



Blood Pressure Management and Your Pregnancy

This handout explains:

- **How your blood pressure is checked during pregnancy.**
- **What preeclampsia is, including risk factors, treatments, and what can be done to lower risk.**
- **How your baby's well-being is checked.**
- **What happens to manage blood pressure during labor and delivery and after the baby is born.**

Blood Pressure During Pregnancy

Normal blood pressure can vary from person to person, depending on such factors as your fitness level, and even what is happening when your blood pressure is being taken. It can change a great deal during pregnancy.

We expect to see a slight decrease during the second trimester of pregnancy (around 14 to 22 weeks). After that, your blood pressure should stabilize until the end of your pregnancy. If your provider were concerned that you might develop blood pressure related problems, he or she would ask for specialized testing to be performed.

Cardiac Output Measurement and Your Blood Pressure

We use a specialized ultrasound machine that measures the amount of blood that is pumped through your body each minute (cardiac output). The test is done on the outside of your body and takes about 15 minutes.

Blood pressure is a combination of cardiac output and the amount of constriction or tightness in your blood vessels (peripheral resistance). If either your cardiac output or peripheral resistance is higher than average, it can cause your blood pressure to go up.

It is normal for a woman's blood flow to change dramatically throughout pregnancy to meet the demands of a growing baby (or babies). Usually these changes start in the first trimester of pregnancy and stabilize after 14 to 16 weeks of pregnancy. When we do your cardiac output measurement, we obtain information about what is happening on that day during your pregnancy.

Your cardiac output measurement will be plotted on a pregnancy blood flow graph and compared with the expected values for that point in pregnancy. The results will give you and your providers more information about your risk for developing preeclampsia later in pregnancy, and how to best treat you now. The results will help the doctor decide if medications are needed, and show which one(s) would be most effective in your situation.

About Preeclampsia

Preeclampsia is a high blood pressure complication of pregnancy that can happen any time after the 20th week of pregnancy. It can affect many systems of the body if left untreated, including the kidneys, liver, and brain. Delivery of the baby is necessary if preeclampsia has advanced to a stage where it threatens the health of the mother and baby. This can be a major problem if it occurs when the baby is not mature, or preterm. We use medications and rest to delay its development or slow its progression so that baby can be delivered as close to term as possible. A woman with preeclampsia will likely have increased blood pressure, protein in her urine, and other changes in her blood, measured through specific lab tests.

Risk Factors

Our goal is to decrease your risk for developing preeclampsia instead of treating it after it has developed. Women who have these conditions are at a higher risk of developing preeclampsia during pregnancy:

- Chronic hypertension.
- A history of preeclampsia (especially preterm).
- Diabetes.
- Kidney disease.
- An autoimmune disease.
- Borderline blood pressures early in pregnancy (most often greater than 120/80).
- Blood pressures that don't decrease in the second trimester.
- A first pregnancy.
- Multiple gestation (twins, triplets, or more).

Warning Signs of Preeclampsia

If you have any of these symptoms, call your doctor or provider right away (be sure you know the phone number to call if their office is closed):

- Headaches, which are more frequent or different than are usual for you, especially if they don't go away with Tylenol or other recommended treatment.
- Swelling that doesn't resolve overnight or with rest and goes past your feet and ankles to your hands and face (and the rapid weight gain that happens with swelling).
- Visual problems such as seeing stars, spots, or flashing lights (much like what you may see when you stand up too fast).
- Epigastric pain, which is like heartburn, but felt more on your upper right side and not related to what or when you eat. This type of "heartburn" does not get better with antacids. Or, you may have nausea and/or vomiting.

Things That You Can Do

These are some things that you can do to help lower your risk for preeclampsia or to help us identify problems early so you can avoid a preterm delivery:

- Get prenatal care as early as possible.
- Come to all of your scheduled prenatal and consult visits.
- Give a complete medical history.
- Eat healthy foods – avoid salty foods such as chips, canned soups and vegetables, frozen entrees, and soy sauce-based dishes.
- Take rest breaks – listen to your body and rest when you're tired.
- Take your prescribed medicines regularly.
- Call your provider to report warning signs and other concerns.

Daytime Rest Breaks

Most women benefit from increased rest late in pregnancy. Begin thinking about ways to lighten your load at home, work, and with childcare. It will be easier to find time for the rest breaks if you have help from the people around you. Make plans in advance with family members, coworkers, and friends to make this possible.

If you are asked to get some additional rest during the day, it is most helpful if you take it in blocks of 2 to 3 hours. You don't have to sleep during these breaks, but it is important to lie down on your side (not sit) and to not get up and down during the rest break.

These rest breaks help to keep your blood pressure down, increase your blood flow, which can help baby to grow well, and can help reduce your swelling. Listen to your body and don't push yourself.

Medications

Here is a list of the main blood pressure medicines used to treat high blood pressure in pregnancy. The doctor will recommend the medicine(s) that is best for you.

Atenolol

- Lowers blood pressure by slowing your heart rate and decreasing your cardiac output (putting less stress on your blood vessels).
- May decrease headaches, racing heart, or shortness of breath.
- Is taken at the same time every day – we sometimes suggest taking it at night since it makes some women feel a little tired.
- Can slow your baby's growth if blood flow becomes too low – that's one of the reasons that it's important to come back for follow-up visits (we can monitor your blood flow/cardiac output and make changes in your treatment to ensure that it does not become too low).

Clonidine

- Lowers blood pressure by relaxing blood vessels.
- Is taken 3 times per day. It is important to take this medicine as close to every 8 hours as possible.
- Is taken at the same time every day.
- May cause drowsiness after the first dose.

Hydralazine

- Lowers blood pressure by relaxing blood vessels.
- Increases blood flow, which is important in maintaining baby's growth.
- Is taken 4 times a day either at breakfast, lunch, dinner, and bedtime or every 6 hours.
- May cause headaches – it is fine to take acetaminophen (Tylenol) for relief, but call your health care provider if headache pain is not relieved by Tylenol or lasts longer than 3 days.

Lasix

- Lowers blood pressure by reducing extra body fluids through increased urine output.
- May be taken once or twice a day (taking it in the evening may cause you to wake up to urinate during the night).
- May require potassium supplements (take with the morning meal) – increased urine output can lower potassium in the blood.

Your Baby's Well-Being

There are several things we look at during your pregnancy to tell us that baby is doing well. One of the most important ones is something that you can keep track of yourself.

Baby movements are usually noticed by 20 weeks of pregnancy. Get to know your baby's activity pattern. If there's a noticeable decrease in your baby's movement, notify your provider. Fetal movement counting can start when you are about 28 weeks.

How to do fetal movement counting:

- Pick a time when your baby is usually active. Then see how long it takes baby to move 10 times.
- If you count 10 movements within 2 hours, it is OK. You can stop counting when baby moves 10 times.
- If you count fewer than 10 movements over a 2-hour period, notify your prenatal provider.

Measuring baby's growth is another way to determine baby's well-being. In addition to the routine ultrasound your doctor may order at 20 weeks to look at baby's anatomy, we will recommend you have an ultrasound at 28 weeks to look at how baby is growing. This may be repeated around 32 to 34 weeks.

Later in pregnancy, baby's well-being will also be watched with nonstress tests (NSTs). A nonstress test is an external fetal monitoring test that tracks your baby's heart rate and how it changes with activity. At the same time, you will be monitored to see if you are having any uterine contractions. NSTs are usually started around 32 weeks and done once or twice a week.

During Labor and Delivery

Your blood pressure will be checked often during your labor and delivery. Bring your medicines with you when you come to the hospital. It is important that your providers know both what you are taking and in what doses. You will most likely be kept on your blood pressure medications throughout your hospitalization.

If your provider says that you have preeclampsia, you may receive an intravenous medication called magnesium sulfate during your time in labor and delivery. This medication is used to prevent seizures that can occur when preeclampsia is not treated. Your provider and the nurses at the hospital will talk with you about this medication if they think that it is something that you will need.

After Your Baby Is Born

After your baby is born, the blood that was circulated to the placenta is returned back into your own bloodstream. As these extra body fluids from pregnancy come back into your circulation, they can cause your blood pressure to go up. You may need to take a diuretic (water pill) called lasix or furosemide to get the extra fluid out of your body more quickly. You can lose a lot of weight in the first few days after delivery through urinating.

It is still important to watch for the warning signs of preeclampsia for the first week after you deliver. Call your provider if you experience any of those symptoms and/or a home blood pressure measurement greater than 140/90 within the first week after discharge from the hospital.

Questions?

Your questions are important. Call your doctor or health care provider if you have questions or concerns. UWMC Clinic staff are also available to help at any time.

Obstetrical
Hypertension Consult
Clinic:
206-598-2689

Although your provider may decrease the amount of medication that you need to take, you will probably need to continue your blood pressure medicines for several weeks after your baby is born. This is often necessary since it takes 6 to 8 weeks for your body to get back to normal. It is safe to breastfeed while taking blood pressure medicines.

Once the first 6 weeks are over, have your blood pressure checked at least twice a year. Get to know what the normal blood pressure and pulse is for your body. Report your blood pressure to your primary care provider if it is greater than 140/90.

Your provider may recommend continuing blood pressure medications. Medications can bring your blood pressure into a normal range quickly.

Making lifestyle changes such as eating a healthy diet, maintaining or reaching a normal weight, and exercising regularly are important for your overall health, but they take time to lower blood pressure. By making these lifestyle changes, you may be able to gradually lower the amount of medications needed to maintain a blood pressure of less than 120/80.

It is key to control your blood pressure for the long-term health of your heart, kidneys and blood vessels. Good blood pressure control is also important if you plan on becoming pregnant again.

UNIVERSITY OF WASHINGTON
MEDICAL CENTER
UW Medicine

Maternal and Infant Care Clinic
Obstetrical Hypertension Consult Clinic

Box 356159

1959 N.E. Pacific Street, Seattle, WA 98195
206-598-2689