

National Cancer Institute

What You Need
To Know About™

Hodgkin Lymphoma

U.S. DEPARTMENT OF
HEALTH AND HUMAN SERVICES
National Institutes of Health

How Can We Help?

You may want information about cancer for yourself, your family, and your friends.

- **Call** NCI's Cancer Information Service at **1-800-4-CANCER (1-800-422-6237)**
- **Visit** us at **<http://www.cancer.gov>** or **<http://m.cancer.gov/>** (mobile)
- **Chat** using **LiveHelp**, NCI's instant messaging service, at **<http://www.cancer.gov/livehelp>**
- **Email** us at **cancergovstaff@mail.nih.gov**
- **Order** publications at **<http://www.cancer.gov/publications>** or by calling **1-800-4-CANCER (1-800-422-6237)**
- **Get help** with quitting smoking at **1-877-44U-QUIT (1-877-448-7848)**
- **Follow** us on **Facebook**  **Twitter** 
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About This Booklet

This National Cancer Institute (NCI) booklet is for you—someone who has just been diagnosed with **Hodgkin lymphoma**. This type of **cancer** starts in the **lymph system**. Another name for this cancer is Hodgkin disease.

Words that may be new to you are shown in **bold**. See the **Words To Know** on page 25 to learn what a new word means and how to pronounce it.

This booklet is about medical care for people with Hodgkin lymphoma. Learning about medical care for this disease can help you take an active part in making choices about your care.

You can read this booklet from front to back. Or, you can read only the sections you need right now.

This booklet has lists of questions that you may want to ask your doctor. Many people find it helpful to take a list of questions to a doctor visit. To help remember what your doctor says, you can take notes. You may also want to have a family member or friend go with you when you talk with the doctor—to take notes, ask questions, or just listen.

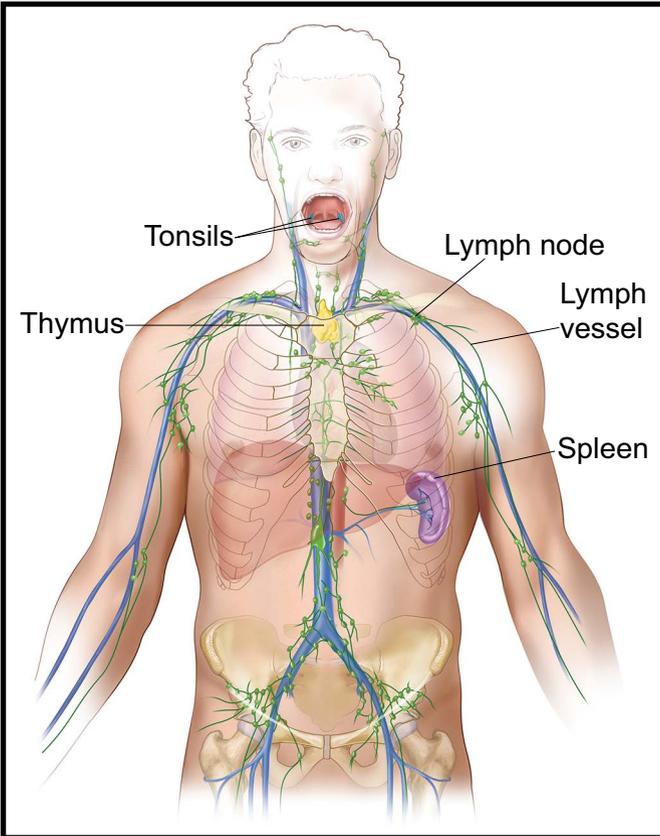
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The Lymph System

The lymph (lymphatic) system helps the body fight infections and other diseases. It's made up of **tissue** and **organs**:

- **Lymph vessels:** The lymph system has a network of **lymph vessels**. Lymph vessels branch into all the tissues of the body.
- **Lymph:** Lymph vessels carry clear fluid (**lymph**). Lymph contains **white blood cells**, especially **lymphocytes** such as **B cells** and **T cells**.
- **Lymph nodes:** Lymph vessels are connected to small, round organs called **lymph nodes**. Groups of lymph nodes are found in the neck, armpits, chest, abdomen, and groin. Lymph nodes store white blood cells. They trap and remove harmful substances that may be in lymph.
- **Other parts of the lymph system:** Other parts of the lymph system include the **tonsils**, **thymus**, and **spleen**. Lymph tissue is also found in other parts of the body including the stomach, skin, and small intestine.



This picture shows the lymph system – tonsils, thymus, lymph vessels, lymph nodes, and spleen.

Hodgkin Lymphoma

Hodgkin lymphoma starts in the lymph system, usually in a lymph node. The disease may be found because of a swollen lymph node in the neck, chest, or other areas.

The disease begins when a lymphocyte (almost always a B cell) becomes abnormal. The abnormal cell divides to make copies of itself. The copies keep dividing, making more abnormal cells that build up.

When white blood cells collect around the abnormal cells, the lymph node that contains abnormal cells becomes swollen. Abnormal cells may spread through the lymph vessels or blood vessels to other parts of the body.

Although normal cells die when they get old or damaged, abnormal cells don't die. Also unlike normal cells, abnormal cells can't help the body fight infections.

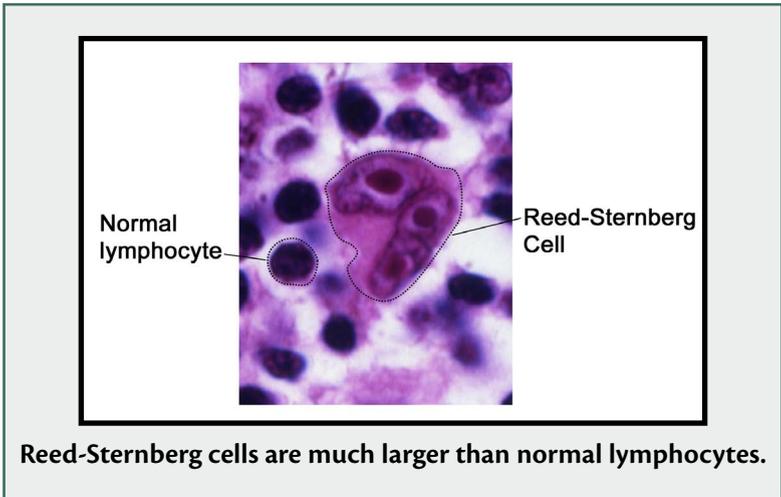
Types of Hodgkin Lymphoma

In 2013, more than 9,000 Americans will be diagnosed with Hodgkin lymphoma. About 4,000 of these people will be children, teens, and adults younger than 35 years old.

Classical type

Most people diagnosed with Hodgkin lymphoma have the classical type. In 2013, about 8,550 Americans will be diagnosed with this type.

In classical Hodgkin lymphoma, the abnormal cell is called a **Reed-Sternberg cell**. See photo of the large cell below.



Other abnormal cells may also be found in people with classical Hodgkin lymphoma. These cells are called Hodgkin cells. They are larger than normal lymphocytes but smaller than Reed-Sternberg cells.

Rare type

In 2013, about 450 Americans will be diagnosed with **lymphocyte-predominant Hodgkin lymphoma**. In this rare type of Hodgkin lymphoma, the abnormal cell is called a lymphocyte-predominant cell, and the treatment options are different.

Staging Tests

After you learn that you have Hodgkin lymphoma, you may need other tests to help with making decisions about treatment. Staging tests can show the stage (extent) of disease, such as whether lymphoma cells are found in more than one group of lymph nodes.

Lymphoma cells usually spread from one group of lymph nodes to the next. For example, Hodgkin lymphoma that starts in lymph nodes in the neck may spread first to lymph nodes above the collarbones, and then to lymph nodes under the arms and within the chest.

In time, lymphoma cells can invade blood vessels and spread to almost any other part of the body. For example, they can spread to the liver, lungs, bone, and **bone marrow**.

Staging tests may include:

- **CT scan:** Your doctor may order a **CT scan** of your neck, chest, abdomen, and pelvis. An **x-ray** machine linked to a computer will take a series of detailed pictures of these areas. You'll receive **contrast material** by mouth and by injection into a blood vessel in your arm or hand. The contrast material makes swollen lymph nodes and other abnormal areas easier to see. The pictures can show whether Hodgkin lymphoma has spread.
- **PET scan:** Your doctor may use a **PET scan** to find Hodgkin lymphoma that has spread. You'll receive an injection of a small amount of **radioactive sugar**. A machine makes computerized pictures of cells in your body that have taken up the radioactive sugar.

Because lymphoma cells take up sugar faster than do normal cells, areas with lymphoma cells look brighter on the pictures.

- **Bone marrow biopsy:** To check for lymphoma cells in the bone marrow, your doctor will use a thick needle to remove a small sample of bone and bone marrow from your hipbone or another large bone. **Local anesthesia** can help control pain.

Other staging tests may include biopsies of lymph nodes or other tissue.

Questions you may want to ask your doctor about testing

- What type of Hodgkin lymphoma do I have?
- How do I get a copy of the report from the pathologist?
- Has the lymphoma spread? Was it found on both sides of the diaphragm?

Stages

The stage of Hodgkin lymphoma depends mainly on:

- **The number and location of lymph nodes that have Hodgkin lymphoma cells**
- **Whether the disease has spread to the spleen, liver, bone marrow, lung, or bone**

Stages of Hodgkin lymphoma

Doctors describe the stages of Hodgkin lymphoma using the Roman numerals I, II, III, and IV. Stage I is **early-stage cancer**, and Stage IV is **advanced cancer**, such as Hodgkin lymphoma that has spread to the liver.

Stage I

Lymphoma cells are in one lymph node group (such as the lymph nodes in the neck or armpit). Very rarely, Hodgkin lymphoma may start somewhere in the body other than a lymph node and lymphoma cells are found in only that one part.

Stage II

Lymphoma cells are in at least two lymph node groups, but both groups are on the same side of the **diaphragm**. Or, lymphoma cells are in one part of a tissue or an organ and the lymph nodes near that organ on the same side of the diaphragm. Lymphoma cells may be in other lymph node groups on the same side of the diaphragm.

Stage III

Lymphoma cells are in lymph nodes on both sides of the diaphragm. Lymphoma cells may also be found in one part of a tissue or an organ near these lymph node groups or in the spleen.

Stage IV

Lymphoma cells are found in several parts of at least one organ or tissue. Or, lymphoma cells are in an organ (such as the liver, lung, or bone) and in lymph nodes on the other side of the diaphragm.

A, B, E, and S

In addition to using the Roman numerals I, II, III, and IV, doctors describe the stages of Hodgkin lymphoma with the letters A, B, E, and S.

A and B

Your doctor may describe the stage as A or B:

- **A (without symptoms):** You have not had symptoms, such as weight loss, drenching night sweats, or fevers.
- **B (with symptoms):** You have had symptoms, such as weight loss, drenching night sweats, or fevers.

E and S

Your doctor may describe the stage with an E, S, or both letters:

- **E (outside the lymph system):** Lymphoma is found in tissues outside the lymph system, such as in liver or lung tissue. Other less common places to find lymphoma include the bone, bone marrow, skin, digestive tract, kidneys, ovaries, or testicles. For example, the stage may be IIE.
- **S (in the spleen):** Lymphoma is found in the spleen. For example, the stage may be IIIS.



You and your doctor will develop a treatment plan.

Treatment

People with Hodgkin lymphoma have many treatment options. Treatment options include:

- **Chemotherapy**
- **Targeted Therapy**
- **Radiation Therapy**
- **Stem Cell Transplant**

The treatment that's right for you depends mainly on the type of Hodgkin lymphoma (most people have classical Hodgkin lymphoma), where the lymphoma was found in your body (its stage), and whether you've had weight loss, drenching night sweats, or fevers. It also may depend on whether you have a tumor that is bigger than 10 centimeters (4 inches). You may receive more than one type of treatment, such as chemotherapy and radiation therapy.

At any time, care is available to prevent infections, control pain, relieve the **side effects** of treatment, and ease emotional concerns. You can get information about coping on NCI's website at <http://www.cancer.gov/cancertopics/coping>.

Also, you can get information about coping from NCI's Cancer Information Service at **1-800-4-CANCER (1-800-422-6237)**. Or, chat using NCI's instant messaging service, **LiveHelp** (<https://livehelp.cancer.gov>).

Doctors Who Treat Hodgkin Lymphoma

Whenever possible, people should be treated at a medical center that has doctors experienced in treating Hodgkin lymphoma. If this isn't possible, your doctor may discuss the treatment plan with a specialist at such a center.

Resources are available to help you find doctors who treat Hodgkin lymphoma:

- Your doctor may be able to refer you to specialists.
- You can ask a hospital, medical school, or medical society for names of specialists near you.

- NCI's Cancer Information Service can give you information about treatment centers near you. Call **1-800-4-CANCER (1-800-422-6237)**. Or, chat using **LiveHelp (<https://livehelp.cancer.gov>)**, NCI's instant messaging service.
- Other sources can be found in the NCI fact sheet *How To Find a Doctor or Treatment Facility If You Have Cancer*.

Your health care team may include the following specialists:

- **Medical oncologist:** A **medical oncologist** is a doctor who specializes in treating Hodgkin lymphoma and other cancers with **chemotherapy, targeted therapy, and stem cell transplants**.
- **Radiation oncologist:** A **radiation oncologist** is a doctor who specializes in treating Hodgkin lymphoma and other cancers with **radiation therapy**.

Your health care team may also include an **oncology nurse**, a **social worker**, and a **registered dietitian**.

Ask your health care team about your treatment options, the expected results of each option, and possible side effects. Because cancer treatments often damage healthy cells and tissues, side effects are common. These side effects depend on many factors, including the type of treatment. The specific side effects may not be the same for everyone, and they may even change from one treatment session to the next.

You may want to talk with your doctor about taking part in a research study (**clinical trial**) of new treatment methods. Research studies are an important option for people with Hodgkin lymphoma. See the **Treatment Clinical Trials** section on page 14.

Questions you may want to ask your doctor about treatment options

- What are my treatment options? Which do you recommend for me? Why?
- What are the expected benefits of each kind of treatment?
- What are the risks and possible side effects of each treatment? How can side effects be managed?
- What can I do to prepare for treatment?
- What is the treatment likely to cost? Will my insurance cover it?
- How will treatment affect my normal activities?
- Would a treatment research study be right for me?

Second Opinion

Before starting treatment, you might want a second opinion about your diagnosis and treatment options. Some people worry that the doctor will be offended if they ask for a second opinion. Usually the opposite is true. Most doctors welcome a second opinion. And many health insurance companies will pay for a second opinion if you or your doctor requests it. Some insurance companies actually require a second opinion.



You may want to get a second opinion before starting treatment.

If you get a second opinion, the second doctor may agree with your first doctor's diagnosis and treatment recommendation. Or, the second doctor may suggest another approach. Either way, you have more information and perhaps a greater sense of control. You can feel more confident about the decisions you make, knowing that you've looked at all of your options.

It may take some time and effort to gather your medical records and see another doctor. In most cases, it's not a problem to take several weeks to get a second opinion. The delay in starting treatment usually will not make treatment less effective. To make sure, you should discuss this delay with your doctor. Some people with Hodgkin lymphoma need treatment right away.

Treatment Clinical Trials

For anyone thinking about cancer treatment, clinical trials are an option. Clinical trials are research studies that involve people. They are an option for all stages of cancer.

Cancer research has led to real progress in the treatment of Hodgkin lymphoma. Because of research, most people diagnosed with Hodgkin lymphoma can now be cured, or their disease can be controlled for many years. Doctors continue to search for new and better ways to treat Hodgkin lymphoma.

Like all other treatment options, clinical trials have possible benefits and risks. But, by looking closely at all options, including clinical trials, you are taking an active role in a decision that affects your life.

Even if you don't benefit directly from the treatment under study, you may still make an important contribution by helping doctors learn more about Hodgkin lymphoma and how to control it. If you're interested in being part of a clinical trial, talk with your doctor.

NCI's website has a section called **Learn About Clinical Trials** at <http://www.cancer.gov/clinicaltrials/learningabout>. You can learn about:

- What clinical trials are and why they are important
- How your safety is protected
- Who pays for clinical trials
- What to think about if you're deciding whether to take part in a clinical trial
- What to ask your doctor

In addition, NCI's Cancer Information Service can answer your questions and provide information about clinical trials. Contact CIS at **1-800-4-CANCER (1-800-422-6237)** or at **LiveHelp (<https://livehelp.cancer.gov>)**.

You can search for clinical trials of Hodgkin lymphoma at **<http://www.cancer.gov/clinicaltrials/search>** on NCI's website.

Chemotherapy

Most people with Hodgkin lymphoma are treated with chemotherapy. Chemotherapy uses drugs to kill lymphoma cells.

Many drugs are used for Hodgkin lymphoma. Usually, the drugs are given through a thin needle directly into a vein (**intravenously**). Some are given by mouth.

You'll probably receive a combination of drugs in a clinic, at the doctor's office, or at home. Some people need to stay in the hospital during treatment.

The side effects depend mainly on which drugs are given and how much. Chemotherapy kills fast-growing Hodgkin lymphoma cells, but the drugs can also harm normal cells that divide rapidly:

- **Blood cells:** When drugs lower the levels of healthy blood cells, you're more likely to get infections, bruise or bleed easily, and feel very weak and tired. Your health care team will check for low levels of blood cells. If your levels are low, your health care team may stop the chemotherapy for a while or reduce the dose of the drug.
- **Cells in hair roots:** Chemotherapy may cause hair loss. If you lose your hair, it will grow back after treatment, but the color and texture may be changed.

- **Cells that line the digestive tract:** Chemotherapy can cause a poor appetite, nausea and vomiting, diarrhea, or mouth blisters. Your health care team can give you medicines and suggest other ways to help with these problems.

Ask your health care team whether the chemotherapy used for Hodgkin lymphoma could make you unable to have children. The fertility of adults may be harmed by the drugs, but most children treated for Hodgkin lymphoma seem to have normal fertility when they grow up. If you want to have a child someday after treatment, you may choose to store sperm or eggs before treatment starts.

Some of the drugs used for Hodgkin lymphoma can cause heart disease or cancer later on. See the **Follow-up Care** section on page 22 for information about checkups after treatment.

The NCI booklet *Chemotherapy and You* has helpful ideas for coping with chemotherapy side effects.

Targeted Therapy

People with lymphocyte-predominant Hodgkin lymphoma may be treated with a targeted therapy. The drug binds to lymphoma cells, and the body destroys them.

People receive targeted therapy directly into a vein through a thin needle. The drug may cause nausea, vomiting, diarrhea, night sweats, or tingling hands or feet. Side effects usually go away after treatment ends.

You may want to read the NCI fact sheet *Targeted Cancer Therapies* to learn more about this type of treatment.

Questions you may want to ask your doctor about chemotherapy or targeted therapy

- Which drug or drugs do you suggest for me? What will they do?
- What are the possible side effects? What can we do about them?
- When will treatment start? When will it end? How often will I have treatments?
- How will we know the treatment is working?
- Will there be lasting side effects?

Radiation Therapy

Many people with classical or lymphocyte-predominant Hodgkin lymphoma receive radiation therapy after chemotherapy. Some people with lymphocyte-predominant Hodgkin lymphoma receive radiation therapy without chemotherapy. Radiation therapy can destroy lymphoma cells, shrink tumors, and help control pain.

Radiation therapy for Hodgkin lymphoma is usually given by a large machine outside the body. This kind of radiation therapy won't make you radioactive. While you're lying on a treatment table, the machine will aim high-energy rays that you can't see or feel at the areas affected by the Hodgkin lymphoma. Each treatment session usually lasts less than 30 minutes. You'll probably go to a hospital or clinic for radiation therapy 5 days a week for several weeks.

Side effects may develop during radiation therapy or years later. Side effects depend mainly on how much radiation is given and on what part of your body receives treatment. For example, radiation to your chest and neck may cause a cough or shortness of breath.

It's common for skin in the treated area to become red, dry, and itchy. Check with your doctor before using lotion or cream in that area. After treatment is over, your skin will slowly return to normal.

You're likely to become tired during radiation therapy, especially in the later weeks of treatment. Although getting enough rest is important, most people say they feel better when they exercise every day. Try to go for a short walk, do gentle stretching exercises, or do yoga.

It may help to know that, in most cases, the side effects of radiation therapy are not permanent. However, you may want to ask your doctor about the chance of possible long-term effects. After treatment is over, some people have an increased chance of developing a second cancer, such as breast or lung cancer. Also, radiation therapy aimed at the chest may cause heart or thyroid disease.

Women who have radiation therapy aimed at the pelvis may have hot flashes and vaginal dryness, and their menstrual periods may stop. Menstrual periods are more likely to return for younger women.

Radiation therapy aimed at the pelvis can make both women and men unable to have children. This side effect may be temporary or permanent. People with Hodgkin lymphoma who may want to have a child after treatment should ask their health care team about ways to preserve their eggs or sperm before radiation therapy starts.

The NCI booklet *Radiation Therapy and You* has helpful ideas for coping with radiation therapy side effects.

Questions you may want to ask your doctor about radiation therapy

- Why do I need this treatment?
- When will treatment start? When will it end? How often will I have treatments?
- How will we know the treatment is working?
- What side effects should I expect? What should I tell you about?
- Are there any lasting effects?

Stem Cell Transplant

Some people with Hodgkin lymphoma receive a stem cell transplant. A transplant of blood-forming **stem cells** allows you to be treated with high doses of chemotherapy. The high doses destroy both lymphoma cells and healthy blood cells in the bone marrow.

Stem cell transplants take place in the hospital. You may need to stay in the hospital for several weeks. After you receive high-dose chemotherapy to kill lymphoma cells, you'll receive healthy stem cells through a flexible tube placed in a large vein in your neck or chest area. New, healthy blood cells will develop from the transplanted stem cells. The healthy blood cells will replace the abnormal ones that were destroyed by treatment.

Healthy stem cells may come from you, or they may come from a family member or another donor. If the healthy stem cells will come from you, then stem cells will be removed from your body before you receive high-dose chemotherapy. The stem cells may be treated to kill any lymphoma cells that may be present, and the healthy stem cells are then frozen and stored until the stem cell transplant takes place.

You may want to read the NCI fact sheet *Bone Marrow Transplantation and Peripheral Blood Stem Cell Transplantation*. It tells about the types of transplants and their side effects.

Questions you may want to ask your doctor about stem cell transplants

- How long will I be in the hospital? Will I need special care? How will I be protected from germs?
- What care will I need when I leave the hospital?
- What are the risks and side effects? What can we do about them?
- How will we know if the treatment is working?
- What is my chance of a full recovery? How long will that take?



Eating well may help you feel better.

Nutrition

Eating well is important before, during, and after treatment for Hodgkin lymphoma. You need the right amount of calories to maintain a good weight. You also need enough protein to keep up your strength. Eating well may help you feel better and have more energy.

Sometimes, especially during or soon after treatment, you may not feel like eating. You may be uncomfortable or tired. You may find that foods don't taste as good as they used to. In addition, poor appetite, nausea, vomiting, mouth blisters, and other side effects of treatment can make it hard for you to eat.

Your doctor, a registered dietitian, or another health care provider can suggest ways to help you meet your nutrition needs. Also, the NCI booklet *Eating Hints* has many useful recipes and lists of foods that can help with side effects.

Follow-up Care

After treatment for Hodgkin lymphoma, you'll need regular checkups, such as every 3 or 4 months for the first year and less often after that.

Checkups help ensure that any changes in your health are noted and treated if needed. If you have any health problems between checkups, contact your doctor.

Hodgkin lymphoma may come back after treatment. Your doctor will check for the return of lymphoma. Checkups also help detect health problems that can result from cancer treatment, such as heart disease, thyroid disease, or cancer.

Checkups may include a physical exam, blood tests, chest x-rays, CT scans, or other tests.

You may find it helpful to read the NCI booklet *Facing Forward: Life After Cancer Treatment*. You may also want to read the NCI fact sheet *Follow-up Care After Cancer Treatment*.

Sources of Support

Learning that you have Hodgkin lymphoma can change your life and the lives of those close to you. These changes can be hard to handle. It's normal for you, your family, and your friends to need help coping with the feelings that a diagnosis of cancer can bring.

Concerns about treatments and managing side effects, hospital stays, and medical bills are common. You may also worry about caring for your family, keeping your job, or continuing your daily activities.

Here's where you can go for support:

- Doctors, nurses, and other members of your health care team can answer questions about treatment, working, or other activities.
- Social workers, counselors, or members of the clergy can be helpful if you want to talk about your feelings or concerns. Often, social workers can suggest resources for financial aid, transportation, home care, or emotional support.
- Support groups can also help. In these groups, people with Hodgkin lymphoma or their family members meet with other patients or their families to share what they have learned about coping with the disease and the effects of treatment. Groups may offer support in person, over the telephone, or on the Internet. You may want to talk with a member of your health care team about finding a support group.

- NCI's Cancer Information Service can help you locate programs, services, and NCI publications. Call **1-800-4-CANCER (1-800-422-6237)**. Or, chat using **LiveHelp (<https://livehelp.cancer.gov>)**, NCI's instant messaging service.

For tips on coping, you may want to read the NCI booklet *Taking Time: Support for People With Cancer*.

Words To Know

Definitions of thousands of terms are on NCI's website in NCI's Dictionary of Cancer Terms. You can access it at <http://www.cancer.gov/dictionary>.

Advanced cancer: Cancer that has spread to other places in the body and usually cannot be cured or controlled with treatment.

B cell: A type of white blood cell that makes antibodies. B cells are part of the immune system and develop from stem cells in the bone marrow. Also called B lymphocyte.

Bone marrow (bone MAYR-oh): The soft, sponge-like tissue in the center of most bones. It produces white blood cells, red blood cells, and platelets.

Cancer: A term for diseases in which abnormal cells divide without control and can invade nearby tissues. Cancer cells can also spread to other parts of the body through the blood and lymph systems. Also called malignancy.

Chemotherapy (KEE-moh-THAYR-uh-pee): Treatment with drugs that kill cancer cells.

Clinical trial: A type of research study that tests how well new medical approaches work in people. These studies test new methods of screening, prevention, diagnosis, or treatment of a disease. Also called clinical study.

Contrast material: A dye or other substance that helps show abnormal areas inside the body. It is given by injection into a vein, by enema, or by mouth. Contrast material may be used with x-rays, CT scans, MRI, or other imaging tests.

CT scan: A series of detailed pictures of areas inside the body taken from different angles. The pictures are created by a computer linked to an x-ray machine. Also called CAT scan, computed tomography scan, computerized axial tomography scan, and computerized tomography.

Diaphragm (DY-uh-fram): The thin muscle below the lungs and heart that separates the chest from the abdomen.

Early-stage cancer: A term used to describe cancer that is early in its growth, and may not have spread to other parts of the body. What is called early stage may differ between cancer types.

Hodgkin lymphoma (loo-KEE-mee-uh): Cancer that starts in blood-forming tissue such as the bone marrow and causes large numbers of blood cells to be produced and enter the bloodstream.

Intravenous (IN-truh-VEE-nus): Into or within a vein. Intravenous usually refers to a way of giving a drug or other substance through a needle or tube inserted into a vein. Also called IV.

Local anesthesia (A-nes-THEE-zhuh): A temporary loss of feeling in one small area of the body caused by special drugs or other substances called anesthetics. The patient stays awake but has no feeling in the area of the body treated with the anesthetic.

Lymph (limf): The clear fluid that travels through the lymphatic system and carries cells that help fight infections and other diseases. Also called lymphatic fluid.

Lymph node: A rounded mass of lymphatic tissue that is surrounded by a capsule of connective tissue. Lymph nodes filter lymph (lymphatic fluid), and they store lymphocytes (white blood cells). They are located along lymphatic vessels. Also called lymph gland.

Lymph system: The tissues and organs that produce, store, and carry white blood cells that fight infections and other diseases. This system includes the bone marrow, spleen, thymus, lymph nodes, and lymphatic vessels (a network of thin tubes that carry lymph and white blood cells). Lymphatic vessels branch, like blood vessels, into all the tissues of the body. Also called lymphatic system.

Lymph vessel (limf): A thin tube that carries lymph (lymphatic fluid) and white blood cells through the lymphatic system. Also called lymphatic vessel.

Lymphocyte: A type of immune cell that is made in the bone marrow and is found in the blood and in lymph tissue. The two main types of lymphocytes are B lymphocytes and T lymphocytes. B lymphocytes make antibodies, and T lymphocytes help kill tumor cells and help control immune responses. A lymphocyte is a type of white blood cell.

Lymphocyte-predominant Hodgkin lymphoma (LIM-foh-site preh-DAH-mih-nunt HOJ-kin lim-FOH-muh): A rare type of Hodgkin lymphoma, which is a cancer of the immune system. It is marked by the presence of lymphocyte-predominant cells, which used to be called popcorn cells and which are different from the typical Reed-Sternberg cells found in classical Hodgkin lymphoma. This type of Hodgkin lymphoma may change into diffuse large B-cell lymphoma. Also called LPHL, nodular lymphocyte-predominant Hodgkin lymphoma, and NLPHL.

Medical oncologist (MEH-dih-kul on-KAH-loh-jist): A doctor who specializes in diagnosing and treating cancer using chemotherapy, targeted therapy, hormonal therapy, and biological therapy. A medical oncologist often is the main health care provider for someone who has cancer. A medical oncologist also gives supportive care and may coordinate treatment given by other specialists.

Oncology nurse (on-KAH-loh-jee): A nurse who specializes in treating and caring for people who have cancer.

Organ: A part of the body that performs a specific function. For example, the heart is an organ.

PET scan: A procedure in which a small amount of radioactive glucose (sugar) is injected into a vein, and a scanner is used to make detailed, computerized pictures of areas inside the body where the glucose is taken up. Because cancer cells often take up more glucose than normal cells, the pictures can be used to find cancer cells in the body. Also called positron emission tomography scan.

Radiation oncologist (RAY-dee-AY-shun on-KAH-loh-jist): A doctor who specializes in using radiation to treat cancer.

Radiation therapy (RAY-dee-AY-shun THAYR-uh-pee): The use of high-energy radiation from x-rays, gamma rays, neutrons, protons, and other sources to kill cancer cells and shrink tumors. Radiation may come from a machine outside the body (external-beam radiation therapy), or it may come from radioactive material placed in the body near cancer cells (internal radiation therapy). Systemic radiation therapy uses a radioactive substance, such as a radiolabeled monoclonal antibody, that travels in the blood to tissues throughout the body. Also called irradiation and radiotherapy.

Radioactive (RAY-dee-oh-AK-tiv): Giving off radiation.

Reed-Sternberg cell: A type of cell that appears in people with Hodgkin disease. The number of these cells increases as the disease advances.

Registered dietitian (dy-eh-TIH-shun): A health professional with special training in the use of diet and nutrition to keep the body healthy. A registered dietitian may help the medical team improve the nutritional health of a patient.

Side effect: A problem that occurs when treatment affects healthy tissues or organs. Some common side effects of cancer treatment are fatigue, pain, nausea, vomiting, decreased blood cell counts, hair loss, and mouth sores.

Social worker: A professional trained to talk with people and their families about emotional or physical needs, and to find them support services.

Spleen: An organ that is part of the lymphatic system. The spleen makes lymphocytes, filters the blood, stores blood cells, and destroys old blood cells. It is located on the left side of the abdomen near the stomach.

Stem cell: A cell from which other types of cells develop. For example, blood cells develop from blood-forming stem cells.

Stem cell transplant: A method of replacing immature blood-forming cells in the bone marrow that have been destroyed by drugs, radiation, or disease. Stem cells are injected into the patient and make healthy blood cells. A stem cell transplant may be autologous (using a patient's own stem cells that were saved before treatment), allogeneic (using stem cells donated by someone who is not an identical twin), or syngeneic (using stem cells donated by an identical twin).

T cell: A type of white blood cell. T cells are part of the immune system and develop from stem cells in the bone marrow. They help protect the body from infection and may help fight cancer. Also called T lymphocyte and thymocyte.

Targeted therapy (TAR-geh-ted THAYR-uh-pee): A type of treatment that uses drugs or other substances, such as monoclonal antibodies, to identify and attack specific cancer cells.

Thymus (THY-mus): An organ that is part of the lymphatic system, in which T lymphocytes grow and multiply. The thymus is in the chest behind the breastbone.

Tissue: A group or layer of cells that work together to perform a specific function.

Tonsil: One of two small masses of lymphoid tissue on either side of the throat.

White blood cell: A type of immune cell. Most white blood cells are made in the bone marrow and are found in the blood and lymph tissue. White blood cells help the body fight infections and other diseases. Granulocytes, monocytes, and lymphocytes are white blood cells. Also called leukocyte and WBC.

X-ray: A type of radiation used in the diagnosis and treatment of cancer and other diseases. In low doses, x-rays are used to diagnose diseases by making pictures of the inside of the body. In high doses, x-rays are used to treat cancer.

For the Latest Information About Hodgkin lymphoma

Visit NCI's website at <http://www.cancer.gov/cancertopics/types/hodgkin>

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