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Diabetes and Pregnancy

This sheet talks about the risks that diabetes can have during pregnancy. With each pregnancy, all women have a 3% to 5% chance of having a baby with a birth defect. This information should not take the place of medical care and advice from your health care provider.

What is diabetes?

Diabetes is a condition in which the body either does not produce enough insulin or cannot use insulin properly. Insulin is a naturally occurring hormone in the blood that is necessary for providing our cells with energy to function. Insulin helps sugar (glucose) move from the bloodstream into the cells. When glucose cannot enter our cells, it builds up in the blood (hyperglycemia). This can lead to damage of organs including the eyes and kidneys, or damage of blood vessels and nerves.

Some people have Type 2 diabetes, also called adult onset diabetes. This means that the body does not produce enough insulin or the insulin is not able to transfer glucose into cells. In contrast, people with Type 1 diabetes (sometimes called juvenile-onset diabetes) have a condition where the body does not produce any insulin at all. People with Type 1 diabetes need insulin injections or close monitoring to control their blood sugar levels.

I have diabetes and am planning on getting pregnant. Is there anything I need to know?

It is recommended that you speak with your doctors before becoming pregnant. This will be helpful in determining the best plan of care in order to keep your blood glucose levels under control before and during pregnancy.

A blood test measuring the levels of Hemoglobin A1C (glycosated hemoglobin) estimates glucose control for the previous 2-3 months. Ideally, this level should be within the normal range before pregnancy. Some doctors will recommend additional home blood glucose testing to check the sugar levels more regularly. Women with diabetes should also work with their doctors and nutritionists to develop a personalized diet and exercise plan before pregnancy.

Does maternal diabetes cause birth defects?

Most babies born to women with diabetes are not born with birth defects. Studies have shown that women who have well-controlled diabetes before becoming pregnant and who maintain low glucose levels throughout pregnancy are not at an increased risk for having a baby born with birth defects.

However, high glucose levels during pregnancy increase the chance that a baby will be born with birth defects. High glucose levels have the greatest effect early in pregnancy, possibly before a woman knows she is pregnant. For pregnant women with poor diabetic control, the risk for a baby to be born with birth defects is about 6-10%. For those with extremely poor control in the first trimester, there may be up to a 20% risk for birth defects. Some of the associated birth defects include spinal cord defects (spina bifida), heart defects, skeletal defects, and defects in the urinary, reproductive, and digestive systems.

Does diabetes lead to any pregnancy complications?

Yes. Women whose glucose levels are not in control have an increased risk for miscarriage and stillbirth. There is also a higher chance of pre-eclampsia (dangerously high blood pressure), excess amniotic fluid around the baby (polyhydramnios), and preterm delivery. Babies born to women with diabetes also have an increased chance of having breathing difficulties, low blood sugar (hypoglycemia) and jaundice (yellowish skin) at birth.

Mothers with diabetes are more likely to have large babies, some weighing over 10 pounds. When this occurs, the doctor may advise the woman to deliver the baby by cesarean section rather than by vaginal delivery in order to reduce the risk of injuries to the mother and baby. Chances for these complications are lower when women have control of their diabetes.

What kinds of tests are recommended during pregnancy for women with diabetes?

There are several tests that may be done during a pregnancy to evaluate how the baby is growing and developing.

- **A test of maternal blood** (called the AFP test, triple or quad screen) measures certain proteins the baby makes that cross into the mother's blood. The levels of these proteins can give information on a baby's chances of having certain birth defects such as spina bifida.
- **An ultrasound**, which uses sound waves to create a picture of the baby, looks at different structures of the baby and measures if the baby is growing at a

normal rate. An ultrasound may be able to determine if birth defects are present.

- **A fetal echocardiogram** looks at the baby's heart to see if it is developing properly.
- **Non-stress tests** monitor the baby's heart rate.

I have to take insulin injections for my diabetes. Does insulin have any effects on the baby?

Animal, human or man-made insulin may be used for glucose control during pregnancy. Several studies have shown that using insulin during pregnancy is not associated with an increased risk for birth defects. Insulin is the treatment of choice for pregnant women with diabetes.

I am taking oral medications to control my diabetes. Will I have to switch to insulin injections during pregnancy?

Since insulin is thought to control glucose levels better than most oral medications, your physician may want you to switch to insulin injections at some point in your pregnancy. There have been studies comparing birth defect rates of babies from women who control their diabetes with insulin injections with those who take oral medications to lower glucose in their blood. In general, taking oral medications does not increase the risk that a baby will be born with birth defects. There may be more specific information available for different medications. Discuss which medication may be appropriate for you with your health care provider. OTIS has a fact sheet available about [metformin](#). For questions about other medications, please call OTIS at 866-626-6847.

I am 26 weeks pregnant and was told I have gestational diabetes. How will this affect my baby?

Gestational diabetes is diabetes that is diagnosed during pregnancy, generally between 24-28 weeks. Most pregnant women are screened for gestational diabetes by drinking a glucose solution and measuring their blood glucose level one hour later. If this test is abnormal, additional testing may be done to verify whether a woman really has gestational diabetes. Most women with gestational diabetes do not have symptoms, but some may experience extreme thirst, frequent urination, blurred vision, or fatigue.

Most women with gestational diabetes can control blood glucose levels with dietary changes and exercise. Others may require oral medications or insulin injections. For some women with gestational diabetes, blood glucose levels return to normal after pregnancy. However, about 50% of women with a history of gestational diabetes will develop diabetes at some point in the future.

Because gestational diabetes typically occurs late in the second trimester when the baby's body is already formed, it does not usually increase the risk of birth defects. Gestational diabetes is, however, associated with a chance for delivering a large baby. If gestational

diabetes is not well controlled, there is an increased chance for the baby to have hypoglycemia and breathing problems at birth.

In rare cases where gestational diabetes is present in the first trimester, there may be a small increased risk for birth defects similar to that seen with other forms of diabetes. It is not clear whether gestational diabetes truly increases these risks, or whether the women in these studies simply had diabetes that had not previously been identified.

If I have diabetes will I be able to breastfeed my baby?

Yes, but diabetic mothers should make sure their glucose levels are well controlled prior to breastfeeding. Some research has suggested that excessive maternal glucose may overflow into the breast milk as sugar and can result in hypoglycemia and increased food seeking behavior in the infant.

Diabetes can slow down the production of milk. Insulin is necessary for milk production, so this may partly explain why women with diabetes are slow to produce milk.

There are many health benefits of breastfeeding and mothers with diabetes should not be discouraged from breastfeeding. Some suggest that breastfeeding may lower the risk of your child developing diabetes later in life and help to avoid childhood obesity

I take medication for my diabetes. How will breastfeeding affect the health of my baby?

Insulin does not cross over into breast milk in large amounts. If small amounts cross over, the baby's digestive system will break it down and this would be unlikely to cause any harmful effects.

Mothers using oral medications to treat their diabetes should monitor the baby for signs of hypoglycemia. Women can call OTIS at 866-626-6847 for information on specific medications and breastfeeding.

How will breastfeeding affect my blood sugar levels?

Some mothers have experience reduced insulin requirements while breastfeeding. Mothers with Type 1 diabetes will often experience lowered blood sugar after nursing. Eat a snack with carbohydrates and protein prior to nursing to help avoid low blood sugars. Keep in mind with any type of diabetes, your blood sugar may rise and/or fall as you nurse.

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References available upon request.

If you have questions about the information on this fact sheet or other exposures during pregnancy, call OTIS at 1-866-626-6847.