Routine Tests in Pregnancy

During pregnancy, all women have certain routine lab tests. These tests can help your doctor detect possible problems with your health and your baby's health. You also may have other tests, depending on your medical history, family or ethnic background, or previous test results.

This pamphlet will tell you more about

- tests that are done on all pregnant women
- why and when these tests are done
- other tests that may be needed

A number of lab tests are suggested for all women early in prenatal care. Some of these tests are performed on samples of your blood and urine and cells from your ***cervix*** and vagina. You also will be tested for infections such as ***sexually transmitted diseases (STDs)***. The results of these tests are used to check for potential problems for you and your baby. If found, many problems can be treated during pregnancy.

Some tests are done to see if you or your baby are at risk of certain problems. These are called screening tests. They may be offered based on your age, history, or ethnic background.

Other tests are done to find problems that may occur during your pregnancy. These are called diagnostic tests. They may be offered based on your medical history, family background, ethnic group, or results of other tests.

Some tests will be done more than once. If you have concerns about any test, talk to your doctor. No test is perfect. There may be a problem even if a test result does not show it. A problem may not exist even if

a result reveals one (the result may not be right). Your baby also may have a problem that tests were not designed to find.

Carrier Testing

Some birth defects are inherited. Just as a baby gets certain traits like eye color from the parents, certain diseases or disorders can be passed on to the baby. These inherited diseases are called genetic disorders. They can be passed from parent to child through ***genes***.

A carrier is a person who shows no signs of a particular disorder but could pass the gene on to his or her children. Carrier testing can be done to check for many genetic disorders, including cystic fibrosis, sickle cell disease and other blood disorders, Tay-Sachs disease, and Canavan disease.

It is up to you to decide if you wish to be tested. Cystic fibrosis screening is available for all pregnant women. Some tests are recommended for people of certain ethnic backgrounds or who have a strong family history of a genetic disease.

If the test shows you are a carrier, the next step is to test the baby's father. If the test shows that both parents are carriers, a genetic counselor can give you more information about the risk of having a baby with the disorder. Further testing may be available to show if the fetus has the disorder or is a carrier.

Blood Tests

All blood tests may not be done at the same doctor visit. Some may be done early in pregnancy and some may be done later in pregnancy. Blood tests are done to check for a number of things:

- Blood type and antibody screen. Your blood type can be A, B, AB, or O. It can be Rh positive or Rh negative. If your blood lacks the Rh ***antigen***, it is Rh negative. If it has the antigen, it is Rh positive. Problems can arise when the baby's blood has the Rh antigen and the mother's does not. The mother's body may make ***antibodies*** that attack the baby's blood, which can cause the baby to have ***anemia***. This condition requires special care during pregnancy. If needed, medication can be given to stop the mother's body from making antibodies. Another blood test, called an antibody screen, can show if an Rh-negative woman has antibodies to Rh-positive blood. If so, special tests and procedures may be done before birth. The baby also may need treatment after birth.
- Hematocrit and hemoglobin. The levels of these two substances are measured to check for anemia. If low levels are found, you may be given iron supplements to increase them.

- Rubella. Your blood will be checked for signs of a past infection with German measles (rubella). If you had this infection before, you are not likely to get it again. If you have not had it, you should avoid anyone who has the disease while you are pregnant. A vaccine for rubella is available, but it is best not to get it during pregnancy. If your blood test shows you are not immune, you should get the vaccine after the baby is born.
- Hepatitis B virus. This virus infects the liver. If you have it, you can pass it to your baby. After the baby is born, you and your baby may be given a drug to help treat the virus if your test shows that you are infected. All babies are given a vaccine against the virus after birth.
- ***Syphilis***. This STD can cause major health problems for you and your baby. If you have it and are not treated, you could pass it to your baby. Syphilis can be treated during pregnancy.
- Human immunodeficiency virus (HIV). HIV is a virus that attacks certain cells of the body's immune system and causes ***acquired immuno-deficiency syndrome (AIDS)***. If you have HIV, there is a chance you could pass it to your baby. While you are pregnant you can be given medication that can greatly reduce this risk.
- ***Glucose***. The level of sugar in your blood is measured to test for ***diabetes***. For this test, you drink a special sugar mixture. An hour later, a blood sample is taken from your arm and sent to a lab. This test usually is done later in pregnancy. If you have risk factors for diabetes, it is done earlier. In most cases, diet and exercise can help control diabetes. Medication also may be needed.
- Cystic fibrosis carrier testing (see the "Carrier Testing" box).

Urine Test

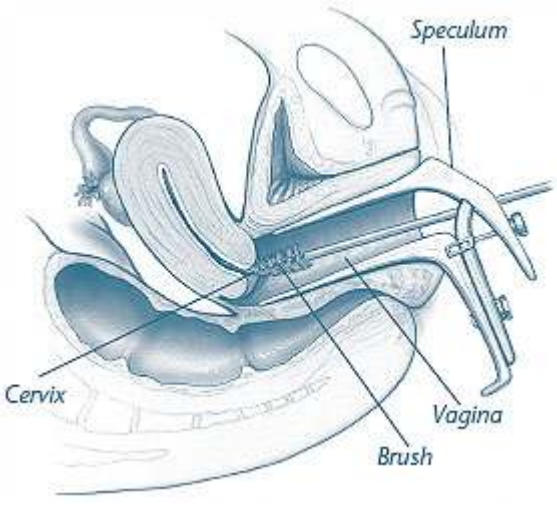
Your urine may be tested at each prenatal visit. This test checks the levels of sugar and protein. Although the presence of sugar in the urine is normal in pregnancy, high levels could be a sign of diabetes. Protein in the urine may be a sign of a urinary tract infection or kidney disease. In late pregnancy, it can be a sign of high blood pressure. This condition is called ***preeclampsia***. If these problems occur, they can be treated.

Other Tests

A ***Pap test*** may be done to check for changes of the cervix that could lead to cancer. A sample of cervical cells also may be taken to check for certain STDs, such as ***gonorrhea*** and ***chlamydial infection***. If any of these conditions are found, they can be treated.

Late in pregnancy, you will be tested for group B streptococcus (GBS). For this test, a swab is used to take cell samples from your vagina and anal area. GBS can be passed to a baby during birth and cause

Pap Test



During a Pap test, a small sample of cells is removed from the surface of the cervix with a small brush or spatula. The cells are examined to see if any are abnormal. Abnormal cervical cells may lead to cancer.

problems in the first weeks of a baby's life.

Antibiotics can be given during labor to help prevent the baby from being infected.

Testing for Birth Defects

Screening tests are easy to perform and do not pose any risks for the fetus. A variety of tests are available that can be done based on the stage or ***trimester*** of your pregnancy. Women often have a choice of having a single test or a combination of tests. Some of these tests may not be available everywhere. If results of a screening test show an increased risk, a diagnostic test may be performed. These diagnostic tests carry a slight (2%) risk of fetal loss.

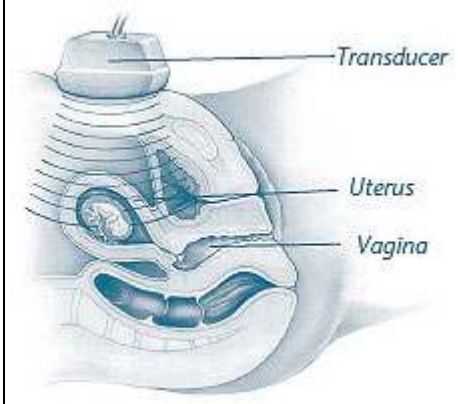
Your doctor will explain the risks and benefits of the screening tests to help you make the best choice. If there is a history of birth defects in your family, your doctor may recommend that you visit a genetic counselor for more detailed information about your risks.

First Trimester Screening

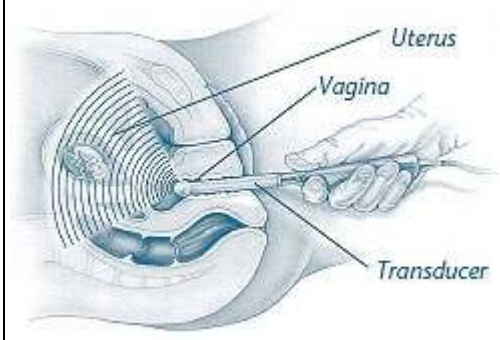
Ultrasound

An ultrasound exam is a test that makes an image of your fetus from sound waves. These sound waves are produced by a device called a transducer. The transducer is either moved across your abdomen or placed in your vagina, depending on the structures that need to be viewed.

An ultrasound exam may be done to find out the age of the fetus. It also can be used to check how the baby is growing. In some cases, it helps to confirm a diagnosis or check a possible problem. An ultrasound exam can be done any time during pregnancy.



Ultrasound with transducer on the abdomen. *Ultrasound, energy in the form of sound waves, is produced by a transducer. These sound waves are reflected off the fetus. The reflected sound waves are changed into pictures that you and your doctor can see on a screen.*



Ultrasound with transducer in the vagina. *In vaginal ultrasound, a tube-like transducer is placed in the vagina. The sound waves reflect upwards into the uterus.*

First trimester screening tests include blood tests and an ultrasound exam. This screening can be done as a single combined test or as part of a step-by-step process. Some women may not need further testing. First trimester screening is done between 11 and 14 weeks of pregnancy to detect the risk of ***Down syndrome*** and ***trisomy 18***. The blood tests measure the level of two substances in the mother's blood:

1. Pregnancy-associated plasma protein-A (PAPP-A)
2. Human chorionic gonadotropin (hCG)

An ultrasound exam, called nuchal translucency screening, is used to measure the skin thickness at the back of the neck of the fetus. An increase in this space may be a sign of Down syndrome, trisomy 18, or other problems.

The results of the nuchal translucency screening are then combined with those of the blood tests and the mother's age to assess the risk for the fetus. In the first trimester this combined test detects Down syndrome in about 85% of cases. When the nuchal translucency thickness is increased, the fetus may have a heart defect or other genetic condition. In this case, your doctor may suggest a more detailed ultrasound exam at around 20 weeks of pregnancy.

Second Trimester Screening

In the second trimester, a test called “multiple marker screening” is offered to screen for Down syndrome, trisomy 18, and ***neural tube defects***. This test measures the level of three or four of the following substances in your blood:

1. Alpha-fetoprotein (AFP)—A substance made by a growing fetus, which is found in amniotic fluid, fetal blood, and, in smaller amounts, in the mother's blood.
2. Estriol—A hormone made by the placenta and the liver of the fetus.
3. hCG
4. Inhibin-A-A hormone produced by the placenta.

The test using the first three of these substances is called a triple screen. When the fourth substance (inhibin-A) is added, the test is called a quadruple or “quad” screen. These tests usually are done around 15-20 weeks of pregnancy. The stage of pregnancy at the time of the test is important because levels of the substances measured change during pregnancy. The triple screen test detects Down syndrome in 70% of the cases. The quad screen detects Down syndrome in 80% of the cases. The AFP test detects neural tube defects in 80% of the cases.

First and Second Trimester Screening

The results from first trimester and second trimester tests can be used together to increase their ability to detect Down syndrome. When used together and depending on the tests used, 85-96% of Down syndrome cases can be detected. With this type of testing, the final result may not be available until all tests are completed.

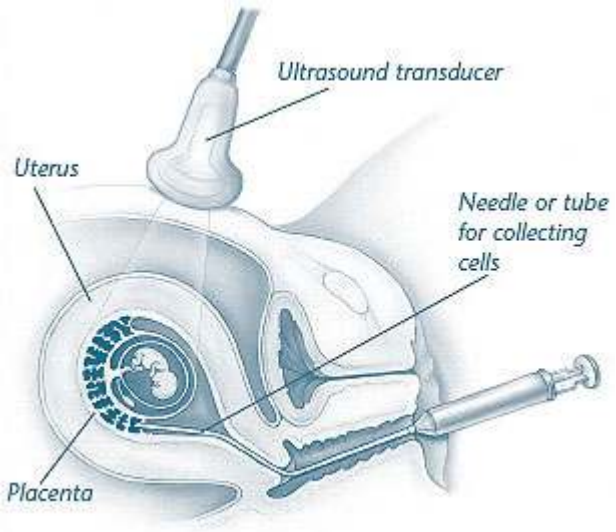
Diagnostic Testing

If the results of screening show a risk, the following diagnostic tests may be done:

- Amniocentesis. For this test, a small amount of ***amniotic fluid*** and cells are taken from the sac surrounding the fetus and tested. This test is done in the second trimester of pregnancy.
- Chorionic Villus Sampling (CVS). For this test, a small sample of cells is taken from the ***placenta*** and tested. This test is done in the first trimester of pregnancy.
- Ultrasound. This type of ultrasound exam gives a detailed view of the baby's organs and features.

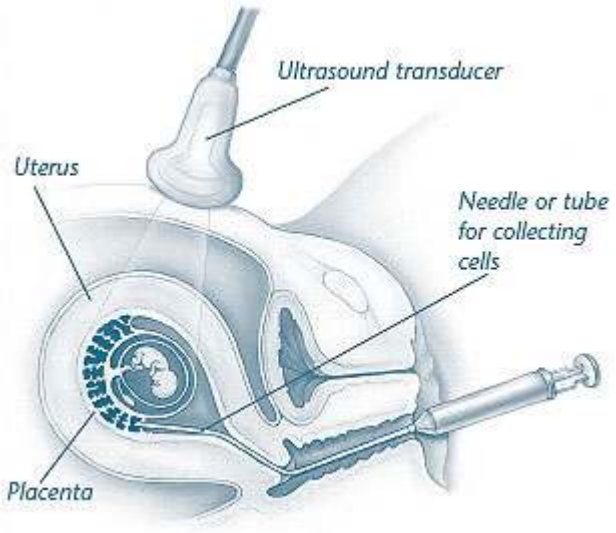
Both amniocentesis and CVS carry a small risk of fetal loss. Your doctor can explain these risks to you.

Amniocentesis



During amniocentesis, a small sample of amniotic fluid is removed with a needle to be studied.

Chorionic Villus Sampling



During chorionic villus sampling, a small sample of cells (chorionic villi) is taken from the placenta to be

studied.

Finally...

Some tests are given to all pregnant women to help find problems that could pose a risk to the mother or the baby. Other tests are given based on risk factors, family or ethnic background, or other test results. Finding problems early allows your doctor to treat them or to plan for any special care you or your baby may need.

Glossary

Acquired Immunodeficiency Syndrome (AIDS): A group of signs and symptoms, usually of severe infections, occurring in a person whose immune system has been damaged by infection with human immunodeficiency virus (HIV).

Amniotic Fluid: Water in the sac surrounding the fetus in the mother's uterus.

Anemia: Abnormally low levels of blood or red blood cells in the bloodstream.

Antibiotics: Drugs that treat infections.

Antibodies: Proteins in the blood produced in reaction to foreign substances.

Antigen: A substance, such as an organism causing infection or a protein found on the surface of blood cells, that can induce an immune response and cause the production of an antibody.

Cervix: The lower, narrow end of the uterus, which protrudes into the vagina.

Chlamydial Infection: A sexually transmitted disease caused by bacteria that can lead to pelvic inflammatory disease and infertility.

Diabetes: A condition in which the levels of sugar in the blood are too high.

Down Syndrome: A genetic disorder in which mental retardation, abnormal features of the face and body, and medical problems such as heart defects occur.

Genes: DNA “blueprints” that code for specific traits, such as hair and eye color.

Glucose: A sugar that is present in the blood and is the body's main source of fuel.

Gonorrhea: A sexually transmitted disease that may lead to pelvic inflammatory disease, infertility, and arthritis.

Neural Tube Defects (NTDs): Birth defects that result from incomplete development of the brain, spinal cord, or their coverings.

Pap Test: A test in which cells are taken from the cervix and vagina and examined under a microscope.

Placenta: Tissue that provides nourishment to and takes away waste from the fetus.

Preeclampsia: A condition of pregnancy in which there is high blood pressure and protein in the urine.

Sexually Transmitted Diseases (STDs): Diseases that are spread by sexual contact.

Syphilis: A sexually transmitted disease that is caused by an organism called Treponema pallidum; it may cause major health problems or death in its later stages.

Trimester: Any of the three 3-month periods into which pregnancy is divided.

Trisomy 18: A genetic disorder that causes serious problems with development. Most infants with trisomy 18 die within the first year of life.

This Patient Education Pamphlet was developed by the American College of Obstetricians and Gynecologists. Designed as an aid to patients, it sets forth current information and opinions on subjects related to women's health. The average readability level of the series, based on the Fry formula, is grade 6–8. The Suitability Assessment of Materials (SAM) instrument rates the pamphlets as "superior." To ensure the information is current and accurate, the pamphlets are reviewed every 18 months. The information in this pamphlet does not dictate an exclusive course of treatment or procedure to be followed and should not be construed as excluding other acceptable methods of practice. Variations, taking into account the needs of the individual patient, resources, and limitations unique to the institution or type of practice, may be appropriate.

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