

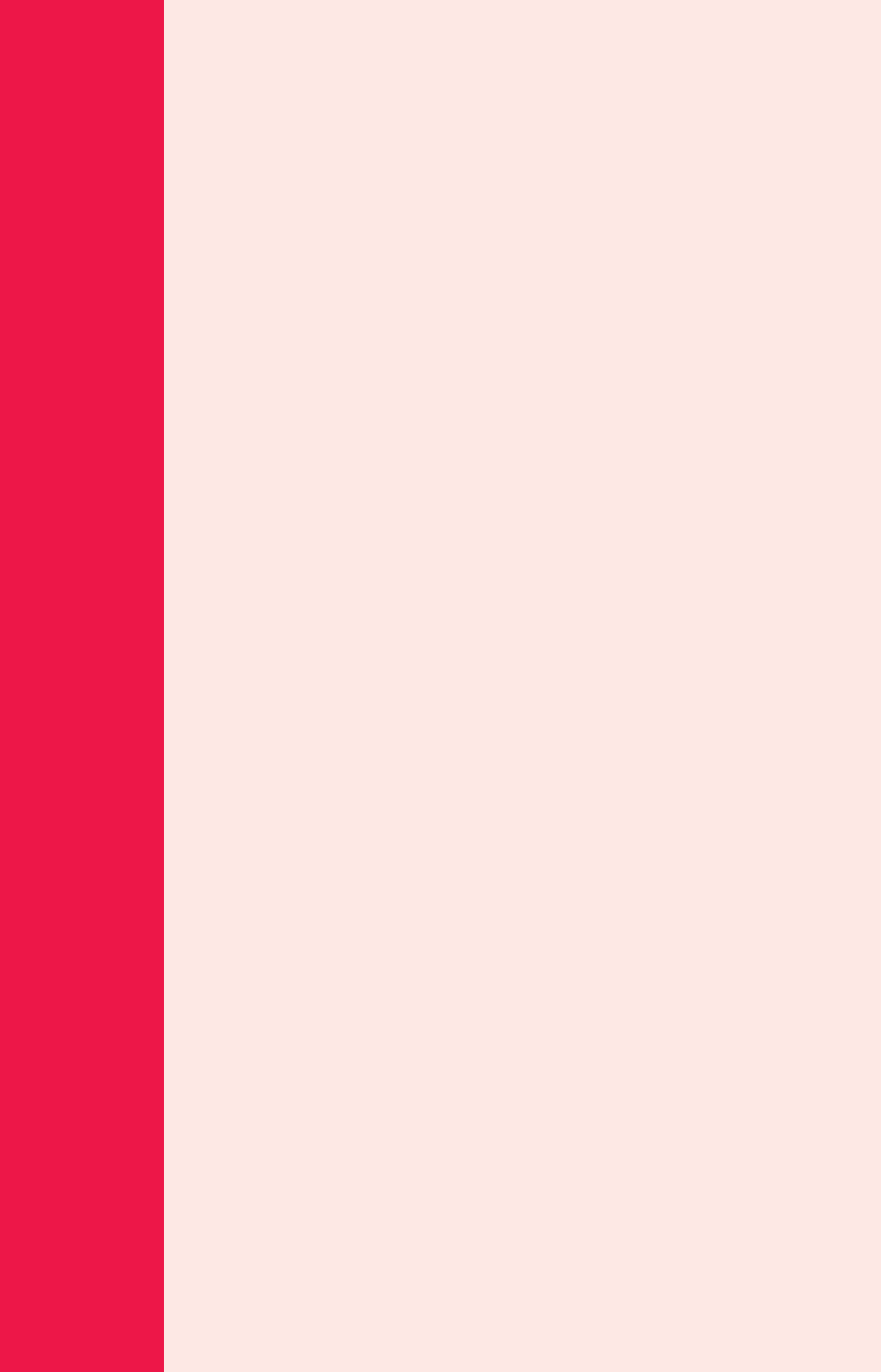
National Cancer Institute

What You Need
To Know About™

Non-Hodgkin Lymphoma

**U.S. DEPARTMENT OF
HEALTH AND HUMAN SERVICES**

National Institutes of Health



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About This Booklet

This National Cancer Institute (NCI) booklet is about *non-Hodgkin lymphoma*,* a *cancer* that starts in the *immune system*. Non-Hodgkin lymphoma is also called NHL. Each year, more than 63,000 Americans learn they have non-Hodgkin lymphoma.

This booklet is only about non-Hodgkin lymphoma. It is not about *Hodgkin lymphoma* (also called Hodgkin disease).

People with Hodgkin lymphoma have different treatment options. Instead of this booklet, they may want to read *What You Need To Know About™ Hodgkin Lymphoma*. Page 46 tells how to get NCI booklets.

This booklet tells about diagnosis, treatment, and *supportive care*. Learning about the medical care for people with lymphoma can help you take an active part in making choices about your own care.

This booklet has lists of questions 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 or ask whether you may use a tape recorder. You may also want to have a family member or friend go with you when you talk with the doctor—to take part in the discussion, to take notes, or just to listen.

*Words in *italics* are in the Dictionary on page 30. The Dictionary explains these terms. It also shows how to pronounce them.

For the latest information about lymphoma, please visit our Web site at <http://www.cancer.gov/cancertopics/types/non-hodgkin>. Or, contact our Cancer Information Service. We can answer your questions about cancer. We can send you NCI booklets and fact sheets. Call **1-800-4-CANCER** (1-800-422-6237) or instant message us through the **LiveHelp** service at <http://www.cancer.gov/help>.

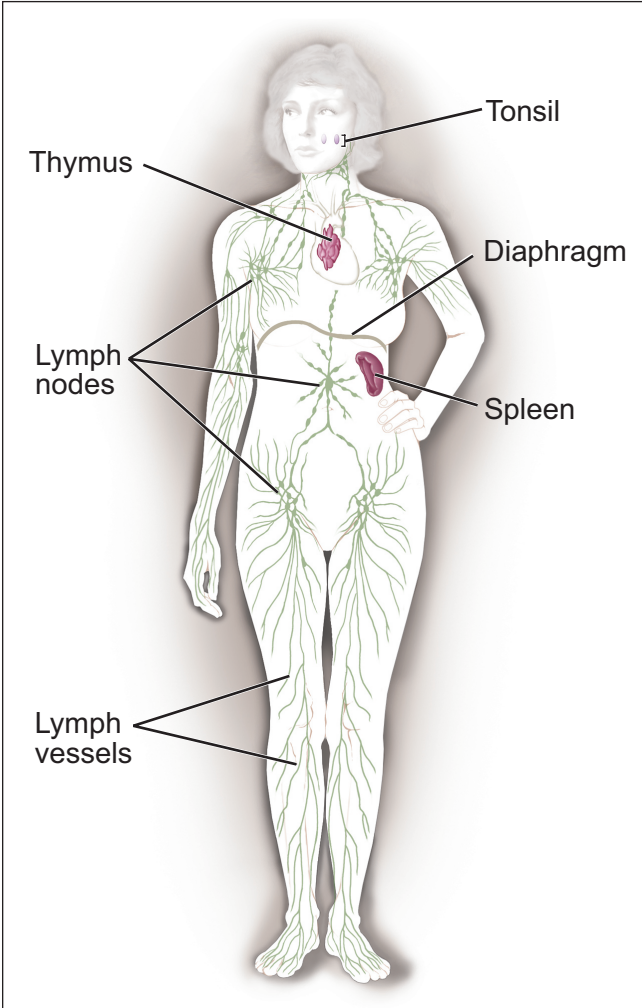
What Is Non-Hodgkin Lymphoma?

Non-Hodgkin lymphoma is cancer that begins in *cells* of the immune system. The immune system fights *infections* and other diseases.

The *lymphatic system* is part of the immune system. The lymphatic system includes the following:

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

Because lymphatic tissue is in many parts of the body, lymphoma can start almost anywhere. Usually, it's first found in a lymph node.



This picture shows lymph nodes above and below the diaphragm. It also shows the lymph vessels, tonsils, thymus, and spleen.

Non-Hodgkin Lymphoma Cells

Non-Hodgkin lymphoma begins when a lymphocyte (usually a B cell) becomes abnormal. The abnormal cell divides to make copies of itself. The new cells divide again and again, making more and more abnormal cells. The abnormal cells don't die when they should. They don't protect the body from infections or other diseases. The buildup of extra cells often forms a mass of tissue called a growth or *tumor*.

See the Staging section on page 9 for information about lymphoma that has spread.

Risk Factors

Doctors seldom know why one person develops non-Hodgkin lymphoma and another does not. But research shows that certain *risk factors* increase the chance that a person will develop this disease.

In general, the risk factors for non-Hodgkin lymphoma include the following:

- **Weakened immune system:** The risk of developing lymphoma may be increased by having a weakened immune system (such as from an *inherited* condition or certain drugs used after an organ transplant).
- **Certain infections:** Having certain types of infections increases the risk of developing lymphoma. However, lymphoma is not contagious. You cannot catch lymphoma from another person.

The following are the main types of infection that can increase the risk of lymphoma:

- *Human immunodeficiency virus* (HIV): HIV is the *virus* that causes *AIDS*. People who have HIV infection are at much greater risk of some types of non-Hodgkin lymphoma.

- *Epstein-Barr virus (EBV)*: Infection with EBV has been linked to an increased risk of lymphoma. In Africa, EBV infection is linked to *Burkitt lymphoma*.
 - *Helicobacter pylori*: *H. pylori* are bacteria that can cause stomach ulcers. They also increase a person's risk of lymphoma in the stomach lining.
 - *Human T-cell leukemia/lymphoma virus (HTLV-1)*: Infection with HTLV-1 increases a person's risk of lymphoma and *leukemia*.
 - *Hepatitis C virus*: Some studies have found an increased risk of lymphoma in people with hepatitis C virus. More research is needed to understand the role of hepatitis C virus.
- **Age**: Although non-Hodgkin lymphoma can occur in young people, the chance of developing this disease goes up with age. Most people with non-Hodgkin lymphoma are older than 60. (For information about this disease in children, call the Cancer Information Service at **1-800-4-CANCER**.)

Researchers are studying *obesity* and other possible risk factors for non-Hodgkin lymphoma. People who work with *herbicides* or certain other chemicals may be at increased risk of this disease. Researchers are also looking at a possible link between using hair dyes before 1980 and non-Hodgkin lymphoma.

Having one or more risk factors does not mean that a person will develop non-Hodgkin lymphoma. Most people who have risk factors never develop cancer.

Symptoms

Non-Hodgkin lymphoma can cause many symptoms:

- Swollen, painless lymph nodes in the neck, armpits, or groin
- Unexplained weight loss
- Fever
- Soaking night sweats
- Coughing, trouble breathing, or chest pain
- Weakness and tiredness that don't go away
- Pain, swelling, or a feeling of fullness in the abdomen

Most often, these symptoms are not due to cancer. Infections or other health problems may also cause these symptoms. Anyone with symptoms that do not go away within 2 weeks should see a doctor so that problems can be diagnosed and treated.

Diagnosis

If you have swollen lymph nodes or another symptom that suggests non-Hodgkin lymphoma, your doctor will try to find out what's causing the problem. Your doctor may ask about your personal and family medical history.

You may have some of the following exams and tests:

- **Physical exam:** Your doctor checks for swollen lymph nodes in your neck, underarms, and groin. Your doctor also checks for a swollen spleen or liver.

- **Blood tests:** The lab does a *complete blood count* to check the number of white blood cells. The lab also checks for other cells and substances, such as *lactate dehydrogenase* (LDH). Lymphoma may cause a high level of LDH.
- **Chest x-rays:** You may have x-rays to check for swollen lymph nodes or other signs of disease in your chest.
- **Biopsy:** A biopsy is the only sure way to diagnose lymphoma. Your doctor may remove an entire lymph node (*excisional biopsy*) or only part of a lymph node (*incisional biopsy*). A thin needle (*fine needle aspiration*) usually cannot remove a large enough sample for the *pathologist* to diagnose lymphoma. Removing an entire lymph node is best. The pathologist uses a microscope to check the tissue for lymphoma cells.

You may want to ask the doctor these questions before having a biopsy:

- How will the biopsy be done?
- Where will I have my biopsy?
- Will I have to do anything to prepare for it?
- How long will it take? Will I be awake? Will it hurt?
- Are there any risks? What are the chances of swelling, infection, or bleeding after the biopsy?
- How long will it take me to recover?
- How soon will I know the results? Who will explain them to me?
- If I do have cancer, who will talk to me about the next steps? When?



Types of Non-Hodgkin Lymphoma

When lymphoma is found, the pathologist reports the type. There are many types of lymphoma. The most common types are *diffuse large B-cell lymphoma* and *follicular lymphoma*.

Lymphomas may be grouped by how quickly they are likely to grow:

- *Indolent* (also called *low-grade*) *lymphomas* grow slowly. They tend to cause few symptoms.
- *Aggressive* (also called *intermediate-grade* and *high-grade*) *lymphomas* grow and spread more quickly. They tend to cause severe symptoms. Over time, many indolent lymphomas become aggressive lymphomas.

It's a good idea to get a second opinion about the type of lymphoma that you have. The treatment plan varies by the type of lymphoma. A pathologist at a major referral center can review your biopsy. See the Second Opinion section on page 22 for more information.

Staging

Your doctor needs to know the extent (stage) of non-Hodgkin lymphoma to plan the best treatment. Staging is a careful attempt to find out what parts of the body are affected by the disease.

Lymphoma usually starts in a lymph node. It can spread to nearly any other part of the body. For example, it can spread to the liver, lungs, bone, and *bone marrow*.

Staging may involve some of these tests:

- ***Bone marrow biopsy:*** The doctor uses 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. A pathologist looks for lymphoma cells in the sample.
- ***CT scan:*** An x-ray machine linked to a computer takes a series of detailed pictures of your head, neck, chest, abdomen, or *pelvis*. You may receive an *injection of contrast material*. Also, you may be asked to drink another type of contrast material. The contrast material makes it easier for the doctor to see swollen lymph nodes and other abnormal areas on the x-ray.

- **MRI:** Your doctor may order MRI pictures of your *spinal cord*, bone marrow, or brain. MRI uses a powerful magnet linked to a computer. It makes detailed pictures of tissue on a computer screen or film.
- **Ultrasound:** An ultrasound device sends out sound waves that you cannot hear. A small hand-held device is held against your body. The waves bounce off nearby tissues, and a computer uses the echoes to create a picture. Tumors may produce echoes that are different from the echoes made by healthy tissues. The picture can show possible tumors.
- **Spinal tap:** The doctor uses a long, thin needle to remove fluid from the spinal column. Local anesthesia can help control pain. You must lie flat for a few hours afterward so that you don't get a headache. The lab checks the fluid for lymphoma cells or other problems.
- **PET scan:** You receive an injection of a small amount of *radioactive* sugar. A machine makes computerized pictures of the sugar being used by cells in your body. Lymphoma cells use sugar faster than normal cells, and areas with lymphoma look brighter on the pictures.

The stage is based on where lymphoma cells are found (in the lymph nodes or in other organs or tissues). The stage also depends on how many areas are affected. The stages of non-Hodgkin lymphoma are as follows:

- **Stage I:** The lymphoma cells are in one lymph node group (such as in the neck or underarm). Or, if the abnormal cells are not in the lymph nodes, they are in only one part of a tissue or organ (such as the lung, but not the liver or bone marrow).

- **Stage II:** The lymphoma cells are in at least two lymph node groups on the same side of (either above or below) the *diaphragm*. (See the picture of the diaphragm on page 3.) Or, the lymphoma cells are in one part of an organ and the lymph nodes near that organ (on the same side of the diaphragm). There may be lymphoma cells in other lymph node groups on the same side of the diaphragm.
- **Stage III:** The lymphoma is in lymph nodes above and below the diaphragm. It also may be found in one part of a tissue or an organ near these lymph node groups.
- **Stage IV:** Lymphoma cells are found in several parts of one or more organs or tissues (in addition to the lymph nodes). Or, it is in the liver, blood, or bone marrow.
- **Recurrent:** The disease returns after treatment.

In addition to these stage numbers, your doctor may also describe the stage as A or B:

- **A:** You have not had weight loss, drenching night sweats, or fevers.
- **B:** You have had weight loss, drenching night sweats, or fevers.

Treatment

Your doctor can describe your treatment choices and the expected results. You and your doctor can work together to develop a treatment plan that meets your needs.

Your doctor may refer you to a specialist, or you may ask for a referral. Specialists who treat non-Hodgkin lymphoma include *hematologists*, *medical oncologists*, and *radiation oncologists*. Your doctor may suggest that you choose an oncologist who specializes in the treatment of lymphoma. Often, such doctors are associated with major academic centers. Your health care team may also include an *oncology nurse* and a *registered dietitian*.

The choice of treatment depends mainly on the following:

- The type of non-Hodgkin lymphoma (for example, follicular lymphoma)
- Its stage (where the lymphoma is found)
- How quickly the cancer is growing (whether it is indolent or aggressive lymphoma)
- Your age
- Whether you have other health problems

If you have indolent non-Hodgkin lymphoma without symptoms, you may not need treatment for the cancer right away. The doctor watches your health closely so that treatment can start when you begin to have symptoms. Not getting cancer treatment right away is called *watchful waiting*.

If you have indolent lymphoma with symptoms, you will probably receive *chemotherapy* and *biological therapy*. *Radiation therapy* may be used for people with Stage I or Stage II lymphoma.

If you have aggressive lymphoma, the treatment is usually chemotherapy and biological therapy. Radiation therapy also may be used.

If non-Hodgkin lymphoma comes back after treatment, doctors call this a *relapse* or *recurrence*. People whose lymphoma comes back after treatment may receive high doses of chemotherapy, radiation therapy, or both, followed by *stem cell transplantation*.

You may want to know about *side effects* and how treatment may change your normal activities. Because chemotherapy and radiation therapy often damage healthy cells and tissues, side effects are common. Side effects may not be the same for each person, and they may change from one treatment session to the next. Before treatment starts, your health care team will explain possible side effects and suggest ways to help you manage them.

At any stage of the disease, you can have supportive care. Supportive care is treatment to control pain and other symptoms, to relieve the side effects of therapy, and to help you cope with the feelings that a diagnosis of cancer can bring. See the Supportive Care section on page 24.

You may want to talk to your doctor about taking part in a *clinical trial*, a research study of new treatment methods. See the Taking Part in Cancer Research section on page 28.

You may want to ask the doctor these questions before you begin treatment:

- What type of lymphoma do I have? May I have a copy of the report from the pathologist?
- What is the stage of my disease? Where are the tumors?
- What are my treatment choices? Which do you recommend for me? Why?
- Will I have more than one kind of treatment?
- What are the expected benefits of each kind of treatment? How will we know the treatment is working? What tests will be used to check its effectiveness? How often will I get these tests?
- What are the risks and possible side effects of each treatment? What can we do to control the side effects?
- How long will treatment last?
- Will I have to stay in the hospital? If so, for how long?
- What can I do to take care of myself during treatment?
- What is the treatment likely to cost? Will my insurance cover the cost?
- How will treatment affect my normal activities?
- Would a clinical trial be right for me?
- How often will I need checkups?

Watchful Waiting

People who choose watchful waiting put off having cancer treatment until they have symptoms. Doctors sometimes suggest watchful waiting for people with indolent lymphoma. People with indolent lymphoma may not have problems that require cancer treatment for a long time. Sometimes the tumor may even shrink for a while without therapy. By putting off treatment, they can avoid the side effects of chemotherapy or radiation therapy.

If you and your doctor agree that watchful waiting is a good idea, the doctor will check you regularly (every 3 months). You will receive treatment if symptoms occur or get worse.

Some people do not choose watchful waiting because they don't want to worry about having cancer that is not treated. Those who choose watchful waiting but later become worried should discuss their feelings with the doctor.

You may want to ask the doctor these questions before choosing watchful waiting:

- If I choose watchful waiting, can I change my mind later on?
- Will the disease be harder to treat later?
- How often will I have checkups?
- Between checkups, what problems should I report?

Chemotherapy

Chemotherapy for lymphoma uses drugs to kill lymphoma cells. It is called *systemic therapy* because the drugs travel through the bloodstream. The drugs can reach lymphoma cells in almost all parts of the body.

You may receive chemotherapy by mouth, through a vein, or in the space around the spinal cord. Treatment is usually in an outpatient part of the hospital, at the doctor's office, or at home. Some people need to stay in the hospital during treatment.

Chemotherapy is given in cycles. You have a treatment period followed by a rest period. The length of the rest period and the number of cycles depend on the stage of your disease and on the anticancer drugs used.

If you have lymphoma in the stomach caused by *H. pylori* infection, your doctor may treat this lymphoma with *antibiotics*. After the drug cures the infection, the lymphoma also may go away.

The side effects of chemotherapy depend mainly on which drugs are given and how much. The drugs can harm normal cells that divide rapidly:

- **Blood cells:** When chemotherapy lowers your levels of healthy blood cells, you are more likely to get infections, bruise or bleed easily, and feel very weak and tired. Your health care team gives you blood tests to check for low levels of blood cells. If levels are low, there are medicines that can help your body make new blood cells.
- **Cells in hair roots:** Chemotherapy may cause hair loss. If you lose your hair, it will grow back, but it may be somewhat different in color and texture.

- **Cells that line the *digestive tract*:** Chemotherapy can cause poor appetite, nausea and vomiting, diarrhea, trouble swallowing, or mouth and lip sores. Ask your health care team about medicines or other treatments that help with these problems.

The drugs used for non-Hodgkin lymphoma also may cause skin rashes or blisters, and headaches or other aches. Your skin may become darker. Your nails may develop ridges or dark bands.

Your doctor can suggest ways to control many of these side effects. You may find it helpful to read NCI's booklet *Chemotherapy and You*. Page 46 tells how to get NCI booklets.

You may want to ask the doctor these questions before having chemotherapy:

- Which drug or drugs will I have?
- When will treatment start? When will it end?
How often will I have treatments?
- What side effects should I tell you about? Can I prevent or treat any of these side effects?
- Will there be lasting side effects?

Biological Therapy

People with certain types of non-Hodgkin lymphoma may have biological therapy. This type of treatment helps the immune system fight cancer.

Monoclonal antibodies are the type of biological therapy used for lymphoma. They are proteins made in the lab that can bind to cancer cells. They help the immune system kill lymphoma cells. People receive this treatment through a vein at the doctor's office, clinic, or hospital.

Flu-like symptoms such as fever, chills, headache, weakness, and nausea may occur. Most side effects are easy to treat. Rarely, a person may have more serious side effects, such as breathing problems, low blood pressure, or severe skin rashes. Your doctor or nurse can tell you about the side effects that you can expect and how to manage them.

You may find it helpful to read NCI's booklet *Biological Therapy*. Page 46 tells how to get NCI booklets.

You may want to ask the doctor these questions before having biological therapy:

- What will the treatment do?
- Will I have to stay in the hospital?
- How will we know if the treatment is working?
- How long will I be on biological therapy?
- Will I have side effects during treatment? How long will they last? What can we do about them?

Radiation Therapy

Radiation therapy (also called radiotherapy) uses high-energy rays to kill non-Hodgkin lymphoma cells. It can shrink tumors and help control pain.

Two types of radiation therapy are used for people with lymphoma:

- **External radiation:** A large machine aims the rays at the part of the body where lymphoma cells have collected. This is *local therapy* because it affects cells in the treated area only. Most people go to a hospital or clinic for treatment 5 days a week for several weeks.
- **Systemic radiation:** Some people with lymphoma receive an injection of radioactive material that travels throughout the body. The radioactive material is bound to monoclonal antibodies that seek out lymphoma cells. The radiation destroys the lymphoma cells.

The side effects of radiation therapy depend mainly on the type of radiation therapy, the dose of radiation, and the part of the body that is treated. For example, external radiation to your abdomen can cause nausea, vomiting, and diarrhea. When your chest and neck are treated, you may have a dry, sore throat and some trouble swallowing. In addition, your skin in the treated area may become red, dry, and tender. You also may lose your hair in the treated area.

You are likely to become very tired during external radiation therapy, especially in the later weeks of treatment. Resting is important, but doctors usually advise people to try to stay as active as they can.

People who get systemic radiation also may feel very tired. They may be more likely to get infections.

If you have radiation therapy and chemotherapy at the same time, your side effects may be worse. The side effects can be distressing. You can talk with your doctor about ways to relieve them.

You may find it helpful to read NCI's booklet *Radiation Therapy and You*. Page 46 tells how to get NCI booklets.

You may want to ask the doctor these questions before starting radiation therapy:

- Why do I need this treatment?
- When will the treatments begin? When will they end?
- What are the risks and side effects of this treatment? What can we do about them?
- How will I feel during treatment?
- How will treatment affect my normal activities?
- Are there any lasting effects?

Stem Cell Transplantation

If lymphoma returns after treatment, you may receive stem cell transplantation. A transplant of blood-forming *stem cells* allows you to receive high doses of chemotherapy, radiation therapy, or both. The high doses destroy both lymphoma cells and healthy blood cells in your bone marrow.

Stem cell transplants take place in the hospital. After you receive high-dose treatment, healthy blood-forming stem cells are given to you through a flexible tube placed in a large vein in your neck or chest area. New blood cells develop from the transplanted stem cells.

The stem cells may come from your own body or from a donor:

- ***Autologous stem cell transplantation:*** This type of transplant uses your own stem cells. Your stem cells are removed before high-dose treatment. The cells may be treated to kill lymphoma cells that may be present. The stem cells are frozen and stored. After you receive high-dose treatment, the stored stem cells are thawed and returned to you.
- ***Allogeneic stem cell transplantation:*** Sometimes healthy stem cells from a donor are available. Your brother, sister, or parent may be the donor. Or the stem cells may come from an unrelated donor. Doctors use blood tests to be sure the donor's cells match your cells.
- ***Syngeneic stem cell transplantation:*** This type of transplant uses stem cells from a patient's healthy identical twin.

You may find it helpful to read NCI's fact sheet *Bone Marrow Transplantation and Peripheral Blood Stem Cell Transplantation: Questions and Answers*. Page 46 tells how to get NCI fact sheets.

You may want to ask the doctor these questions before having a stem cell transplant:

- What are the possible benefits and risks of different types of transplants?
- What kind of stem cell transplant will I have? If I need a donor, how will we find one?
- How long will I need to be in the hospital? Will I need special care? How will I be protected from germs?
- How will we know if the treatment is working?
- What can we do about side effects?
- How will treatment affect my normal activities?
- What is my chance of a full recovery?

Second Opinion

Before starting treatment, you might want a second opinion about your diagnosis and your treatment plan. Many insurance companies cover a second opinion if you or your doctor requests it.

It may take some time and effort to gather your medical records and see another doctor. In most cases, a brief delay in starting treatment will not make treatment less effective. To make sure, you should discuss this delay with your doctor. Sometimes people with non-Hodgkin lymphoma need treatment right away.

There are many ways to find a doctor for a second opinion. You can ask your doctor, a local or state medical society, a nearby hospital, or a medical school for names of specialists. Other sources can be found in the NCI fact sheet *How To Find a Doctor or Treatment Facility If You Have Cancer*.

Nonprofit groups with an interest in lymphoma may be of help. Many such groups are listed in the NCI fact sheet *National Organizations That Offer Services to People With Cancer and Their Families*. Page 46 tells how to get NCI fact sheets.



Supportive Care

Non-Hodgkin lymphoma and its treatment can lead to other health problems. You may receive supportive care to prevent or control these problems and to improve your comfort and quality of life during treatment.

You may receive antibiotics and other drugs to help protect you from infections. Your health care team may advise you to stay away from crowds and from people with colds and other contagious diseases. If an infection develops, it can be serious, and you will need treatment right away.

Non-Hodgkin lymphoma and its treatment also can lead to *anemia*, which may make you feel very tired. Drugs or *blood transfusions* can help with this problem.

You can get information about supportive care on NCI's Web site at <http://www.cancer.gov/cancerinfo/coping> and from NCI's Cancer Information Service at **1-800-4-CANCER**.

Nutrition and Physical Activity

It's important for you to take care of yourself by eating well and staying as active as you can.

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 do not taste as good as they used to. In addition, the side effects of treatment (such as poor appetite, nausea, vomiting, or mouth sores) can make it hard to eat well. Your doctor, a registered dietitian, or another health care provider can suggest ways to deal with these problems. Also, the NCI booklet *Eating Hints for Cancer Patients* has many useful ideas and recipes. Page 46 tells how to get NCI booklets.

Many people find they feel better when they stay active. Walking, yoga, swimming, and other activities can keep you strong and increase your energy. Exercise may reduce nausea and pain and make treatment easier to handle. It also can help relieve stress. Whatever physical activity you choose, be sure to talk to your doctor before you start. Also, if your activity causes you pain or other problems, be sure to let your doctor or nurse know about it.

Follow-up Care

You'll need regular checkups after treatment for non-Hodgkin lymphoma. Your doctor will watch your recovery closely and check for recurrence of the lymphoma. Checkups help make sure that any changes in your health are noted and treated as needed. Checkups may include a physical exam, lab tests, chest x-rays, and other procedures. Between scheduled visits, you should contact the doctor right away if you have any health problems.

You may want to read the NCI booklet *Facing Forward: Life After Cancer Treatment*. It answers questions about follow-up care and other concerns. Page 46 tells how to get NCI booklets.

You may want to ask your doctor these questions after you have finished treatment:

- How often will I need checkups?
- Which follow-up tests do you suggest for me?
- Between checkups, what health problems or symptoms should I tell you about?

Sources of Support

Learning you have non-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 have many different and sometimes confusing feelings.

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

Here's where you can go for support:

- Doctors, nurses, and other members of your health care team can answer many of your 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, patients 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.
- Information specialists at **1-800-4-CANCER** and at **LiveHelp** (<http://www.cancer.gov/help>) can help you locate programs, services, and publications. They can give you names of national organizations that offer services to people with cancer and their families.

For tips on coping, you may want to read the NCI booklet *Taking Time: Support for People With Cancer*. Page 46 tells how to get NCI booklets.



Taking Part in Cancer Research

Doctors all over the country are studying new ways to treat lymphoma. Clinical trials (research studies in which people volunteer to take part) find out whether promising approaches to treatment are safe and effective. Research already has led to advances.

Researchers are studying many types of treatments for lymphoma:

- **Chemotherapy:** Doctors are testing new drugs that kill cancer cells. They are working with many drugs and drug combinations. They also are looking at ways of combining drugs with other treatments, such as biological therapy.
- **Radiation therapy:** Doctors are testing radiation treatment alone and with chemotherapy.
- **Biological therapy:** New types of biological therapy are under study. For example, researchers are making cancer *vaccines* that may help the immune system kill lymphoma cells. Also, doctors are studying a type of biological therapy that delivers radiation directly to cancer cells.
- **Stem cell transplantation:** Doctors are studying stem cell transplantation in people with newly diagnosed lymphoma and those who have already been treated.

People who join clinical trials may be among the first to benefit if a new approach is effective. And even if participants do not benefit directly, they still help doctors learn more about lymphoma and how to control it. Although clinical trials may pose some risks, researchers do all they can to protect their patients.

If you are interested in being part of a clinical trial, you should talk with your doctor. You may want to read the NCI booklet *Taking Part in Cancer Treatment Research Studies*. It describes how treatment studies are carried out and explains their possible benefits and risks. Page 46 tells how to get NCI booklets.

NCI's Web site includes a section on clinical trials at **<http://www.cancer.gov/clinicaltrials>**. It has general information about clinical trials as well as detailed information about specific ongoing studies of new treatments for non-Hodgkin lymphoma. Information specialists at **1-800-4-CANCER** or at **LiveHelp** can answer questions and provide information about clinical trials.

Dictionary

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

Abdomen (AB-doh-men): The area of the body that contains the pancreas, stomach, intestines, liver, gallbladder, and other organs.

Aggressive lymphoma: A type of lymphoma that grows and spreads quickly, and has severe symptoms. It is seen frequently in patients who are HIV-positive (AIDS-related lymphoma). Also called intermediate-grade lymphoma or high-grade lymphoma.

AIDS: Acquired immunodeficiency syndrome (uh-KWY-erd IH-myoo-noh-dih-FIH-shun-see SIN-drome). A disease caused by human immunodeficiency virus (HIV). People with AIDS are at an increased risk for developing certain cancers and for infections that usually occur only in individuals with a weak immune system.

Allogeneic stem cell transplantation (A-loh-jeh-NAY-ik stem sel tranz-plan-TAY-shun): A procedure in which a person receives blood-forming stem cells (cells from which all blood cells develop) from a genetically similar, but not identical, donor. This is often a sister or brother, but could be an unrelated donor.

Anemia (a-NEE-mee-a): A condition in which the number of red blood cells is below normal.

Antibiotic (an-tih-by-AH-tik): A drug used to treat infections caused by bacteria and other microorganisms.

Autologous stem cell transplantation (aw-TAH-luh-gus stem sel tranz-plan-TAY-shun): A procedure in which blood-forming stem cells (cells from which all blood cells develop) are removed, stored, and later given back to the same person.

B cell: A white blood cell that comes from bone marrow. As part of the immune system, B cells make antibodies and help fight infections. Also called B lymphocyte.

Bacteria (bak-TEER-ee-uh): A large group of single-cell microorganisms. Some cause infections and disease in animals and humans. The singular of bacteria is bacterium.

Biological therapy (BY-oh-LAH-jih-kul THAYR-uh-pee): Treatment to boost or restore the ability of the immune system to fight cancer, infections, and other diseases. Also used to lessen certain side effects that may be caused by some cancer treatments. Agents used in biological therapy include monoclonal antibodies, growth factors, and vaccines. These agents may also have a direct antitumor effect. Also called immunotherapy, biotherapy, biological response modifier therapy, and BRM therapy.

Biopsy (BY-op-see): The removal of cells or tissues for examination by a pathologist. The pathologist may study the tissue under a microscope or perform other tests on the cells or tissue. When only a sample of tissue is removed, the procedure is called an incisional biopsy. When an entire lump or suspicious area is removed, the procedure is called an excisional biopsy. When a sample of tissue or fluid is removed with a needle, the procedure is called a needle biopsy, core biopsy, or fine-needle aspiration.

Blood transfusion: The administration of blood or blood products into a blood vessel.

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

Bone marrow biopsy (MAYR-oh BY-op-see): The removal of a sample of tissue from the bone marrow with a needle for examination under a microscope.

Burkitt lymphoma (BER-kit lim-FOH-muh): An aggressive (fast-growing) type of B-cell non-Hodgkin lymphoma that occurs most often in children and young adults. The disease may affect the jaw, central nervous system, bowel, kidneys, ovaries, or other organs. There are three main types of Burkitt lymphoma (sporadic, endemic, and immunodeficiency related). Sporadic Burkitt lymphoma occurs throughout the world, and endemic Burkitt lymphoma occurs in Africa. Immunodeficiency-related Burkitt lymphoma is most often seen in AIDS patients.

Cancer (KAN-ser): A term for diseases in which abnormal cells divide without control. Cancer cells can invade nearby tissues and can spread to other parts of the body through the blood and lymph systems.

Cell (sel): The individual unit that makes up the tissues of the body. All living things are made up of one or more cells.

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 a clinical study.

Complete blood count: CBC. A test to check the number of red blood cells, white blood cells, and platelets in a sample of blood. Also called blood cell count.

Contiguous lymphoma (kun-TIG-yoo-us lim-FOH-muh): Lymphoma in which the lymph nodes containing cancer are next to each other.

Contrast material: A dye or other substance that helps to 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: Computed tomography scan (kum-PYOO-ted tuh-MAH-gruh-fee skan). 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 computerized tomography and computerized axial tomography (CAT) scan.

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

Diffuse large B-cell lymphoma (lim-FOH-muh): A type of B-cell non-Hodgkin lymphoma (cancer of the immune system) that is usually aggressive (fast-growing). It is the most common type of non-Hodgkin lymphoma, and is marked by rapidly growing tumors in the lymph nodes, spleen, liver, bone marrow, or other organs. Other symptoms include fever, night sweats, and weight loss. There are several subtypes of diffuse large B-cell lymphoma.

Digestive tract (dy-JES-tiv): The organs through which food and liquids pass when they are swallowed, digested, and eliminated. These organs are the mouth, esophagus, stomach, small and large intestines, and rectum and anus.

Epstein-Barr virus (ep-stine-BAR VY-rus): EBV. A common virus that remains dormant in most people. It causes infectious mononucleosis and has been associated with certain cancers, including Burkitt lymphoma, immunoblastic lymphoma, and nasopharyngeal carcinoma.

Excisional biopsy (ek-SIH-zhun-al BY-op-see): A surgical procedure in which an entire lump or suspicious area is removed for diagnosis. The tissue is then examined under a microscope.

External radiation therapy (RAY-dee-AY-shun THAYR-uh-pee): A type of radiation therapy that uses a machine to aim high-energy rays at the cancer from outside of the body. Also called external beam radiation therapy.

Fine needle aspiration (as-per-AY-shun): The removal of tissue or fluid with a needle for examination under a microscope. Also called needle biopsy.

Follicular lymphoma (fuh-LIH-kyoo-ler lim-FOH-muh): A type of B-cell non-Hodgkin lymphoma (cancer of the immune system) that is usually indolent (slow-growing). The tumor cells grow as groups to form nodules. There are several subtypes of follicular lymphoma.

Groin: The area where the thigh meets the abdomen.

Helicobacter pylori (HEEL-ih-koh-BAK-ter py-LOR-ee): *H. pylori*. A type of bacterium that causes inflammation and ulcers in the stomach or small intestine. People with *H. pylori* infections may be more likely to develop cancer in the stomach, including MALT (mucosa-associated lymphoid tissue) lymphoma.

Hematologist (HEE-muh-TAH-loh-jist): A doctor who specializes in treating blood disorders.

Hepatitis C virus (HEH-puh-TY-tis SEE VY-rus): A virus that causes hepatitis (inflammation of the liver). It is carried and passed to others through blood or sexual contact. Also, infants born to infected mothers may become infected with the virus.

Herbicide: A chemical that kills plants.

High-grade lymphoma (lim-FOH-muh): A type of lymphoma that grows and spreads quickly, and has severe symptoms. It is seen frequently in patients who are HIV-positive (AIDS-related lymphoma). Also called aggressive lymphoma or intermediate-grade lymphoma.

Hodgkin lymphoma (HOJ-kin lim-FOH-muh): A cancer of the immune system that is marked by the presence of a type of cell called the Reed-Sternberg cell. Symptoms include the painless enlargement of lymph nodes, spleen, or other immune tissue. Other symptoms include fever, weight loss, fatigue, or night sweats. Also called Hodgkin disease.

Human immunodeficiency virus (HYOO-mun ih-MYOO-noh-dih-FIH-shun-see VY-rus): HIV. The cause of acquired immunodeficiency syndrome (AIDS).

Human T-cell leukemia/lymphoma virus type 1 (HYOO-mun TEE-sel loo-KEE-mee-uh lim-FOH-muh VY-rus): HTLV-1. A type of virus that infects T cells (a type of white blood cell) and can cause leukemia and lymphoma. HTLV-1 is spread by sharing syringes or needles, through blood transfusions or sexual contact, and from mother to child during birth or breast-feeding.

Immune system (ih-MYOOON): The complex group of organs and cells that defends the body against infections and other diseases.

Incisional biopsy (in-SIH-zhun-al BY-op-see): A surgical procedure in which a portion of a lump or suspicious area is removed for diagnosis. The tissue is then examined under a microscope.

Indolent lymphoma (IN-doh-lent lim-FOH-muh): A type of lymphoma that tends to grow and spread slowly, and has few symptoms. Also called low-grade lymphoma.

Infection: Invasion and multiplication of germs in the body. Infections can occur in any part of the body and can spread throughout the body. The germs may be bacteria, viruses, yeast, or fungi. They can cause a fever and other problems, depending on where the infection occurs. When the body's natural defense system is strong, it can often fight the germs and prevent infection. Some cancer treatments can weaken the natural defense system.

Inherited (in-HAYR-it-ed): Transmitted through genes that have been passed from parents to their offspring (children).

Injection: Use of a syringe and needle to push fluids or drugs into the body; often called a "shot."

Intermediate-grade lymphoma: A type of lymphoma that grows and spreads quickly, and has severe symptoms. It is seen frequently in patients who are HIV-positive (AIDS-related lymphoma). Also called aggressive lymphoma or high-grade lymphoma.

Lactate dehydrogenase (LAK-tayt dee-hy-DRAH-jeh-nayz): LDH. One of a group of enzymes found in the blood and other body tissues, and involved in energy production in cells. An increased amount of LDH in the blood may be a sign of tissue damage and some types of cancer or other diseases. Also called lactic acid dehydrogenase.

Leukemia (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.

Local anesthesia (A-nes-THÉE-zhuh): Drugs that cause a temporary loss of feeling in one part of the body. The patient remains awake but has no feeling in the part of the body treated with the anesthetic.

Local therapy (THAYR-uh-pee): Treatment that affects cells in the tumor and the area close to it.

Low-grade lymphoma: A type of lymphoma that tends to grow and spread slowly, and has few symptoms. Also called indolent lymphoma.

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 (limf 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 a lymph gland.

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

Lymphatic system (lim-FA-tik SIS-tem): The tissues and organs that produce, store, and carry white blood cells that fight infections and other diseases. This system includes the 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.

Lymphocyte (LIM-foh-site): A type of white blood cell. Lymphocytes have a number of roles in the immune system, including the production of antibodies and other substances that fight infections and other diseases.

Lymphoma (lim-FOH-muh): Cancer that begins in cells of the immune system. There are two basic categories of lymphomas. One kind is Hodgkin lymphoma, which is marked by the presence of a type of cell called the Reed-Sternberg cell. The other category is non-Hodgkin lymphomas, which includes a large, diverse group of cancers of immune system cells. Non-Hodgkin lymphomas can be further divided into cancers that have an indolent (slow-growing) course and those that have an aggressive (fast-growing) course. These subtypes behave and respond to treatment differently. Both Hodgkin and non-Hodgkin lymphomas can occur in children and adults, and prognosis and treatment depend on the stage and the type of cancer.

Medical oncologist (MEH-dih-kul on-KAH-loh-jist): A doctor who specializes in diagnosing and treating cancer using chemotherapy, 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.

Monoclonal antibody (MAH-noh-KLOH-nul AN-tih-BAH-dee): A type of protein made in the laboratory that can locate and bind to substances in the body and on the surface of cancer cells. There are many kinds of monoclonal antibodies; each one is made to find a different substance. Monoclonal antibodies are being used to treat some types of cancer and are being studied in the treatment of other types. They can be used alone or to carry drugs, toxins, or radioactive materials directly to a tumor.

MRI: Magnetic resonance imaging (mag-NEH-tik REH-zuh-nunts IH-muh-jing). A procedure in which radio waves and a powerful magnet linked to a computer are used to create detailed pictures of areas inside the body. These pictures can show the difference between normal and diseased tissue. MRI makes better images of organs and soft tissue than other scanning techniques, such as computed tomography (CT) or x-ray. MRI is especially useful for imaging the brain, the spine, the soft tissue of joints, and the inside of bones. Also called nuclear magnetic resonance imaging (NMRI).

Noncontiguous lymphoma (non-kun-TIG-yoo-us lim-FOH-muh): Lymphoma in which the lymph nodes containing cancer are not next to each other, but are on the same side of the diaphragm (the thin muscle below the lungs that helps breathing and separates the chest from the abdomen).

Non-Hodgkin lymphoma (non-HOJ-kin lim-FOH-muh): NHL. Any of a large group of cancers of the immune system. NHLs can occur at any age and are often marked by enlarged lymph nodes, fever, and weight loss. There are many different types of NHL, which can be divided into aggressive (fast-growing) and indolent (slow-growing) types and can be classified as either B-cell or T-cell NHL. B-cell NHLs include Burkitt lymphoma, diffuse large B-cell lymphoma, follicular lymphoma, immunoblastic large cell lymphoma, precursor B-lymphoblastic lymphoma, and mantle cell lymphoma. T-cell NHLs include mycosis fungoides, anaplastic large cell lymphoma, and precursor T-lymphoblastic lymphoma. Lymphomas related to lymphoproliferative disorders following bone marrow or stem cell transplantation are usually B-cell NHLs. Prognosis and treatment depend on the stage and type of disease.

Obesity (oh-BEE-sih-tee): A condition marked by having an abnormally high, unhealthy amount of body fat.

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

Pathologist (puh-THAH-loh-jist): A doctor who identifies diseases by studying cells and tissues under a microscope.

Pelvis: The lower part of the abdomen, located between the hip bones.

PET scan: Positron emission tomography scan (PAH-zih-tron ee-MIH-shun toh-MAH-gruh-fee skan). 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 used. Because cancer cells often use more glucose than normal cells, the pictures can be used to find cancer cells in the body.

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, 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 circulates throughout the body. Also called radiotherapy and irradiation.

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

Recurrence: Cancer that has returned after a period of time during which the cancer could not be detected. The cancer may come back to the same place as the original (primary) tumor or to another place in the body. Also called recurrent cancer.

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.

Relapse: The return of signs and symptoms of cancer after a period of improvement.

Risk factor: Something that may increase the chance of developing a disease. Some examples of risk factors for cancer include age, a family history of certain cancers, use of tobacco products, certain eating habits, obesity, lack of exercise, exposure to radiation or other cancer-causing agents, and certain genetic changes.

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.

Spinal cord: A column of nerve tissue that runs from the base of the skull down the back. It is surrounded by three protective membranes, and is enclosed within the vertebrae (back bones). The spinal cord and the brain make up the central nervous system, and spinal cord nerves carry most messages between the brain and the rest of the body.

Spinal tap: A procedure in which a needle is put into the lower part of the spinal column to collect cerebrospinal fluid or to give drugs. Also called a lumbar puncture.

Spleen: An organ that is part of the lymphatic system. The spleen produces 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 can develop. Blood cells develop from blood-forming stem cells.

Stem cell transplantation: A method of replacing immature blood-forming cells that were destroyed by cancer treatment. The stem cells are given to the person after treatment to help the bone marrow recover and continue producing healthy blood cells.

Supportive care: Care given to improve the quality of life of patients who have a serious or life-threatening disease. The goal of supportive care is to prevent or treat as early as possible the symptoms of the disease, side effects caused by treatment of the disease, and psychological, social, and spiritual problems related to the disease or its treatment. Also called palliative care, comfort care, and symptom management.

Syngeneic stem cell transplantation (SIN-juh-NAY-ik): A procedure in which a patient receives blood-forming stem cells (cells from which all blood cells develop) donated by his or her healthy identical twin.

Systemic radiation therapy (sis-TEH-mik RAY-dee-AY-shun THAYR-uh-pee): A type of radiation therapy in which a radioactive substance, such as radioactive iodine or a radioactively labeled monoclonal antibody, is swallowed or injected into the body and travels through the bloodstream, locating and killing tumor cells.

Systemic therapy (sis-TEH-mik THAYR-uh-pee): Treatment using substances that travel through the bloodstream, reaching and affecting cells all over the body.

T cell: One type of white blood cell that attacks virus-infected cells, foreign cells, and cancer cells. T cells also produce a number of substances that regulate the immune response. Also called T lymphocyte.

Thymus: 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 (TISH-oo): 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.

Tumor (TOO-mer): An abnormal mass of tissue that results when cells divide more than they should or do not die when they should. Tumors may be benign (not cancerous), or malignant (cancerous). Also called neoplasm.

Ultrasound (UL-truh-SOWND): A procedure in which high-energy sound waves (ultrasound) are bounced off internal tissues or organs and make echoes. The echo patterns are shown on the screen of an ultrasound machine, forming a picture of body tissues called a sonogram. Also called ultrasonography.

Vaccine: A substance or group of substances meant to cause the immune system to respond to a tumor or to microorganisms, such as bacteria or viruses. A vaccine can help the body recognize and destroy cancer cells or microorganisms.

Virus (VY-rus): A microorganism that can infect cells and cause disease.

Watchful waiting: Closely monitoring a patient's condition but withholding treatment until symptoms appear or change. Also called observation.

White blood cell: WBC. Refers to a blood cell that does not contain hemoglobin. White blood cells include lymphocytes, neutrophils, eosinophils, macrophages, and mast cells. These cells are made by bone marrow and help the body fight infections and other diseases.

X-ray: A type of high-energy radiation. 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.

National Cancer Institute Information Resources

You may want more information for yourself, your family, and your doctor. The following NCI services are available to help you.

Telephone

NCI's Cancer Information Service (CIS) provides accurate, up-to-date information on cancer to patients and their families, health professionals, and the general public. Information specialists translate the latest scientific information into plain language and respond in English or Spanish. Calls to the CIS are confidential and free.

Telephone: **1-800-4-CANCER** (1-800-422-6237)

TTY: 1-800-332-8615

Internet

NCI's Web site provides information from numerous NCI sources. It offers current information about cancer prevention, screening, diagnosis, treatment, genetics, supportive care, and ongoing clinical trials. It has information about NCI's research programs, funding opportunities, and cancer statistics.

Web site: **<http://www.cancer.gov>**

Spanish Web site: **<http://www.cancer.gov/espanol>**

If you're unable to find what you need on the Web site, contact NCI staff. Use the online contact form at **<http://www.cancer.gov/contact>** or send an email to **cancergovstaff@mail.nih.gov**.

Also, information specialists provide live, online assistance through **LiveHelp** at **<http://www.cancer.gov/help>**.

National Cancer Institute Publications

NCI provides publications about cancer, including the booklets and fact sheets mentioned in this booklet. Many are available in both English and Spanish.

You can order these publications by telephone, on the Internet, or by mail. You may also read them online and print your own copy.

- **By telephone:** People in the United States and its territories may order these and other NCI publications by calling the NCI's Cancer Information Service at **1-800-4-CANCER**.
- **On the Internet:** Many NCI publications can be viewed, downloaded, and ordered from **<http://www.cancer.gov/publications>** on the Internet. People in the United States and its territories may use this Web site to order printed copies. This Web site also explains how people outside the United States can mail or fax their requests for NCI booklets.
- **By mail:** NCI publications can be ordered by writing to the address below:

Publications Ordering Service
National Cancer Institute
Suite 3035A
6116 Executive Boulevard, MSC 8322
Bethesda, MD 20892-8322

Cancer Treatment

- *Chemotherapy and You* (also available in Spanish: *La quimioterapia y usted*)
- *Radiation Therapy and You* (also available in Spanish: *La radioterapia y usted*)

- *Biological Therapy: Treatments That Use Your Immune System to Fight Cancer*
- *Bone Marrow Transplantation and Peripheral Blood Stem Cell Transplantation: Questions and Answers* (also available in Spanish: *El trasplante de médula ósea y el trasplante de células madre de sangre periférica: preguntas y respuestas*)
- *How To Find a Doctor or Treatment Facility If You Have Cancer* (also available in Spanish: *Cómo encontrar a un doctor o un establecimiento de tratamiento si usted tiene cáncer*)

Clinical Trials

- *Taking Part in Cancer Treatment Research Studies*

Living With Cancer

- *Eating Hints for Cancer Patients* (also available in Spanish: *Consejos de alimentación para pacientes con cáncer: Antes, durante y después del tratamiento*)
- *Pain Control* (also available in Spanish: *Control del dolor*)
- *Coping With Advanced Cancer*
- *Facing Forward: Life After Cancer Treatment* (also available in Spanish: *Siga adelante: la vida después del tratamiento del cáncer*)
- *Facing Forward: Ways You Can Make a Difference in Cancer*
- *Taking Time: Support for People with Cancer*
- *When Cancer Returns*

- *National Organizations That Offer Services to People With Cancer and Their Families* (also available in Spanish: *Organizaciones nacionales que brindan servicios a las personas con cáncer y a sus familias*)
- *Cancer Support Groups: Questions and Answers*
- *Follow-up Care After Cancer Treatment: Questions and Answers*

Complementary Medicine

- *Thinking about Complementary & Alternative Medicine: A guide for people with cancer*

Caregivers

- *When Someone You Love Is Being Treated for Cancer: Support for Caregivers*
- *When Someone You Love Has Advanced Cancer: Support for Caregivers*
- *Facing Forward: When Someone You Love Has Completed Cancer Treatment*
- *Caring for the Caregiver: Support for Cancer Caregivers*

¿Necesita información en español?

Llame al Servicio de Información sobre el Cáncer y hable en español con un especialista en información de cáncer. El número es **1-800-422-6237**.

O visite el sitio de Internet del Instituto Nacional del Cáncer en **<http://www.cancer.gov/espanol>**.

The National Cancer Institute

The National Cancer Institute (NCI) is part of the National Institutes of Health. NCI conducts and supports basic and clinical research in the search for better ways to prevent, diagnose, and treat cancer. NCI also supports the training of scientists and is responsible for communicating its research findings to the medical community and the public.

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