

## Lymphoma - Hodgkin - Childhood - Diagnosis

This section has been reviewed and approved by the [Cancer.Net Editorial Board \[1\]](#), July / 2013

### Diagnosis

**ON THIS PAGE:** You will find a list of the common tests, procedures, and scans that doctors can use to find out what's wrong and identify the cause of the problem. To see other pages in this guide, use the colored boxes on the right side of your screen, or click "Next?" at the bottom.

Doctors use many tests to diagnose cancer and find out if it has spread. Some tests may also determine which treatments may be the most effective. For most types of cancer, a biopsy is the only way to make a definitive diagnosis of cancer. Imaging tests may be used to find out whether the cancer has spread. This list describes options for diagnosing this type of cancer, and not all tests listed will be used for every person. Your child's doctor may consider these factors when choosing a diagnostic test:

- Age and medical condition
- Type of cancer suspected
- Signs and symptoms
- Previous test results

The following tests may be used to diagnose Hodgkin lymphoma:

**Physical examination/blood tests.** Children tend to have larger lymph nodes than adults. Usually, a child has enlarged lymph nodes for several weeks or months before a doctor suspects Hodgkin lymphoma, which is uncommon in children. The doctor first looks for signs of a more common infection that may cause the lymph nodes to swell and may prescribe antibiotics.

If swelling in the lymph nodes does not go down after a course of antibiotics, the swelling may be caused by something other than an infection. In these instances, the doctor does a physical examination of all the lymph node areas, the liver, and the spleen, which may be enlarged in children with Hodgkin lymphoma.

**Blood tests [2]** may also be done to check blood counts and evaluate how the liver and kidneys are working. There is no specific blood test for Hodgkin lymphoma, but changes in blood counts (such as unexplained anemia or a low number of red blood cells) are sometimes more common in children with Hodgkin lymphoma.

**Biopsy [3].** If the lymph nodes don't feel normal when the doctor examines them and don't respond to antibiotics, the doctor will check tissue from the abnormal lymph node for cancer cells. Hodgkin lymphoma makes a distinctive kind of abnormal cell, called a Reed-Sternberg cell, that is easily identified under the microscope. The only way to diagnose Hodgkin lymphoma is to look at the tissue from an abnormal lymph node under the microscope, which is done by a pathologist, which is a doctor who specializes in interpreting laboratory tests and evaluating cells, tissues, and organs to diagnose disease. The process of removing the tissue is called a biopsy.

To perform a standard biopsy for Hodgkin lymphoma, a surgeon cuts through the skin and removes an entire lymph node or a piece of a mass of lymph nodes. In children, a lymph node biopsy is usually performed with general anesthesia or conscious sedation, in which the child is awake but the pain and discomfort are lessened with medication.

Sometimes, a doctor may first try to obtain tissue from the lymph node by doing a fine needle aspiration biopsy. In this test, a thin needle is used to remove small amounts of fluid and tissue from the lymph node. This type of biopsy may not provide enough tissue to diagnose the disease, so it is recommended only when a standard, surgical biopsy may be too difficult or dangerous.

If a biopsy confirms the diagnosis of Hodgkin lymphoma, several tests and scans can help the doctor learn more about the disease, show how far the disease has spread (a process called [staging \[4\]](#)), and indicate how well treatment is working. These scans and tests may include:

**X-ray.** An x-ray is a way to create a picture of the structures inside of the body using a small amount of radiation. For instance, a chest x-ray will show whether lymph nodes in the mediastinum are enlarged. A mediastinal tumor that takes up one-third or more of the chest cavity is considered "bulky." It may cause coughing or breathing problems by narrowing the airway.

**Computed tomography (CT) scan [5].** A CT scan creates a three-dimensional picture of the inside of the body with an x-ray machine. A computer then combines these images into a detailed, cross-sectional view that shows any abnormalities or tumors. A CT scan can also be used to measure the tumor's size. Sometimes, a contrast medium (a special dye) is injected into a patient's vein or given orally (by mouth) to provide better detail. The CT scan shows if lymph nodes in the chest or abdomen are enlarged, which may be a sign of cancer. Also, this test will show if other

organs?such as the lungs, liver, or spleen?are involved.

**Positron emission tomography (PET) scan [6].** A PET scan is a way to create pictures of organs and tissues inside the body. A small amount of a radioactive substance is injected into a patient?s body. This substance is absorbed mainly by organs and tissues that use the most energy. Because cancer tends to use energy actively, it absorbs more of the radioactive substance. A scanner then detects this substance to produce images of the inside of the body.

PET scans are often used to add to the information gathered from a CT scan and physical examination. This test can also be used to evaluate how well treatment is working. Before treatment, areas of active Hodgkin lymphoma appear bright on the scan in most people. During and after treatment, these bright areas usually go away as the cancer cells are dying. This test can reassure families and doctors?without doing a biopsy?that scar tissue still present on a CT scan after treatment does not contain active cancer cells.

**Bone marrow biopsy [7].** Hodgkin lymphoma rarely spreads to the bone marrow in children with localized Hodgkin lymphoma located only in the lymphatic system. A bone marrow biopsy is recommended for children with signs of more widespread disease involving lymph glands above and below the diaphragm. It is also recommended for children with other signs of Hodgkin lymphoma that has spread outside the lymph node system to the lungs, liver, or bones, who are more likely to have lymphoma in the bone marrow.

For a bone marrow biopsy, the child?s skin is numbed with a local anesthetic, or?more commonly?conscious sedation is given while a needle is inserted into the bone in the hip until it reaches the spongy part of the bone at the center, the bone marrow. A small amount of marrow is removed and examined under a microscope.

**Magnetic resonance imaging (MRI) [8].** An MRI uses magnetic fields, not x-rays, to produce detailed images of the body. A contrast medium (a special dye) may be injected into a patient?s vein or given orally (by mouth) to create a clearer picture. This test may be used instead of or in addition to a CT scan at diagnosis or during follow-up care to check for lymphoma in the abdomen, bones, or lymph nodes in the chest.

After these diagnostic tests are done, your child?s doctor will review all of the results with you. If the diagnosis is cancer, these results also help the doctor describe the cancer; this is called staging.

*Choose ?Next? (below, right) to continue reading this guide to learn about the different stages for this type of cancer. Or, use the colored boxes located on the right side of your screen to visit any section.*

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**Links:**

- [1] <http://www.cancer.net/about-us>
- [2] <http://www.cancer.net/node/24716>
- [3] <http://www.cancer.net/node/24406>
- [4] <http://www.cancer.net/node/19169>
- [5] <http://www.cancer.net/node/24486>
- [6] <http://www.cancer.net/node/24648>
- [7] <http://www.cancer.net/node/24409>
- [8] <http://www.cancer.net/node/24578>