

## Pregnancy in Women with Congenital Heart Disease

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Most women with congenital heart disease (CHD) can have a successful pregnancy. Doing so requires careful planning and management. Although pregnancy carries some risk for women without heart disease, there are increased risks to both the mother and the fetus in the woman with CHD. Each heart defect also has its own level of risk. In certain CHDs, that risk is significant enough that pregnancy is not recommended.

### Should I talk to my doctor before I get pregnant?

You should talk to your adult congenital heart disease (ACHD) doctor, your obstetrician (OB), and your primary healthcare provider well before you get pregnant. It takes a team of specialized physicians, including an ACHD cardiologist, high-risk OB, primary care doctor, anesthesiologist and high-risk newborn doctor, to manage a woman with CHD through pregnancy and delivery.

### What happens during the pre-conception appointment?

Your doctor will talk about how well your heart is working and how that might affect you and your baby. He/she will want to learn as much as possible about your heart defect and related conditions, such as your lung pressures, oxygen level and exercise ability.

Your doctor will take your medical history and examine you. He/she will ask you and your partner if anyone in the family has a heart defect. He/she might order heart tests like a heart ultrasound (echocardiogram) and exercise test. These will tell him/her how well your heart is working. It's important to talk with your doctor about the long-term outlook for your health and if you'll be well enough to take care of your growing child. If indicated, he/she will talk about pregnancy alternatives, such as adoption or surrogacy.

You should also discuss a birthing plan with your doctor, plans for your care after delivery and options for birth control after your baby is born.

### How often do I need to see my ACHD doctor when I am pregnant?

Each person's follow-up during pregnancy is different. Your team of doctors will let you know how often you need to be seen. It is important to keep these appointments, and let your team of doctors know if you notice any unexpected symptoms or changes in your body/health.

### What are the chances my baby will have CHD?

The risk of CHD in a baby of a woman with a normal heart is about 0.8%. In most cases, we don't know what causes CHD, but we do know that the mother's use of alcohol or drugs, contact with toxins, obesity, diabetes, poor eating habits, fever near conception or early in the pregnancy, or certain viral infections may increase the risk during pregnancy. Genetic abnormalities and certain medications used during pregnancy also increase the risk. You should talk to your healthcare team for specific information.

If one parent has a CHD, the risk increases to between 3% and 6%. It is higher if the parent is the mother. If there is a sibling with CHD, the risk of CHD in another child is also higher. In parents with single gene defects, such as Marfan's syndrome or 22q11 deletion, there is a 50% chance of passing the gene to the baby. Your ACHD doctor may refer you to a geneticist and recommend that you have a fetal ultrasound during the pregnancy.

### What about medications?

Some medicines are known to be harmful to the unborn child and should not be taken during pregnancy. Talk to your doctor to ensure you will have a plan prior to conception. You should review all medications you are taking, including those you buy at the drugstore like vitamins, topical creams and over-the-counter pain relievers. Do not stop or start any medication without talking to your doctor.

### What happens to the heart during pregnancy?

To feed your baby, the amount of blood in your body increases in the first trimester and stays high for the entire pregnancy. Your heart pumps about 50% more blood and beats faster. Also, your blood pressure is lower. The hormones your body is making direct more blood to your uterus. You may have a low blood count too, which can be treated with iron and vitamins. Your heart has to work harder.

### **What happens during labor and delivery?**

Special attention should be given to you in the third trimester and during labor and delivery by the ACHD cardiologist, OB and anesthesiologist. As your uterus contracts, more blood is abruptly pushed out into the body. Your heart has to work harder and your heart rate and blood pressure rise because of pain and anxiety. Blood is also lost during delivery.

### **What are my risks?**

Determining risk in the pregnancy of a woman with CHD is totally specific to the type of defect. It depends on how well the heart is working and how much damage you have. Complications during pregnancy include irregular heartbeats, racing of the heart and heart failure. Symptoms of heart failure are shortness of breath with exertion, swelling of the legs and abdomen and increased fatigue. If you have a defect in the septum, blue and red blood might mix. This can put you at risk for a stroke from blood clots that may occur in the leg or pelvic veins during pregnancy, and break off to enter the heart circulation. To ensure a successful outcome for both the mother and baby, each of these should be treated.

### **What are the risks to my baby?**

Pregnancy in women with CHD can cause birth defects, miscarriage, premature birth, low birth weight, and stillbirth. Taking good care of your own health is the best way to ensure the well being of your baby. It's important to:

- Follow your doctor's orders and keep all of your prenatal appointments.
- Get adequate rest.
- Eat properly and monitor your weight.
- Take your prescribed medications.
- Avoid alcohol, tobacco products and illegal drugs.

### **Is there anything I can do to decrease the risks?**

Before getting pregnant, you should do what any woman should do. This includes not smoking, eating right, exercising regularly, managing stress and avoiding toxins, including illegal drugs, pesticides and lead.

As a CHD patient, you want to make sure that your heart function is as good as it can be. You should follow your ACHD cardiologist's recommendations for medical treatment and/or surgery, if indicated, before getting pregnant.

Once you are pregnant, you want to continue to live a healthy lifestyle and avoid harmful substances. Set up a birthing and post delivery plan, as well as a plan for birth control after delivery. You will want to see your high-risk OB and ACHD cardiologist regularly. By doing this, your baby's growth and development and your heart function can be monitored.

### **Pregnancy and Artificial Valves: Mechanical vs. Tissue**

**Mechanical Valves** – The pros and cons of pregnancy in

the woman with a mechanical valve need to be weighed carefully.

Blood thinners pose risks to the mother and to the baby's development. Their use during pregnancy must be managed with great care. You should talk in detail with your ACHD cardiologist and high-risk OB.

**Tissue Valves** – Women with tissue (bioprosthetic) valves generally do well during pregnancy if the valve works normally and there are no other complications. Your doctor will closely follow your valve.

### **What are the long-term effects of pregnancy on my heart?**

We know that pregnancy puts a strain on the heart. In most cases, the long-term effects are not known, yet there are a few heart conditions where pregnancy can cause permanent damage. In some women who have had the Mustard or Senning operation, the heart muscle can become weakened during pregnancy and does not fully recover. Some leaking valves may leak more during pregnancy because of the extra volume load in the circulation. They may not return completely to baseline after delivery.

### **Will I feel differently than pregnant women who do not have heart disease? How will I know if my symptoms are not normal for pregnancy?**

Some symptoms of pregnancy are like those of heart disease. You can ask your ACHD cardiologist for information about normal and abnormal symptoms that you should watch for during pregnancy.

If you notice a change in symptoms you had before you were pregnant, you should call your ACHD cardiologist and high-risk OB doctor immediately. These include worsening chest pains, difficulty breathing with exertion, an increase in abnormal heartbeats, a racing heart, or waking up at night with trouble breathing.

### **Can I deliver vaginally?**

Most women with CHD can deliver vaginally. In fact, this is the preferred method. Delivery by C-section is most often only in cases where it is medically necessary for obstetric reasons.

### **What is the bottom line?**

With proper management, most women with CHD can have a successful pregnancy. Talk with your ACHD cardiologist and high-risk OB before you get pregnant. Taking care of yourself is the best way to ensure the well being of your baby. Live a healthy life, avoid harmful substances, and have regular appointments with your ACHD cardiologist and OB where you can ask questions. Remember, constant communication with your healthcare team before, during and after pregnancy is key.