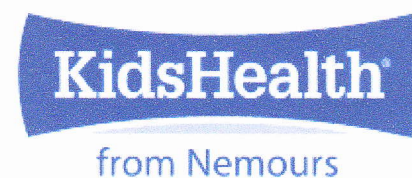


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## A Directory of Medical Tests

Taking a medical history and performing a physical examination usually provide the information a doctor needs to evaluate a child's health or to understand what's causing an illness. But sometimes, doctors need to order tests to find out more.

Here are some common tests and what they involve:

### Blood Tests

Blood tests usually can be done in a doctor's office or in a lab where technicians are trained to take blood. When only a small amount of blood is needed, the sample can sometimes be taken from a baby by sticking a heel and from an older child by sticking a finger with a small needle.

If a larger blood sample is needed, the technician drawing the blood will clean the skin, insert a needle into a vein (usually in the arm or hand), and withdraw blood. In kids, it sometimes takes more than one try. A bandage and a cotton swab will help stop the flow of blood when the needle is removed.

Blood tests can be scary for kids, so try to be a calming presence during the procedure. Holding your child's hand or offering a stuffed animal or other comforting object can help. Tell your child that it may pinch a little, but that it will be over soon. With younger kids, try singing a song, saying the alphabet, or counting together while the blood is being drawn.

Common blood tests include:

- **Complete blood count (CBC).** A CBC measures the levels of different types of blood cells. By determining if there are too many or not enough of each blood cell type, a CBC can help to detect a wide variety of illnesses or signs of infection.
- **Blood chemistry test.** Basic blood chemistry tests measure the levels of certain electrolytes, such as sodium and potassium, in the blood. Doctors typically order them to look for any sign of kidney dysfunction, diabetes, metabolic disorders, and tissue damage.
- **Blood culture.** A blood culture may be ordered when a child has symptoms of an infection — such as a high fever or chills — and the doctor suspects bacteria may have spread into the blood. A blood culture shows what type of germ is causing an infection, which will determine how it should be treated.
- **Lead test.** The American Academy of Pediatrics (AAP) recommends that all toddlers get tested for lead in the blood at 1 and 2 years of age since young kids are at risk for lead poisoning if they eat or inhale particles of lead-based paint. High lead levels can cause stomach problems and headaches and also have been linked to some developmental problems.

- **Liver function test.** Liver function tests check to see how the liver is working and look for any sort of liver damage or inflammation. Doctors typically order one when looking for signs of a viral infection (like mononucleosis or viral hepatitis) or liver damage from other health problems.

### Pregnancy and Newborns Tests

State requirements differ regarding tests for newborns and pregnant women, and recommendations by medical experts are often updated. So talk with the doctor if you have questions about what's right for you.

- **Prenatal tests.** From ultrasounds to amniocentesis, a wide array of prenatal tests can help keep pregnant women informed. These tests can help identify — and then treat — health problems that could endanger both mother and baby. Some tests are done routinely for all pregnancies. Others are done if the pregnancy is considered high-risk (e.g., when a woman is 35 or older, is younger than 15, is overweight or underweight, or has a history of pregnancy complications).
- **Multiple marker test.** Most pregnant women are offered a blood-screening test between weeks 15-20. Also known as a "triple marker" or quadruple screen, this blood test can reveal conditions like spina bifida or Down syndrome by measuring certain hormones and protein levels in the mother's blood. Keep in mind that these are screening tests and only show the possibility of a problem existing — they don't provide definitive diagnoses. However, if results show a potential problem, a doctor will recommend other diagnostic tests.
- **Newborn screening tests.** These tests are done soon after a child is born to detect conditions that often can't be found before delivery, like sickle cell anemia or cystic fibrosis. Blood is drawn (usually from a needle stick on the heel) and spots are placed on special paper, which is then sent to a lab for analysis. Different states test for different diseases in infants.
- **Bilirubin level.** Bilirubin is a substance in the blood that can build up in babies and cause their skin to appear jaundiced (yellow). Usually jaundice is a harmless condition, but if the level of bilirubin gets too high, it can lead to brain damage. A baby who appears jaundiced may have a bilirubin level check, which is done with an instrument placed on the skin or by blood tests.
- **Hearing screen.** The American Academy of Pediatrics (AAP) recommends that all babies have a hearing screen done before discharge from the hospital, and most states have universal screening programs. It's important to pick up hearing deficits early so that they can be treated as soon as possible. Hearing screens take 5-10 minutes and are painless. Sometimes they involve putting small probes in the ears; other times, they're done with electrodes.

### Radiology Tests

- **X-rays.** X-rays can help doctors find a variety of conditions, including broken bones and lung infections. X-rays aren't painful, and typically involve just having the child stand, sit, or lie on a table while the X-ray machine takes a picture of the area the doctor is concerned about. The child is sometimes given a special gown or covering to help protect other areas of the body from radiation.
- **Ultrasound.** Though they're typically associated with pregnancy, doctors order ultrasounds in lots of different cases. For example, ultrasounds can be used to look for collections of fluid in the body, for problems with the kidneys, or to look at a baby's brain. An ultrasound is painless and uses high-frequency sound waves to bounce off organs and create a picture. A special jelly is

applied to the skin, and a handheld device is moved over the skin. The sound waves that come back produce an image on a screen. The images seen on most ultrasounds are difficult for the untrained eye to decipher, so a doctor will view the image and interpret it.

- **Computed tomography (CAT scan or CT-Scan).** CAT scans are a kind of X-ray, and typically are ordered to look for things such as appendicitis, internal bleeding, or abnormal growths. A scan is not painful, but sometimes can be scary for young kids. A child is asked to lie on a narrow table, which slides into a scanner. A scan may require the use of a contrast material (a dye or other substance) to improve the visibility of certain tissues or blood vessels. The contrast material may be swallowed or given through an IV.
- **Magnetic resonance imaging (MRI).** MRIs use radio waves and magnetic fields to produce an image. MRIs are often used to look at bones, joints, and the brain. The child is asked to lie on a narrow table and it slides in to the middle of an MRI machine. While MRIs are not painful, they can be noisy and long, making them scary to kids. Often, children need to be sedated for MRIs. Contrast material is sometimes given through an IV in order to get a better picture of certain structures.
- **Upper gastrointestinal imaging (Upper GI).** An upper GI is a study that involves swallowing contrast material while X-rays are taken of the top part of the digestive system. This allows the doctor to see how a child swallows. Upper GI studies are used to evaluate things like difficulty swallowing and gastroesophageal reflux (GERD). An upper GI isn't painful, but some kids don't like to drink the contrast material, which sometimes can be flavored to make it more appealing.
- **Voiding cystourethrogram (VCUG).** A VCUG involves putting dye into the bladder and then watching with continuous X-rays to see where the dye goes. Doctors typically order a VCUG when they are concerned about urinary reflux, which can sometimes lead to kidney damage later. A catheter is inserted through the urethra, into the bladder, which can be uncomfortable and scary for a child, but usually is not painful. The bladder is then filled with contrast material that is put in through the catheter. Images are taken while the bladder is filling and then while the child is urinating, to see where the dye and the urine go.

### Other Tests

- **Throat culture (strep screen).** Doctors often order throat cultures to test for the germs that cause strep throat, which are known as group A *streptococcus*, or strep. The cultures are done in the doctor's office and aren't painful, but can be uncomfortable for a few seconds. The doctor or medical assistant wipes the back of the throat with a long cotton swab. This tickles the back of the throat and can cause a child to gag, but will be over very quickly, especially if your child stays still.
- **Stool test.** Stool (or feces or poop) can provide doctors with valuable information about what's wrong when your child has a problem in the stomach, intestines, or another part of the gastrointestinal system. The doctor may order stool tests if there is suspicion of something like an allergy, an infection, or digestive problems. Sometimes it is collected at home by a parent in a special container that the doctor provides. The doctor will also provide instructions on how to get the most useful sample for analysis.
- **Urine test.** Doctors order urine tests to make sure that the kidneys are functioning properly or when they suspect an infection in the kidneys or bladder. It can be taken in the doctor's office or at home. It's easy for toilet-trained kids to give a urine sample since they can go in a cup. In other

cases, the doctor or nurse will insert a catheter (a narrow, soft tube) through the urinary tract opening into the bladder to get the urine sample. While this can be uncomfortable and scary for kids, it's typically not painful.

- **Lumbar puncture (spinal tap).** During a lumbar puncture a small amount of the fluid that surrounds the brain and spinal cord, the cerebrospinal fluid, is removed and examined. In kids, a lumbar puncture is often done to look for meningitis, an infection of the meninges (the membrane covering the brain and spinal cord). Other reasons to do lumbar punctures include: to remove fluid and relieve pressure with certain types of headaches, to look for other diseases in the central nervous system, or to place chemotherapy medications into the spinal fluid. Spinal taps, which can be done on an inpatient or outpatient basis, might be uncomfortable but shouldn't be too painful. Depending on a child's age, maturity, and size, the test may be done while the child is sedated.
- **Electroencephalography (EEG).** EEGs often are used to detect conditions that affect brain function, such as epilepsy, seizure disorders, and brain injury. Brain cells communicate by electrical impulses, and an EEG measures and records these impulses to detect anything abnormal. The procedure isn't painful but kids often don't like the electrodes being applied to their heads. A technician arranges several electrodes at specific sites on the head, fixing them in place with sticky paste. The patient must remain still and lie down while the EEG is done.
- **Electrocardiography (EKG).** EKGs measure the heart's electrical activity to help evaluate its function and identify any problems. The EKG can help determine the rate and rhythm of heartbeats, the size and position of the heart's chambers, and whether there is any damage present. EKGs can detect abnormal heart rhythms, some congenital heart defects, and heart tissue that isn't getting enough oxygen. It's not a painful procedure — the child must lie down and a series of small electrodes are fixed on the skin with sticky papers on the chest, wrists, and ankles. The patient must sit still and may be asked to hold his or her breath briefly while the heartbeats are recorded.
- **Electromyography (EMG).** An EMG measures the response of muscles and nerves to electrical activity. It's used to help determine muscle conditions that might be causing muscle weakness, including muscular dystrophy and nerve disorders. A needle electrode is inserted into the muscle (the insertion might feel similar to a pinch) and the signal from the muscle is transmitted from the electrode through a wire to a receiver/amplifier, which is connected to a device that displays a readout. EMGs can be uncomfortable and scary to kids, but aren't usually painful. Occasionally kids are sedated while they're done.
- **Biopsies.** Biopsies are samples of body tissues taken to look for things such as cancer, inflammation, celiac disease, or the presence or absence of certain cells. Biopsies can be taken from almost anywhere, including lymph nodes, bone marrow, or kidneys. Doctors examine the removed tissue under a microscope to make a diagnosis. Kids are usually sedated for a biopsy.

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Note: All information on KidsHealth® is for educational purposes only. For specific medical advice, diagnoses, and treatment, consult your doctor.

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