

CHAPTER 4: HAVING A HEALTHY PREGNANCY

Routine Prenatal Examinations and Screening Tests

I. Common Routine Exams and Screening Tests Done at Prenatal Visits

For more information about the pregnancy complications listed, see chapter 7 (When Pregnancy Becomes Complicated) in *Pregnancy, Childbirth, and the Newborn*. To learn about diagnostic tests that are used when a screening test suggests a problem, see page 139 or PCNGuide Chart on Diagnostic Tests in When Pregnancy Becomes Complicated.

Routine exam/test	Purpose	Comments
Pelvic (vaginal) exam	<p>First or second prenatal visit:</p> <ul style="list-style-type: none"> • Confirm pregnancy and estimate size of uterus. • Estimate size and shape of pelvis. • Obtain vaginal secretions to detect infectious organisms. • Screen for cervical cancer (Pap smear). <p>Late pregnancy:</p> <ul style="list-style-type: none"> • Assess the cervix and station (descent) of baby. • Obtain vaginal secretions to detect infection. 	<p>Might not be done if you've had a recent physical exam.</p> <ul style="list-style-type: none"> • See Infections during Pregnancy in the When Pregnancy Becomes Complicated section of www.PCNGuide.com for a discussion of infections. • Having a Pap smear may cause dark brown or red-dish vaginal discharge. This is common and doesn't indicate a problem. • Cervical exams in late pregnancy may cause spotting.
Urine test	<p>First prenatal visit:</p> <ul style="list-style-type: none"> • Confirm pregnancy. • Screen for urinary tract bacteria. <p>Each prenatal visit:</p> <ul style="list-style-type: none"> • Screen for sugar, which might indicate diabetes. • Screen for protein, which might indicate preeclampsia or infection. <p>As indicated:</p> <ul style="list-style-type: none"> • Detect bacteria or other infectious organisms. • Diagnose a urinary tract infection. 	<ul style="list-style-type: none"> • See page 127 for discussion of the blood test for diabetes. • See page 134 for discussion of preeclampsia and Infections during Pregnancy in the When Pregnancy Becomes Complicated section of www.PCNGuide.com. • Infectious organisms might or might not cause infection. Other symptoms are investigated to determine infection. Early treatment could decrease risk of preterm labor.
Blood test	<p>First or second prenatal visit or later, if indicated:</p> <ul style="list-style-type: none"> • Confirm pregnancy. • Determine blood type and Rh factor or screen for antibodies if you're Rh-negative. • Test for anemia (hematocrit and hemoglobin). • Test for infectious organisms or antibodies against them (syphilis, hepatitis B virus, human immunodeficiency virus (HIV), rubella (German measles)). • Evaluate blood glucose levels if you have diabetes mellitus. 	<ul style="list-style-type: none"> • See page 128 on Rh incompatibility. • See Infections during Pregnancy in the When Pregnancy Becomes Complicated section of www.PCNGuide.com on infections. • Other screening tests (see page 63) also involve blood samples.
Blood pressure check	<p>Each prenatal visit:</p> <ul style="list-style-type: none"> • Screen for high blood pressure, which might indicate gestational hypertension and/or preeclampsia. 	<ul style="list-style-type: none"> • See page 133 for a discussion of gestational hypertension and preeclampsia. • Blood pressure readings can be affected by exertion or stress.
Maternal weight check	<p>Each prenatal visit:</p> <ul style="list-style-type: none"> • Detect sudden weight gain that could be due to preeclampsia. • Help monitor your nutritional status. 	<ul style="list-style-type: none"> • See chapter 6 for a discussion of nutrition and weight gain.
Abdominal examination	<p>Each prenatal visit:</p> <ul style="list-style-type: none"> • Measure growth of the uterus (fundal height), which indicates fetal growth and gestational age. • Each visit in last weeks of pregnancy: • Estimate position of the fetus (Leopold's maneuvers). • Estimate amniotic fluid volume. • Detect breech presentation. 	<ul style="list-style-type: none"> • If a problem is suspected, an ultrasound scan is recommended. • See page 136 for more on breech presentation.
Listening to fetal heart tones (FHT) (with Doppler or fetal stethoscope)	<p>Each prenatal visit after FHT can be heard:</p> <ul style="list-style-type: none"> • Check that the fetus is living and doing well. • Check the heart rate for fetal well-being. 	<ul style="list-style-type: none"> • With Doppler, FHT can be heard at about 9–12 weeks; with a fetal stethoscope, at about 18–20 weeks gestation. • Hearing the FHT is exciting for expectant parents and makes the baby seem more real.
Breast exam	<p>Once during pregnancy:</p> <ul style="list-style-type: none"> • Screen for breast cancer. • Assess condition of your breasts for breastfeeding. 	<ul style="list-style-type: none"> • See pages 396–399 for conditions that influence breastfeeding.

II. Other Exams and Screening Tests Offered In Pregnancy		
Routine exam/test	Purpose	Comments
Dental exam	Once or twice during pregnancy, see your dentist: <ul style="list-style-type: none"> • Check for tooth decay and repair, if necessary. • Clean teeth, which may prevent gum disease. • Check for infection of the gums (gingivitis). 	<ul style="list-style-type: none"> • Gum tenderness and bleeding is common in pregnancy. • Gingivitis may worsen during pregnancy or appear for the first time (due to hormonal changes, more bacterial growth, and gum sensitivity). • Gingivitis has been associated with preterm labor. • Tell your dentist that you are pregnant.
Fetal movement counts (a.k.a. kick counts) During late pregnancy, you count and record your baby's movements during a brief period each day.	<ul style="list-style-type: none"> • Helps assess well-being of baby. • Used to detect changes in the normal pattern of fetal activity. • Helps you learn about your baby. • Keeping track of your baby's movements is a more reliable predictor of outcome than reliance on your impressions of fetal activity. 	<ul style="list-style-type: none"> • Is noninvasive, free, and simple. • Can be done yourself, at your convenience, in your own home. • May raise (or lower) your anxiety over your baby's well-being. • See page 64 for directions.
Ultrasound scan (sonography or sonogram) High-frequency sound waves (not audible to humans) are sent through a transducer into your uterus through your abdomen or via your vagina. These waves echo back allowing visualization of your baby, placenta, and internal organs as pictures on a video screen. An ultrasound takes 20–60 minutes. May require a full bladder in the first trimester for better visualization of uterus.	Ultrasound scans can be performed at any time during pregnancy. Timing depends on the reason for testing. <ul style="list-style-type: none"> • Confirm pregnancy. • Helps estimate due date and fetal age by measuring structures such as the skull, femur, or crown-rump length. • Screen for pregnancy with multiples. • Screen for fetal growth problems. • Screen for placenta previa. • Screen for Down syndrome as part of the integrated screening (as described below). • For information about ultrasound used as a diagnostic test, see the Diagnostic Tests chart in the When Pregnancy Becomes Complicated section. 	<ul style="list-style-type: none"> • Appears safe, but it's unknown if excessive exposure is harmful. Should only be used if medically indicated and not for "keepsake" pictures. • Adds expense to prenatal care. • Gives immediate results to sonographer who performs the ultrasound, but he or she doesn't give the information to you. A physician interprets and reports results to you or to your regular caregiver. • Accuracy varies depending on the quality of equipment, skill of person interpreting results, and gestational age of fetus. • Vaginal ultrasound may be better for detecting some problems such as placenta previa and ectopic pregnancy and for checking cervical length to evaluate risk for preterm labor. • May help identify your baby's gender (or sex, if done after week 18). (Accuracy depends on fetal age, fetal position, and quality of testing.) • May increase your anxiety if "possible problems" are reported without a way to immediately confirm results.
Integrated prenatal screening or sequential screening	<ul style="list-style-type: none"> • Combines the results of sequential screening tests in the first and second trimesters. • To provide risk assessment for certain birth defects. • For integrated screening, test results usually available to you after both tests are done (about a week after the second trimester blood tests). For sequential screening, you may be given the results after each test to help you determine what further testing is needed. 	<ul style="list-style-type: none"> • Full combination of screening tests has a higher detection rate (94–96 percent)¹ and a lower false positive rate (~5 percent) than using only some of these tests. • If test results are outside the normal range (e.g., your risk of Down syndrome is estimated to be higher than 1 in 270), then further testing may include a repeat blood test to confirm findings, ultrasound, genetic counseling, and/or amniocentesis. • Useful for those not wanting invasive testing, although it does not detect all the possible inherited disorders that can be detected by amniocentesis or chorionic villus sampling.
First trimester screening tests: 1. Ultrasound measurement of tissue on back of baby's neck (nuchal translucency or NT) 2. Blood test for a plasma protein (PAPP-A) and a hormone (hCG) in maternal serum	At 10–13 weeks gestation (ideally at 11 weeks): <ul style="list-style-type: none"> • Screen for Down syndrome and other chromosomal abnormalities. 	<ul style="list-style-type: none"> • If a trained sonographer is not available, the ultrasound is not done and only the maternal serum test is done in the first trimester, which is then combined with second trimester blood test.
Cell-free fetal DNA testing: a maternal blood test	After 9 weeks gestation: <ul style="list-style-type: none"> • Screens for chromosomal abnormalities, including Down syndrome. Can also test for gender and Rh factor. 	<ul style="list-style-type: none"> • Has a higher detection rate and lower false positive rate than other first trimester screening tests; however, it is not a diagnostic test, and irreversible decisions (such as termination) should not be based on the results of this test alone. • ACOG recommends this test be done only after other screening tests indicate an elevated risk of chromosomal defects.²

<p>Second trimester screening tests: A maternal blood test measuring serum levels of four substances produced by the fetus and/or placenta:</p> <ol style="list-style-type: none"> 1. Alpha-fetoprotein (AFP) 2. Human chorionic gonadotropin (hCG) 3. Unconjugated estriol (uE3), a by-product of estrogen metabolism, affected by fetal and placental function 4. Dimeric inhibin A (DIA), a substance produced in the placenta 	<p>At 16–20 weeks gestation (ideally at 16–17 weeks):</p> <ul style="list-style-type: none"> • Screen for Down syndrome (indicated by lower than normal levels of some substances and higher levels of others). • Screen for an open neural tube defect (spina bifida, anencephaly) with high levels of AFP. • Screen for Trisomy 18 (Edwards syndrome) with lower than normal levels of each substance. 	<ul style="list-style-type: none"> • The second trimester blood tests may be called “quadruple screen,” “multiple marker screening,” “triple screen,” “personal risk profile,” or “maternal serum screen.” • Serum levels vary depending on maternal age, gestational age, maternal weight, race, diabetic status, and pregnancies with multiples. Adjustments are made for these factors.
<p>Genetic carrier screening Depending on your family history and racial background, you may be offered carrier-screening tests. The decision is yours whether to have the test. A sample of your blood or saliva is tested to determine if you carry a gene that might cause a genetic birth defect.</p>	<ul style="list-style-type: none"> • Screen for genetic disorders—generally, an individual who is a carrier has only one defective gene and is not affected with that specific disorder. The problem may occur when both parents are carriers. Though people from all racial groups could be carriers of a defective gene, some genetic disorders are more prevalent in certain ethnic groups. • Cystic fibrosis carrier status is more common in Caucasians. • Tay-Sachs disease and Canavan disease carrier status is more common in people of Eastern European Jewish (Ashkenazi) descent. • Thalassemia carrier status is more common in people of Greek, Italian, Middle Eastern, African, and Asian descent • Sickle cell anemia carrier status is more common in black people of African descent. 	<ul style="list-style-type: none"> • If you have a relative with a genetic disorder, you are at greater risk of having a baby with that genetic disorder. More testing may be done with diagnostic tests, such as chorionic villus sampling or amniocentesis. • Most genetic disorders result from both parents having a specific gene. So in most cases, your partner does not need to be tested if your test results are normal. • If both parents have a defective gene, there is a 1 in 4 chance of the baby being affected. So there is a 25 percent chance of a problem and a 75 percent chance that the baby won’t have the genetic disorder. There is a 50 percent chance that the baby will be a carrier, just as you are. • If you are concerned about these tests, talking with a genetic counselor may be helpful. You may choose not to do testing and wait until birth to find out if the baby is affected.
<p>Glucose screening (a.k.a. 1-hour Glucose Challenge Test or GCT) A blood sample is taken from your arm 1 hour after you drink a very sweet (glucose) drink or eat a special sugary snack.</p>	<p>At 24–28 weeks gestation:</p> <ul style="list-style-type: none"> • Screen for gestational diabetes, which, if untreated, may cause problems for you and your baby. 	<ul style="list-style-type: none"> • This is not a “fasting” test—you can eat or drink before it. • If results show your blood sugar is elevated, a follow-up Glucose Tolerance Test (GTT) is planned. • Many women with a high reading in the screening test will be found to have normal blood sugar levels in the full 3-hour GTT. • See page 127 for a discussion of gestational diabetes.
<p>Group B streptococcus (GBS) screening Vaginal and rectal swabs are taken and the secretions are sent to a laboratory for a culture to determine the degree of GBS colonization.</p>	<p>At 35–37 weeks gestation:</p> <ul style="list-style-type: none"> • Screen for presence of GBS. 	<ul style="list-style-type: none"> • Some caregivers also screen for GBS early in pregnancy with a urine test. • High GBS colonization could cause a dangerous GBS infection in an affected newborn. See page 125.

Endnotes

1. American Congress of Obstetricians and Gynecologists, Frequently Asked Questions: Screening Tests for Birth Defects, April 2014, <http://www.acog.org/Patients/FAQs/Screening-Tests-for-Birth-Defects>.
2. American Congress of Obstetricians and Gynecologists, Committee Opinion: Cell-free DNA Screening for Fetal Aneuploidy (Washington, DC: American Congress of Obstetricians and Gynecologists, 2015), <http://www.acog.org/Resources-And-Publications/Committee-Opinions/Committee-on-Genetics/Cell-free-DNA-Screening-for-Fetal-Aneuploidy>.