wellbeing is as important as looking after your physical health.

Many women with diabetes describe a number of challenges before, during and after pregnancy which can impact on their emotional health.

Achieving and maintaining blood glucose targets

This is probably the most challenging aspect of managing your diabetes while pregnant. While you may have felt 'in control' of your diabetes before, you may find that this all changes once you are pregnant. Even if you follow your health professionals' advice, you will still have variations in your blood glucose levels. You may feel that your health professionals don't always acknowledge how much effort you have put in and the frustration it causes. It may feel like the emphasis on blood glucose levels takes away from the positive experience of expecting a baby and what it means for you to become a mum. Seek out health professionals that you are comfortable with and who provide you with the support you need.

If you are finding it too hard to achieve your recommended blood glucose targets, talk to your doctor or credentialled diabetes educator and discuss realistic goals for you and how to achieve them.

Worrying about your baby's health

It's very normal to worry about having a healthy baby. Finding a health professional you feel comfortable with so you can openly discuss these concerns may help you to cope with these worries. Find out as much as you can about how to minimise the risk of problems during pregnancy. The support of women with diabetes who have recently become mothers can also be helpful at this time. Remember that most women with diabetes will have a healthy baby.

Unexpected pregnancy

If your pregnancy is unexpected or you find that you are pregnant sooner than intended, make an urgent appointment with your doctor and diabetes team. It is important at this time to get as much information and support as you can.

Finding out that you are pregnant may come as a shock. There are many emotions you may experience and there is no right or wrong way to feel at this time. If you're worried, confused or uncertain, talk to someone you trust about how you are feeling.

Having diabetes doesn't mean that you won't have a healthy baby. Early contact with your health professionals is vital - they will work with you to achieve the best outcome for you and your baby. Your health professionals can also refer you to local services for counselling and support at this time.

Preventing and managing hypos

If you are taking insulin to manage your diabetes, you are at risk of hypos. This can make some women feel anxious. Frequent blood glucose checks and appropriate insulin adjustments can help reduce this risk. Remember to always carry hypo treatment with you and if needed, have treatment within reach when you are breastfeeding.

Managing the concerns of well-meaning partners, friends or family members

Your partner, friends or family members may worry more than usual about you at this time. You may feel that they are constantly watching you and that you are being judged about how you are managing your diabetes. While they may mean well, let your loved ones know how this makes you feel. Talk about how they could support you, what is helpful and what is not. Reassure them that you are taking care of your diabetes, but that it's not always easy. You could consider inviting them to be involved in your diabetes and pregnancy care so that they better understand your diabetes management, worry less and give you the support you need.

Going home

Taking your baby home is an exciting time and a new chapter in your life. While you may have felt that there was a lot of support available while you were pregnant, many women feel 'abandoned' at this time. You may be uncertain about things such as how to care for your baby, breastfeeding or changes to your blood glucose levels and diabetes management.

There is support available from child and family health nurses, lactation consultants and your diabetes health professionals. Before going home, talk to your health professionals about what kind of support is available to you and have a plan in place for accessing support services.

Postnatal depression

Many women experience changes in their emotions after having a baby. It's common to have the 'baby blues' in the first week after your baby is born. Postnatal depression occurs when these feelings last more than a week or two and interfere with your ability to function with your usual routines, including caring for your baby or caring for yourself. Be aware of the signs of postnatal depression such as loss of enjoyment in your usual day-to-day activities, low self-esteem and confidence, loss of appetite, panic attacks, a sense of hopelessness or fear for your baby's wellbeing.

If you are experiencing any distressing symptoms that are causing you concern or your family or friends have noticed signs of postnatal depression, contact your doctor, midwife, or child and family health nurse who can provide you with assistance, which may include access to psychological support. Don't expect that these feelings will just go away – make sure you seek the help you need.

Emotional support

There are many ways in which other people can support you through your pregnancy, the birth and beyond. If you have a partner, initially you may be reluctant to involve them in your diabetes management, particularly if this is something that you have always managed by yourself. However, remember that pregnancy is an exciting time for couples and your partner may want to be part of this journey. Sharing your feelings and expressing your needs at this time can give you the reassurance you need.

Family and friends can also be great support people during this time. Talking openly and honestly about your emotions can help you to express your feelings, allow your loved ones to better understand the support you need, and help you at each stage of pregnancy and beyond.

Many women find it helpful to hear stories of how other women with diabetes have experienced their pregnancy. Ask your diabetes in pregnancy team if there is a support network or group you can attend to meet other women with diabetes. Some women have even formed support groups in the waiting rooms of diabetes and pregnancy clinics! Other women find online networks, forums and blogs a useful source of information and support.

As a woman with diabetes, pregnancy can be one of the most wonderful yet challenging times of your life. There are many emotions you may experience at this time, but you are not alone.

Talk to your partner, family and friends about how you are feeling and ask your health professionals about accessing the support you need for your emotional wellbeing.

"My advice to other women - find a strong team who support you - my team consists of endocrinologist, clinical team at the hospital, GP and husband. My husband has been grounded with reality and helps me in tracking my diet, glucose levels and meal prep. He knows more about diabetes and pregnancy than I do, and helps me in all the decision making."

ACTION:

- Ask for support from your partner, family, friends and health professionals.
- Discuss with them how they can help you.
- During pregnancy make a list of health professionals who can support you once you are home with your baby (e.g. lactation consultant, child and family health nurse, diabetes health professionals, your GP).
- Seek out counselling services if you need support.
- If you need to talk to someone immediately contact:
  - Beyond Blue Support Service on **1300 22 4636**
  - Lifeline on **13 11 14**.

Diabetes and your baby

Most women will have a healthy baby, but all pregnancies can have problems regardless of whether the mother has diabetes. Having diabetes brings some additional risks, but looking after yourself and your diabetes can help to reduce these risks.

Risks to your baby in early pregnancy

Diabetes can increase the risk of birth defects (congenital abnormalities) in babies. These abnormalities are more common when diabetes management before and during early pregnancy has not been optimal. Damage to the baby's heart, spine and kidneys can occur during the early stages of pregnancy, often before women realise they are pregnant. Miscarriage can also occur, as it can for all women. The risk of miscarriage increases when HbA1c is above the target range before pregnancy and in the early stages of pregnancy.

To reduce your risk of miscarriage and of your baby developing abnormalities, it's important to maintain the best diabetes management you can.

Risks to your baby during pregnancy

Glucose can cross the placenta to your baby, so your baby's blood glucose levels will reflect your own. If your blood glucose levels are high, the normal response of your baby will be to produce extra insulin for themselves (this occurs from about 12 weeks gestation). The combination of extra glucose and extra insulin can make your baby grow too big. Having a large baby can cause problems during labour and birth. High glucose levels during pregnancy may also increase the risk of long-term health problems for your baby.

Risks to your newborn baby

Babies may have low blood glucose levels (hypoglycaemia) after birth.

The higher your blood glucose, the higher the glucose supply will be to your baby before birth. The extra glucose stimulates the baby's pancreas to make more insulin. After birth, your glucose supply to your baby suddenly stops, but your baby may continue to produce excess insulin for several hours and even up to one or two days after birth. This can cause hypoglycaemia in the baby.

Hypoglycaemia is more likely to happen if babies are born early or if they are very small or large. Your baby could also have trouble with feeding, breathing or other medical problems. Keeping your blood glucose levels as close to target as possible during pregnancy and birth will dramatically reduce the risk of these problems.

Reducing the risks

The aim is to have your HbA1c less than 6.5% (48mmol/mol), if possible, for three months before you become pregnant and in the early part of your pregnancy (first trimester). Your diabetes in pregnancy team will discuss your personal HbA1c goal with you before you conceive.

During pregnancy, your diabetes in pregnancy team will work with you to keep your blood glucose levels as close to your target range as possible. This will help to reduce the risk of your baby growing too big or having hypoglycaemia after birth.

If I take insulin during pregnancy, will it harm my baby?

No. It is important to know that the insulin you inject does not cross the placenta and cannot harm your baby.

Will my baby be born with diabetes?

No. Your baby will not be born with diabetes, but they may have an increased risk of developing type 2 diabetes later in life. A healthy lifestyle that includes good eating habits, maintaining a healthy weight and regular physical activity will reduce the risk.

What to pack for hospital

When you're due to have a baby, packing your bag for hospital by 34 weeks of pregnancy is usually recommended. Below are suggestions on what to pack for mother, baby and support person, including suggested diabetes supplies. Your doctor or credentialled diabetes educator can provide individualised advice on what you need for managing your diabetes during labour and after the baby is born.

Paperwork

- ☐ Medicare card
- ☐ Antenatal record card
- ☐ Private health insurance details (if applicable)
- ☐ Hospital paperwork
- ☐ Your birth plan (it can be helpful to give a copy to your midwife in advance)
- ☐ Contact details for your diabetes in pregnancy team: including endocrinologist, credentialled diabetes educator and obstetrician
- ☐ Diabetes management plan including insulin dose adjustments (if relevant) (taking a photo of this plan and storing it in your phone can be helpful)

For mum

- ☐ Comfortable/old clothes for labour (such as a loose t-shirt)
- ☐ Sleepwear, dressing gown, socks and slippers
- ☐ Maternity bras and underwear (high waisted underwear helpful with C-section)
- ☐ Breast pads
- ☐ Maternity pads
- ☐ Towel
- ☐ Personal toiletries for showering, moisturiser and deodorant
- ☐ Tooth brush and toothpaste
- ☐ Tissues, lip balm, hairbrush and hairbands
- ☐ Books, magazines, playing cards, notepad, pen, music (and headphones)
- ☐ Comfortable day clothes (front opening can be helpful for breastfeeding)
- ☐ Flip flops/thongs
- ☐ Washbag
- ☐ Clothes and shoes to wear home
- ☐ Phone and charger

For your baby

- ☐ Small beanie or hat
- ☐ Newborn nappies (8-10/day)
- ☐ Baby wipes
- ☐ Sleepsuits and singlets
- ☐ Socks or booties
- ☐ Baby blanket
- ☐ An outfit for the trip home
- ☐ Baby capsule (already fitted to your car)

For your partner or support person

- ☐ Water bottle and snacks
- ☐ Change of clothes
- ☐ Toiletries
- ☐ Camera
- ☐ Phone
- ☐ Money or credit card (for parking, meals etc.)

Diabetes supplies

- ☐ Blood glucose meter
- ☐ Blood glucose monitoring strips (more than what you think you'll need)
- ☐ Fingerpricker and lancets
- ☐ Diabetes record book
- ☐ Insulin pen and pen needles/syringes (if relevant)
- ☐ CGM or Flash GM supplies (if applicable)
- ☐ Hypo treatments (if you are taking insulin)
- ☐ NDSS card
- ☐ Snacks

Each hospital is different and has their own policies on what you can bring and what is provided during your stay, so check with the hospital and discuss what to pack with your midwife and diabetes health professionals. It is also a good idea to check hospital visiting hours beforehand.

Labour and birth

Your diabetes in pregnancy team will work with you towards the ultimate goal of having a healthy baby. They will discuss what to expect during labour and birth, including a plan for managing blood glucose levels, insulin adjustment (if relevant) and who to contact if you go into labour earlier than expected.

Your diabetes in pregnancy team will work with you to aim for a natural birth close to your due date. It is usually recommended, that a woman with diabetes has her baby at around 37-38 weeks' gestation. If you do not come into spontaneous labour by then, your labour will be 'induced', or possibly an elective caesarean section will be suggested. The obstetrician in your diabetes in pregnancy team will discuss delivery options with you, with the goal usually being a vaginal birth. It is important that you feel comfortable discussing these birthing options with your team of health professionals.

If you go into labour spontaneously, it is best to go to hospital early for close monitoring of your diabetes and the baby's well-being.

Sometimes, an earlier birth may be recommended if there are concerns during your pregnancy, such as:

- high blood pressure
- pre-eclampsia
- your baby becoming too big or not growing enough
- a substantial fall in your insulin requirements or;
- change in your baby's patterns of movement.

If you need to have your baby early, you are likely to be given a cortisone-like medication (betamethasone, Celestone) to help mature your baby's lungs before birth. These medications usually increase blood glucose levels for several days. In this situation, your doctor would usually recommend a hospital admission to monitor you and your baby and manage your blood glucose levels. An intravenous insulin infusion or intensive insulin therapy would be used to help keep your blood glucose levels in the target range at this important time before your baby is born.

Induction of labour

Depending on how your pregnancy is progressing, you may need to have an induction, which means helping your body to start labour. An induction can be performed in several ways, and sometimes a combination of two or more methods will be used.

These include:

- Gel insertion – this involves inserting a prostaglandin pessary or gel into your vagina, to help the cervix to soften and open. This, in turn, tells your uterus to start contracting. Some women need two or three doses of gel before labour begins.
- Balloon induction – this involves a catheter being inserted into your vagina. Water is then pumped into the device, which gently puts pressure on your cervix, assisting dilation and encouraging your uterus to start contracting.
- Rupture of membranes (breaking waters) – this method involves rupturing the membrane, or bag of fluid, around your baby. Your membrane is gently broken using an 'amnihook', which looks like a long crochet hook, and the gush of fluid may encourage your uterus to start contracting and bring on labour.
- Oxytocin drip – this method involves an intravenous (IV) line (or drip) being inserted into a vein in your arm, and the oxytocin hormone being slowly delivered into your blood to help your uterus start contracting. The drip may be used alone or with a gel insertion.

When an induction is planned, ask your diabetes in pregnancy team to develop a plan with you for managing your diabetes. If you are taking insulin, this will include adjustment of your insulin doses. If you are taking metformin and having an induction of labour, your metformin will be stopped before delivery.

Managing diabetes during labour

Your own blood glucose levels in the time leading up to the birth have an important effect on your baby's blood glucose levels. The higher your blood glucose, the greater the risk of hypoglycaemia in your newborn baby. Keeping blood glucose levels close to the target range during labour, helps reduce the risk of your baby having low blood glucose levels at birth.

When you are in labour, you will be under the care of your diabetes in pregnancy team including your midwife, obstetrician and endocrinologist/ diabetes specialist. Your blood glucose levels will be monitored frequently, usually every one or two hours, and there will be regular contact with your diabetes team.

If you need insulin during labour, the dose will be adjusted to keep your blood glucose levels in the target range. You may be given the insulin as injections or via an intravenous (IV) insulin infusion along with IV glucose (sugar). Some women with type 2 diabetes may not need insulin during labour; discuss the management of your diabetes during labour with your diabetes in pregnancy team.

Caesarean section

From around 35-36 weeks, your doctor will discuss with you, a plan for your baby's birth. If your doctor is concerned about you not being able to have a vaginal birth (for example, if they suspect your baby is too large, is breech (bottom first) or there are other obstetric problems), they will discuss with you the possibility of a planned caesarean section.

If a caesarean section is advised, it will be according to your obstetric needs, not because you have diabetes. Birth by caesarean section is not a decision taken lightly, as there are risks involved with such major surgery. The medical decision to perform a caesarean section should be discussed with you in detail; your doctor can explain the risks and benefits involved.

If you are having a caesarean section, you will usually have to fast for about six hours beforehand, so you should discuss with your diabetes in pregnancy team the options for managing your blood glucose levels and insulin doses (if relevant) during this time. It's a good idea to make a management plan with your diabetes in pregnancy team well before the birth. If you are taking metformin, this medication will be stopped before your caesarean delivery.

In some circumstances, a caesarean section is undertaken as an 'emergency'. This might happen if there are problems with you or your baby, or because the labour is not progressing the way it should.

ACTION:

- Talk to your diabetes in pregnancy team before labour about pain relief options, diabetes management and any other questions or concerns you may have.
- Have a written plan for your diabetes management during birth, regardless of the birthing method.

Managing diabetes after the birth of your baby

After your baby is born, your diabetes team will review your diabetes management. How your diabetes is managed after the birth will depend on a number of factors. These include your diabetes treatment before pregnancy, your blood glucose levels in the days after the birth and whether or not you are breastfeeding.

- If your usual treatment before pregnancy was lifestyle and/or metformin, you are likely to return to this form of management.
- If you were started on insulin during your pregnancy, this is likely to be stopped as soon as you deliver. However, depending on your blood glucose levels, you may need to restart insulin or start taking metformin.
- If you were taking insulin before you became pregnant, it's likely that this will need to be continued. The type of insulin, number of injections and doses you need will be reviewed by your doctor.

If you need insulin after pregnancy, the doses will be lower than when you were pregnant and will need frequent review, especially in the first month after delivery. If you are breastfeeding, metformin and insulin are the only diabetes medications suitable for use. Other diabetes medications may be prescribed for you when you finish breastfeeding.

You will still need to do frequent blood glucose checks after your baby is born. The target blood glucose levels after delivery will be higher than your pregnancy targets. This helps to reduce the risk of hypos while you are establishing breastfeeding and a new routine with your baby. It is usually recommended to keep blood glucose levels between 5 and 10mmol/L at this stage.

Your diabetes in pregnancy team will discuss changes to your diabetes management plan with you.

"Once the C-section happened, I didn't need insulin, I went back to managing diabetes with diet."

After your baby is born

After the birth, a paediatrician, your obstetrician or a midwife will examine your baby. If your blood glucose levels have been stable during your pregnancy and the birth, and your baby has no problems, your baby will go with you to your hospital room where skin-to-skin contact and breastfeeding is encouraged.

If your baby is born very large, very small, prematurely or is having breathing problems or low blood glucose levels, they may need to be observed in a special care nursery for a day or two. Not all maternity hospitals are equipped with a high-level special care nursery, so in some circumstances your baby may need to be transferred to another hospital.

Skin-to-skin contact between you and your baby will be encouraged at birth because it will help you to develop a close bond with your baby. It also allows your baby to suckle and will help to keep your baby's temperature more stable. Ask your midwife about skin-to-skin contact if you and your baby need to be separated.

Your baby's blood glucose level

Your baby will be checked for low blood glucose levels for at least the first 24 hours after birth. This is done by heel prick – usually within 2 hours of birth or before your baby's second feed. Blood glucose checks are done at regular intervals until the baby's blood glucose levels are in range.

Heel prick blood glucose tests are done to check for low blood glucose levels. This is not to check if your baby has diabetes and does not mean that your baby will develop diabetes in the future.

If your baby's blood glucose level is low (less than 2.6 mmol/L), your baby may need to have supplementary feeds or some glucose. Talk to your midwife about using your breastmilk for supplementary feeding.

ACTION:

- Ask your midwife or diabetes in pregnancy team about guided tours of the maternity service at your hospital before your due date.
- Ask about early skin-to-skin contact with your baby.
- Ask about how to contact a lactation consultant, should you need support once home.

Breastfeeding

Breastfeeding has many benefits, for both you and your baby. These include benefits for your baby's immune system, growth and development, and it can also help with bonding between you and your baby. Breastfeeding may also reduce the risk of your baby developing diabetes later in life. It may also help you with returning to your pre-pregnancy weight.

Breastfeeding and diabetes

Most women with diabetes are able to breastfeed their babies. It's important to keep in mind though, that breastfeeding may need some practice, support and persistence.

It's a good idea to find out as much as you can about breastfeeding from your midwife or a lactation consultant before your baby is due. A lactation consultant is a specially trained health professional who can provide information, support and advice about breastfeeding. Ask your midwife or obstetrician about how to access a lactation consultant in your local area.

Women with diabetes sometimes find that there is a delay with their breast milk 'coming in'. The milk usually comes in on the third or fourth day after the birth, but it may be delayed by 24 to 48 hours. If your baby is born early it can sometimes be more challenging to establish breastfeeding initially.

Your midwife or lactation consultant may discuss with you the option of antenatal expressing and storing colostrum (early breast milk) before the birth of your baby. It's important to note however, that the advantages and disadvantages of antenatal expressing for mother and baby are still being researched. Ask your diabetes in pregnancy team for advice.

Early breastfeeding

Skin-to-skin contact and breastfeeding your baby as soon as possible after delivery is recommended. Breastfeeding at least every three to four hours during the first few days will help your baby maintain their blood glucose levels. If your baby is at high risk of hypoglycaemia, you may be advised to breastfeed at least every three hours.

If your baby is in the nursery, ask your midwife about breastfeeding or expressing milk (colostrum) within the first four hours of your baby's birth. Your breasts make milk on a supply-and demand basis. If you express, your breasts will keep producing milk which you can then give to your baby by bottle, spoon or tube.

Blood glucose levels

If you are taking insulin, you may need less in the first few days after birth, but you will still need to do frequent blood glucose monitoring so you can adjust your insulin doses. At this stage it is recommended to keep your blood glucose levels between 5 and 10mmol/L, not lower, to reduce your risk of hypos.

It can be difficult to keep blood glucose levels within the recommended range while breastfeeding, so contact your diabetes health professionals for advice on medication or support to adjust your insulin doses. Talk to your accredited practising dietitian about your diet and nutritional needs for breastfeeding.

Hypos and breastfeeding

Blood glucose levels may fall rapidly during and following breastfeeding, just like with any other physical activity. If you are taking insulin, be prepared to treat hypos while you are breastfeeding. Some women find that their blood glucose levels can fall by 3 to 5mmol/L during a breastfeed, so it's important to have hypo treatment within reach while you are breastfeeding.

Medication and breastfeeding

Insulin and metformin have been shown to be safe to take while breastfeeding.

If you have been prescribed a sulphonylurea medication (such as glibenclamide, gliclazide or glipizide), it's recommended you seek advice from your endocrinologist/diabetes specialist about the suitability of this medication. Sulphonylureas are not usually prescribed while breastfeeding as they have been shown to get into breastmilk in small amounts, so there is a risk that the baby's blood glucose level will fall.

All other diabetes medications should not be taken while breastfeeding.

Cholesterol lowering medication should not be used while breastfeeding. Your doctor will review all other medications that you were taking before pregnancy to determine if they are safe to re-start.

HELPFUL HINTS: Insulin and breastfeeding

If you are taking insulin while breastfeeding, you may need to:

- Discuss strategies to prevent hypos with your health professional.
- Develop a routine for feeding your baby, so you can have your meals on time and reduce your risk of hypos.
- Snack before or during a breastfeed (e.g. fruit, crackers, sandwich).
- talk to your health professionals about adjusting your insulin doses.
- Treat hypos as soon as you notice any symptoms.
- Check your blood glucose after a breastfeed, to see how much your levels are falling, especially during the night.
- If you don't have a support person at home, have your phone on hand in case you need assistance.

If you are taking insulin, always have some hypo treatment within reach while you are breastfeeding.

Breastfeeding information and support

Your midwife or lactation consultant can support you to establish breastfeeding and give you strategies for successful breastfeeding. Most Australian hospitals have baby-friendly health initiatives to help support early breastfeeding.

Although any breastfeeding can be of benefit for you and your baby's health, current guidelines recommend exclusive breastfeeding to around 6 months of age (when solid foods are introduced), then continued breastfeeding until 12 months of age or beyond.

Establishing breastfeeding can take time and sometimes be a little challenging, so make sure you get all the information and support you need. If despite your best intentions and efforts, breastfeeding doesn't work out, you may need extra emotional support at this time.

For breastfeeding information and support, contact the National Breastfeeding Helpline on **1800 686 268**. Support is available 24 hours a day, 7 days a week.

Local breastfeeding support networks are also available in hospitals and in the local community. Ask your midwife, lactation consultant or child and family health nurse for more information.

ACTION:

- Talk to your diabetes team about targets for blood glucose levels while you are breastfeeding.
- Set up a 'feeding space' with snacks, water and diabetes supplies within reach (as well as hypo treatment if you are taking insulin).
- Eat regular meals and snacks to help with the demands of breastfeeding.
- Monitor your blood glucose levels more frequently and discuss any concerns with your diabetes health professionals.
- Talk to your midwife or lactation consultant about breastfeeding strategies.
- Ask about storing breastmilk to supplement feeds if necessary.

"Breastfeeding is exhausting but rewarding. It does make you very hungry and you will eat more at the beginning. Persevere if that's what you want and enjoy the bonding time with your bub."

Going home and the future

Taking home a new baby is incredibly exciting, but this can also be a stressful time. Some women with diabetes find it very hard to make their own health a priority and give their diabetes the attention it demands during this busy period.

Take advantage of any help your family and friends can offer. If you don't have any support nearby, it may be a good idea to organise help with things like shopping, cooking and housework. It is best to start thinking about this and getting plans in place before the baby arrives.

When you first go home with a new baby, especially for the first few weeks, you will be kept busy looking after your baby. You may find that this new routine, along with disturbed sleep, can make it difficult to manage your diabetes as well as you would like. To make sure that you and your baby stay healthy and safe, remember the following:

- Don't forget to take your medication or insulin as prescribed.
- Avoid hypos so that you are safe to take care of yourself and your baby.
- Check your blood glucose levels at least four times a day to help manage your diabetes.
- Aim to keep your blood glucose levels mostly between 5 and 10mmol/L.
- Make appointments with your diabetes health professionals, they can continue to help you manage your diabetes after your baby is born.

"After the birth of my first baby, my diabetes management was easier, there was lesser need for insulin, but the stress of dealing with a toddler, and working full time I have found it hard to maintain a healthy level over the years."

Contraception and future pregnancies

Make sure you are using an effective form of contraception to avoid having another pregnancy before you are ready. Remember that planning another pregnancy and having your diabetes well managed beforehand will help you to have a healthy baby.

If you decide not to have any more children, you may want to consider a tubal ligation or discuss a vasectomy with your partner. There are also a number of very effective long-term but reversible contraception options, including intra-uterine devices (IUDs) and hormone implants. Discuss the available options with your doctor.

Looking after your health

Once you are getting some sleep and managing a new routine with your baby (usually three to six months after the delivery), it is a good time to become more aware of your health needs again. Review your diabetes management with your diabetes health professionals to keep yourself healthy so that you feel well, reduce the risk of long-term health problems and enjoy your new baby.

ACTION:

- Take the time to look after yourself, as well as your baby.
- Make sure you have the contact details for your diabetes health professionals for advice and support on managing your diabetes after your baby is born.
- Review your family planning and contraception; whether you intend to have another baby or not.
- Make an appointment with your diabetes in pregnancy team or doctor before planning your next baby.
- Talk to your GP or endocrinologist/ diabetes specialist about annual screening for diabetes complications (kidneys, eyes, nerves etc.).

Pregnancy and diabetes checklist

The following checklist provides information to guide you through the different stages of pregnancy - from pre-pregnancy planning through to delivery and going home. Use this checklist together with your health professionals to help you manage your diabetes and your pregnancy.

Before pregnancy (at least 3 months)

- ☐ Discuss your plans to become pregnant and contraception use with your doctor.
- ☐ Referrals to see diabetes health professionals for pre-pregnancy care.
- ☐ Find out about your options for specialised maternity care.
- ☐ Discuss individual blood glucose targets.
- ☐ Aim for an HbA1c of 6.5% (48mmol/mol) or less (discuss your individual target).
- ☐ Review your diabetes management plan.
- ☐ Diabetes complications assessment (for kidneys, eyes and nerves) and dental health check.
- ☐ Review of medications including diabetes medication, insulin type and delivery, blood pressure and cholesterol lowering medication.
- ☐ Review hypo prevention and treatment plan (if relevant).
- ☐ Review sick day management plan.
- ☐ Accredited practising dietitian review of weight and diet for diabetes and pregnancy.
- ☐ Start high-dose folic acid supplement (ideally three months before conception).
- ☐ Start taking supplement containing iodine.
- ☐ Thyroid function tests.
- ☐ Blood test for rubella and chicken pox and if needed, immunisation at least one month before conception and check for hepatitis B immunity (and immunisation, as needed).

* While it is ideal to take these actions while planning for pregnancy, there are still many things you can do in the early weeks of pregnancy to make sure your pregnancy and baby are healthy.

The first 12 weeks

- ☐ GP appointment to confirm pregnancy, discuss booking birth hospital and diabetes in pregnancy team appointments*.
- ☐ Early pregnancy blood tests including HbA1c.
- ☐ Ultrasound at 7-8 weeks (to confirm due date).
- ☐ Review of your medications.
- ☐ Review blood glucose levels and blood pressure.
- ☐ Review of insulin requirements (if relevant).
- ☐ Review hypo prevention and treatment plan (if relevant).
- ☐ Review sick day management plan.
- ☐ Maintain an adequate diet for pregnancy.
- ☐ Continue taking high-dose folic acid supplement (for the first 3 months).
- ☐ Keep in touch with how you feel and talk to a health professional if needed.

* Frequent contact with your diabetes in pregnancy team throughout pregnancy is recommended.

12 – 14 weeks

- ☐ Nuchal translucency (NT) scan and associated blood tests (optional).
- ☐ Book 18-20 week ultrasound.
- ☐ Review blood glucose levels, HbA1c, insulin requirements and blood pressure.
- ☐ Check pregnancy weight gain.
- ☐ Keep in touch with how you feel and talk to a health professional if needed.

18 – 20 weeks

- ☐ Ultrasound (to check the placenta and your baby's development).
- ☐ Discuss ultrasound results.
- ☐ Review blood glucose levels, insulin requirements, blood pressure and any diabetes complications.
- ☐ Check pregnancy weight gain.
- ☐ Keep in touch with how you feel and talk to a health professional if needed.

24 – 40 weeks

- ☐ Regular ultrasounds to assess your baby's growth and wellbeing (every 2-4 weeks from 28 weeks).
- ☐ Blood and urine tests (according to doctor's assessments).
- ☐ Regular review of your baby's wellbeing by obstetric team.
- ☐ Blood pressure checked at each obstetric/diabetes visit.
- ☐ Discuss breastfeeding with lactation consultant or midwife.
- ☐ Review blood glucose levels, HbA1c and insulin requirements (if relevant).
- ☐ Check pregnancy weight gain regularly.
- ☐ Book into antenatal classes.
- ☐ By 36 weeks, discuss obstetric birth plan (the type and timing of the birth).
- ☐ Discuss diabetes management during labour/delivery and develop a written plan.
- ☐ Pack your hospital bag, including diabetes supplies.
- ☐ Keep in touch with how you feel and talk to a health professional if needed.

Breastfeeding & going home

- ☐ Seek advice/help with breastfeeding.
- ☐ Review blood glucose levels and medication/insulin requirements .
- ☐ Review hypo prevention and treatment plan (if relevant).
- ☐ Contact details for diabetes team for support and follow-up.
- ☐ Arrange follow-up appointments.
- ☐ Discuss family planning including contraception and pre-conception care for next pregnancy.
- ☐ Keep in touch with how you feel and talk to a health professional if needed.

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