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Treating Hodgkin Lymphoma

If you (or your child) has been diagnosed with Hodgkin lymphoma (HL), the cancer care team will discuss treatment options with you. It's important to think carefully about your choices. You will want to weigh the benefits of each treatment option against the possible risks and side effects.

How is Hodgkin lymphoma treated?

Chemotherapy and radiation therapy are the main treatments for HL. Depending on the case, one or both of these treatments might be used.

Certain patients might be treated with immunotherapy or with a stem cell transplant, especially if other treatments haven't worked. Except for biopsy and staging, surgery is rarely used to treat HL.

- [Chemotherapy for Hodgkin Lymphoma](#)
- [Radiation Therapy for Hodgkin Lymphoma](#)
- [Immunotherapy for Hodgkin Lymphoma](#)
- [High-dose Chemotherapy and Stem Cell Transplant for Hodgkin Lymphoma](#)

Common treatment approaches

- [Treating Classic Hodgkin Lymphoma, by Stage](#)
- [Treating Nodular Lymphocyte-predominant Hodgkin Lymphoma](#)
- [Treating Hodgkin Lymphoma in Children](#)
- [Hodgkin Lymphoma Treatment During Pregnancy](#)

Who treats Hodgkin lymphoma?

Based on your treatment options, you might have different types of doctors on your treatment team. These doctors could include:

- A **hematologist**: a doctor who treats blood disorders, including lymphomas.
- A **medical oncologist**: a doctor who treats cancer with medicines such as chemotherapy
- A **radiation oncologist**: a doctor who treats cancer with radiation therapy

You might have many other specialists on your treatment team as well, including physician assistants, nurse practitioners, nurses, nutrition specialists, social workers, and other health professionals.

- [Health Professionals Associated with Cancer Care](#)

Making treatment decisions

It's important to discuss all treatment options, including their goals and possible side effects, with your doctors to help make the decision that best fits your needs. You may feel that you need to make a decision quickly, but it's important to give yourself time to absorb the information you have learned. Ask your cancer care team questions.

If time permits, it is often a good idea to seek a second opinion. A second opinion can give you more information and help you feel more confident about the treatment plan you choose.

- [Questions to Ask About Hodgkin Lymphoma](#)
- [Seeking a Second Opinion](#)

Thinking about taking part in a clinical trial

Clinical trials are carefully controlled research studies that are done to get a closer look at promising new treatments or procedures. Clinical trials are one way to get state-of-

the art cancer treatment. In some cases they may be the only way to get access to newer treatments. They are also the best way for doctors to learn better methods to treat cancer. Still, they're not right for everyone.

If you would like to learn more about clinical trials that might be right for you, start by asking your doctor if your clinic or hospital conducts clinical trials.

- [Clinical Trials](#)

Considering complementary and alternative methods

You may hear about alternative or complementary methods that your doctor hasn't mentioned to treat your cancer or relieve symptoms. These methods can include vitamins, herbs, and special diets, or other methods such as acupuncture or massage, to name a few.

Complementary methods refer to treatments that are used along with your regular medical care. Alternative treatments are used instead of a doctor's medical treatment. Although some of these methods might be helpful in relieving symptoms or helping you feel better, many have not been proven to work. Some might even be harmful.

Be sure to talk to your cancer care team about any method you are thinking about using. They can help you learn what is known (or not known) about the method, which can help you make an informed decision.

- [Complementary and Integrative Medicine](#)

Help getting through cancer treatment

People with cancer need support and information, no matter what stage of illness they may be in. Knowing all of your options and finding the resources you need will help you make informed decisions about your care.

Whether you are thinking about treatment, getting treatment, or not being treated at all, you can still get supportive care to help with pain or other symptoms. Communicating with your cancer care team is important so you understand your diagnosis, what treatment is recommended, and ways to maintain or improve your quality of life.

Different types of programs and support services may be helpful, and can be an important part of your care. These might include nursing or social work services, financial aid, nutritional advice, rehab, or spiritual help.

The American Cancer Society also has programs and services – including rides to treatment, lodging, and more – to help you get through treatment. Call our National Cancer Information Center at 1-800-227-2345 and speak with one of our trained specialists.

- [Palliative Care](#)
- [Programs & Services](#)

Choosing to stop treatment or choosing no treatment at all

For some people, when treatments have been tried and are no longer controlling the cancer, it could be time to weigh the benefits and risks of continuing to try new treatments. Whether or not you continue treatment, there are still things you can do to help maintain or improve your quality of life.

Some people, especially if the cancer is advanced, might not want to be treated at all. There are many reasons you might decide not to get cancer treatment, but it's important to talk to your doctors and you make that decision. Remember that even if you choose not to treat the cancer, you can still get supportive care to help with pain or other symptoms.

- [If Cancer Treatments Stop Working](#)

The treatment information given here is not official policy of the American Cancer Society and is not intended as medical advice to replace the expertise and judgment of your cancer care team. It is intended to help you and your family make informed decisions, together with your doctor. Your doctor may have reasons for suggesting a treatment plan different from these general treatment options. Don't hesitate to ask your cancer care team any questions you may have about your treatment options.

Chemotherapy for Hodgkin Lymphoma

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Chemotherapy (chemo) is the use of drugs to kill cancer cells. Chemo is usually injected into a vein under the skin or taken as a pill. Chemo drugs enter the bloodstream and travel throughout the body to reach and destroy cancer cells wherever they may be.

Chemo is the main treatment for most people with Hodgkin lymphoma (other than some people with nodular lymphocyte-predominant Hodgkin lymphoma, or NLPHL). Sometimes chemo is followed by [radiation therapy](#).

Chemo is given in cycles that include a period of treatment followed by a rest period to give the body time to recover. In general, each cycle lasts for several weeks.

Most chemo treatments are given in the doctor's office, clinic, or hospital outpatient department, but some may require a hospital stay.

Which chemo drugs are used to treat Hodgkin lymphoma?

Chemo for classic Hodgkin lymphoma (cHL) combines several drugs because different drugs kill cancer cells in different ways. The combinations used to treat cHL are often referred to by abbreviations.

ABVD is the most common regimen used in the United States:

- Adriamycin (doxorubicin)
- Bleomycin
- Vinblastine
- Dacarbazine (DTIC)

Other common regimens include:

BEACOPP

- Bleomycin
- Etoposide (VP-16)
- Adriamycin (doxorubicin)
- Cyclophosphamide


Stanford V

- Doxorubicin (Adriamycin)
- Mechlorethamine (nitrogen mustard)
- Vincristine
- Vinblastine
- Bleomycin
- Etoposide
- Prednisone

Radiation is given after chemo in the Stanford V regimen. It's sometimes given after the ABVD or BEACOPP regimens, too.

Other chemo combinations can also be used for HL. Most use some of the same drugs listed above, but they might include different combinations and be given on different schedules.

Another drug that can be considered as chemo is **brentuximab vedotin (Adcetris)**. This is an antibody-drug conjugate (ADC), which is a monoclonal antibody attached to a



help with them. For instance, drugs are often used to help prevent nausea and vomiting.

Late or long-term side effects: Some chemo drugs can have long-lasting side effects. Some of these might not occur until months or even years after treatment has ended. For example:

- Doxorubicin can damage the heart, so your doctor may order tests to check your heart function before and during treatment with this drug.
- Bleomycin can damage the lungs, so some doctors order tests of lung function (called pulmonary function tests) before starting patients on this drug.
- Some chemo drugs can increase the risk of getting a second type of cancer later in life (such as leukemia), especially in patients who also get radiation therapy.
- In children and young adults, some chemo drugs can also affect body growth and fertility (ability to have children) later on.

Long-term effects are discussed in more detail in [Living as a Hodgkin Lymphoma Survivor](#)¹.

Before starting chemo, ask your doctor to explain possible side effects and your chances of having them. Also ask what you can do to help prevent them.

More information about chemotherapy

For more general information about how chemotherapy is used to treat cancer, see [Chemotherapy](#)².

To learn about some of the side effects listed here and how to manage them, see [Managing Cancer-related Side Effects](#)³.

Hyperlinks

1. www.cancer.org/cancer/types/hodgkin-lymphoma/after-treatment/follow-up.html
2. www.cancer.org/cancer/managing-cancer/treatment-types/chemotherapy.html
3. www.cancer.org/cancer/managing-cancer/side-effects.html

References

Bartlett NL, Foyil KV. Chapter 105: Hodgkin lymphoma. In: Niederhuber JE, Armitage

JO, Dorshow JH, Kastan MB, Tepper JE, eds. *Abeloff's Clinical Oncology*. 5th ed. Philadelphia, Pa. Elsevier: 2014.

Kahn JM, Ozuah NW, Dunleavy K, et al. Adolescent and young adult lymphoma: collaborative efforts toward optimizing care and improving outcomes. *Blood Adv*. 2017;1(22):1945-1958.

National Comprehensive Cancer Network, Clinical Practice Guidelines in Oncology (NCCN Guidelines®), Hodgkin Lymphoma, Version 1.2018 -- December 20, 2017. Accessed at www.nccn.org/professionals/physician_gls/pdf/hodgkins.pdf on March 19, 2018.

Shanbhag S, Ambinder RF. Hodgkin lymphoma: A review and update on recent progress. *CA Cancer J Clin*. 2018;68(2):116-132.

Younes A, Carbone A, Johnson P, Dabaja B, Ansell S, Kuruvilla J. Chapter 102: Hodgkin's lymphoma. In: DeVita VT, Lawrence TS, Rosenberg SA, eds. *DeVita, Hellman, and Rosenberg's Cancer: Principles and Practice of Oncology*. 10th ed. Philadelphia, Pa: Lippincott Williams & Wilkins; 2015.

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Radiation Therapy for Hodgkin Lymphoma

- [How is radiation therapy given?](#)
- [Possible side effects of radiation therapy](#)
- [More information about radiation therapy](#)

Radiation therapy uses high-energy rays (or particles) to destroy cancer cells. Radiation therapy is part of the treatment for most people with Hodgkin lymphoma (HL). It's especially useful when HL is only in one part of the body.

For **classic Hodgkin lymphoma**, radiation is often given after [chemotherapy](#),

Involved site radiation therapy (ISRT)

Many doctors prefer this newer approach to radiation therapy when treating HL. In ISRT, the radiation is aimed only at the lymph nodes that originally contained lymphoma, as well as any nearby areas the cancer extended into. This shrinks the size of the treatment area (or field) and helps spare nearby normal tissues and organs from getting radiation.

Involved field radiation therapy (IFRT)

This was the preferred form of radiation therapy for HL in the past, but it's now largely being replaced by ISRT. In this technique, only the lymph node **regions** that have HL are treated, but this includes larger treatment areas than ISRT does. (This can increase the risk of radiation reaching nearby organs.)

Extended field radiation

This is rarely done today, but radiation used to be given to the major lymph node areas that contained lymphoma, as well as the surrounding normal lymph node areas. This was done just in case the lymphoma had spread, even though the doctors could not actually detect it in these areas. This is called extended field radiation.

If the lymphoma was in the upper body, radiation was given to the **mantle field**,

term side effects are a very real concern.

More information about radiation therapy

Younes A, Carbone A, Johnson P, Dabaja B, Ansell S, Kuruvilla J. Chapter 102: Hodgkin's lymphoma. In: DeVita VT, Lawrence TS, Rosenberg SA, eds. *DeVita, Hellman, and Rosenberg's Cancer: Principles and Practice of Oncology*. 10th ed. Philadelphia, Pa: Lippincott Williams & Wilkins; 2015.

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Immunotherapy for Hodgkin Lymphoma

- [Monoclonal antibodies](#)
- [Immune checkpoint inhibitors](#)
- [More information about immunotherapy](#)

Immunotherapy is the use of medicines to help someone's immune system better recognize and destroy cancer cells. Immunotherapy can be used to treat some people with Hodgkin lymphoma (HL).

Monoclonal antibodies

Antibodies are proteins made by your immune system to help fight infections. Man-made versions, called **monoclonal antibodies**

- As part of the first treatment in children 2 years of age or older with high risk cHL, along with [chemotherapy](#).
- As part of the first treatment for adults with stage III or IV cHL, along with chemotherapy
- In adults with cHL that has come back after other treatments, including after a [stem cell transplant](#) (or in people who can't have a transplant for some reason). It can be given alone or along with chemo.
- After a stem cell transplant for adults at high risk of the lymphoma coming back after treatment. In this situation, it is usually given by itself for a year.

Brentuximab vedotin is infused into a vein (IV), usually every 2 or 3 weeks.

Common **side effects** can include:

- Nerve damage (neuropathy)
- Low blood cell counts
- Fatigue
- Fever
- Nausea and vomiting
- Infections
- Diarrhea

Rarely, serious side effects occur during IV infusions, such as trouble breathing and low blood pressure

Rituximab (Rituxan)

Rituximab may be used to treat nodular lymphocyte-predominant Hodgkin lymphoma (NLPHL). This mAb attaches to a substance called CD20 on some types of lymphoma cells. It's often given along with chemotherapy and/or [radiation therapy](#).

Rituximab is given as an IV infusion in the doctor's office or clinic. When it's used by itself, it's usually given once a week for 4 weeks, which may then be repeated several months later. When it's given along with chemotherapy, it's most often given on the first day of each chemo cycle.

Common **side effects** are usually mild but can include:

- Chills

- Fever
- Nausea
- Rashes
- Fatigue
- Headaches

Rarely, more severe side effects occur during infusions, such as trouble breathing and low blood pressure. You will be given medicines before each treatment to help keep this from happening. But even if these symptoms do occur during the first infusion, it's unusual for them to happen again with later doses.

Rituximab can cause prior hepatitis B infections to become active again, which sometimes leads to severe liver problems or even death. Your doctor will probably check your blood for signs of hepatitis before starting this drug.

Rituximab can also increase your risk of infection for several months after the drug is stopped.

Immune checkpoint inhibitors

An important part of the immune system is its ability to keep itself from attacking normal cells in the body. To do this, it uses “checkpoint” proteins, which act like switches on immune cells that need to be turned on (or off) to start an immune response. Cancer cells sometimes use these checkpoints to avoid being attacked by the immune system.

Nivolumab (Opdivo) and **pembrolizumab (Keytruda)** are checkpoint inhibitors that can be used in people with classic Hodgkin lymphoma whose cancer has grown during treatment (called refractory cancer) or has returned after other treatments have been tried (called recurrent or relapsed cancer).

- Fatigue
- Fever
- Cough
- Nausea
- Itching
- Skin rash
- Loss of appetite
- Joint pain
- Constipation
- Diarrhea

Other, more serious side effects occur less often.

Infusion reactions: Some people might have an infusion reaction while getting one of these drugs. This is like an allergic reaction, and can include fever, chills, flushing of the face, rash, itchy skin, feeling dizzy, wheezing, and trouble breathing. It's important to tell your doctor or nurse right away if you have any of these symptoms while getting one of these drugs.

Autoimmune reactions: These drugs work by basically removing one of the safeguards on the body's immune system. Sometimes the immune system starts attacking other parts of the body, which can cause serious or even life-threatening problems in the lungs, intestines, liver, hormone-making glands, kidneys, or other organs.

If you notice any problems, you should tell your health care team about it right away. If serious side effects do occur, treatment may need to be stopped and you may get high doses of steroids to suppress your immune system.

More information about immunotherapy

To learn more about how drugs that work on the immune system are used to treat cancer, see [Cancer Immunotherapy](#)¹.

To learn about some of the side effects listed here and how to manage them,

Hyperlinks

1. www.cancer.org/cancer/managing-cancer/treatment-types/immunotherapy.html
2. www.cancer.org/cancer/managing-cancer/side-effects.html

References

Ansell SM, Lesokhin AM, Borrello I, et al. PD-1 blockade with nivolumab in relapsed or refractory Hodgkin's lymphoma. *N Engl J Med*. 2015;372:311-319.

Bartlett NL, Foyil KV. Chapter 105: Hodgkin lymphoma. In: Niederhuber JE, Armitage JO, Dorshow JH, Kastan MB, Tepper JE, eds. *Abeloff's Clinical Oncology*. 5th ed. Philadelphia, Pa. Elsevier: 2014.

Bristol-Myers Squibb Company. OPDIVO highlights of prescribing information. 3/2018. Accessed at https://packageinserts.bms.com/pi/pi_opdivo.pdf on March 20, 2018.

Chiu J, Ernst DM, Keating A. Acquired Natural Killer Cell Dysfunction in the Tumor Microenvironment of Classic Hodgkin Lymphoma. *Front Immunol*. 2018;9:267.

Dada R. Program death inhibitors in classical Hodgkin's lymphoma: a comprehensive review. *Ann Hematol*. 2018;97(4):555-561.

Genentech, Inc. RITUXAN highlights of prescribing information. 4/2016. Accessed at www.gene.com/download/pdf/rituxan_prescribing.pdf on March 20, 2018.

Merck & Co., Inc. KEYTRUDA highlights of prescribing information. 11/2017. Accessed at http://www.merck.com/product/usa/pi_circulars/k/keytruda/keytruda_pi.pdf on March 20, 2018.

National Comprehensive Cancer Network, Clinical Practice Guidelines in Oncology (NCCN Guidelines®), Hodgkin Lymphoma, Version 1.2018 -- December 20, 2017. Accessed at www.nccn.org/professionals/physician_gls/pdf/hodgkins.pdf on March 20, 2018.

Seattle Genetics, Inc. ADCETRIS highlights of prescribing information. 11/2017. Accessed at <https://adcetris.com/themes/adcetris/assets/docs/PrescribingInformation.pdf> on March 20, 2018.



radiation therapy). This is because after getting high-dose chemo, the patient receives a transplant of blood-forming stem cells to rebuild the bone marrow.

The blood-forming stem cells used for a transplant can come either from the blood or from the bone marrow. Today, most transplants are done with cells that are taken out of the blood and are called **peripheral stem cell transplants**.

Types of transplants

There are 2 main types of stem cell transplants. They use different sources of blood-forming stem cells.

- In an **autologous stem cell transplant**, a patient's own blood stem cells are collected several times in the weeks before treatment. The cells are frozen and stored while the person gets treatment (high-dose chemo and/or radiation) and then are given back into the patient's blood by an IV. This is the most common type of transplant for Hodgkin lymphoma.
- In an **allogeneic stem cell transplant**, the blood stem cells come from someone else. Usually this is a brother or sister, but the source could be an unrelated donor or umbilical cord blood. The donor's tissue type (also known as the HLA type) needs to match the patient's tissue type as closely as possible to help prevent major problems with the transplant. Usually, in treating Hodgkin lymphoma, an allogeneic transplant is used only if an autologous transplant has already been tried without success.

A stem cell transplant is a complex treatment that can cause life-threatening side effects. If the doctors think a person might benefit from a transplant, it should be done at a cancer center where the staff has experience with the procedure and with managing the recovery phase.

More information about stem cell transplant

Treating Classic Hodgkin Lymphoma, by Stage

- [Stages IA and IIA, favorable](#)
- [Stages I and II, unfavorable](#)
- [Stages III and IV](#)
- [Resistant or refractory Hodgkin lymphoma](#)
- [Recurrent or relapsed Hodgkin lymphoma](#)

This section sums up the treatment options for Hodgkin lymphoma (HL) in adults, based on the stage of cancer. Treatment of the disease in children is slightly different from the treatment for adults. Some of these differences are discussed in [Treating Hodgkin Lymphoma in Children](#). For teens with HL who are fully grown, the treatment is usually the same as that for an adult.

Treatment options depend on many factors, including:

- The [type](#)¹ of HL
- The [stage](#)² (extent) of the HL
- Whether or not the disease is bulky (large)
- Whether the disease is causing [B symptoms](#)³
- Results of blood tests and other lab tests
- A person's age
- A person's overall health
- Personal preferences

Based on these factors, a person's treatment might be a little different from the general outline below.

Most experts agree that treatment in a clinical trial should be considered for HL that is resistant to treatment or comes back (relapses) after treatment.

Stages IA and IIA, favorable

This group includes HL that is only on one side of the diaphragm (above or below) and that doesn't have any unfavorable factors. For example:

- It's not [bulky](#)⁴
- HL is in less than 3 different lymph node areas
- It doesn't cause any of the B symptoms
- The ESR (erythrocyte sedimentation rate) is not elevated

Treatment for many patients is [chemotherapy](#) (usually 2 to 4 cycles of the ABVD regimen), followed by [radiation](#) to the initial site of the disease (involved site radiation therapy, or ISRT). Another option is chemotherapy alone (usually for 3 to 6 cycles) in selected patients.

Doctors often order a PET/CT scan after a few courses of chemo to see how well the treatment is working and to determine how much more treatment (if any) is needed.

If a person can't have chemotherapy because of other health issues, radiation therapy alone may be an option.

For those who don't respond to treatment, chemo using different drugs or high-dose chemo (and possibly radiation) followed by a [stem cell transplant](#) may be recommended. Treatment with an [immunotherapy](#) drug such as brentuximab vedotin

(Adcetris), nivolumab (Opdivo), or pembrolizumab (Keytruda) might be another option.

Stages III and IV

This includes HL that is both above and below the diaphragm and/or has spread widely through one or more organs outside the lymph system.

Doctors generally treat these stages with [chemotherapy](#) using more intense regimens than that used for earlier stages. The ABVD regimen (for at least 6 cycles) is often used, but some doctors favor more intense treatment with the Stanford V regimen for 3 cycles, or up to 8 cycles of the BEACOPP regimen if there are several unfavorable prognostic factors. Another option for some people might be chemo plus the drug [brentuximab vedotin \(Adcetris\)](#).

PET/CT scans might be used during or after chemo to assess how much more treatment you need. Depending on the results of the scans, more chemo may be given. [Radiation therapy](#) may be given after chemo, especially if there were any large tumor areas.

For those whose HL doesn't respond to treatment, chemo using different drugs or high-

an [immunotherapy](#) drug, such as brentuximab vedotin (Adcetris), nivolumab (Opdivo), or pembrolizumab (Keytruda).

Recurrent or relapsed Hodgkin lymphoma

If HL comes back (recurs) after treatment, further treatment depends on where the lymphoma comes back, on how long it has been since the initial treatment, and on what the initial treatment was.

If the initial treatment was [radiation therapy](#) alone, [chemotherapy](#) is usually given for recurrent disease.

If chemotherapy without radiation therapy was used first, and the cancer comes back only in the lymph nodes, radiation to the lymph nodes can be done, with or without more chemo. Chemo with different drugs may be another option.

Radiation usually cannot be repeated in the same area. If, for example, HL in the chest was treated with radiation and it comes back in the chest, it usually can't be treated with more radiation to the chest. This holds true no matter how long ago the radiation was first given.

If the lymphoma returns after many years, using the same or different chemo drugs (possibly along with radiation) might still cure it. On the other hand, HL that recurs soon after treatment may need more intensive treatment. For example, if the HL has returned within a few months of the original treatment, high-dose chemo (and possibly radiation) followed by an autologous [stem cell transplant](#) may be recommended.

If the HL still remains after an autologous transplant, an allogeneic stem cell transplant may be an option. Another option, either instead of or after a stem cell transplant, may be treatment with an [immunotherapy](#) drug, such as brentuximab vedotin (Adcetris), nivolumab (Opdivo), or pembrolizumab (Keytruda).

Hyperlinks is usually given foris usually given for

3. www.cancer.org/cancer/types/hodgkin-lymphoma/detection-diagnosis-staging/signs-and-symptoms.html
4. www.cancer.org/cancer/types/hodgkin-lymphoma/detection-diagnosis-staging/staging.html

References

Ansell SM. Hodgkin Lymphoma: Diagnosis and Treatment. *Mayo Clin Proc.* 2015;90(11):1574-1583.

Bartlett NL, Foyil KV. Chapter 105: Hodgkin lymphoma. In: Niederhuber JE, Armitage JO, Dorshow JH, Kastan MB, Tepper JE, eds. *Abeloff's Clinical Oncology*. 5th ed. Philadelphia, Pa. Elsevier: 2014.

National Cancer Institute. Adult Hodgkin Lymphoma Treatment (PDQ®)—Health Professional Version. March 1, 2018. Accessed at www.cancer.gov/types/lymphoma/hp/adult-hodgkin-ie9IA-o4nTIpten. March 21, 2018.

Treating Nodular Lymphocyte-predominant Hodgkin Lymphoma

- [Chemotherapy drugs used for NLPHL](#)

Nodular lymphocyte-predominant Hodgkin lymphoma (NLPHL) is a rare type of Hodgkin lymphoma (HL) that tends to grow more slowly than classic HL (cHL). It's often treated differently.

For people with early-stage NLPHL without any [B symptoms](#)¹, involved site radiation therapy (ISRT) is often all that's needed. Another option for some people might be to have the lymphoma watched closely at first, and then start treatment when symptoms appear.

If **early-stage NLPHL** is [bulky \(large\)](#)² or is causing [B symptoms](#)³, the main treatment is usually chemotherapy followed by radiation therapy (ISRT). Many doctors use the ABVD chemo regimen, but some doctors prefer others. The monoclonal antibody rituximab (Rituxan[®]) might be given along with the chemotherapy. See immunotherapy for Hodgkin lymphoma for more on rituximab.

If the **NLPHL is more advanced (stage III or IV)**, chemotherapy, with or without radiation therapy (ISRT) and/or rituximab, is likely to be recommended. Some patients without B symptoms might be given rituximab alone.

Chemotherapy drugs used for NLPHL

Chemo for NLPHL is not always the same as that used for cHL, though it also combines several drugs because different drugs kill cancer cells in different ways. The combinations used to treat NLPHL are often referred to by abbreviations. Here are the most common combos used in the US. Rituximab can be added to any of them.

ABVD (also used for cHL)

- Adriamycin[®] (doxorubicin)
- Bleomycin
- Vinblastine
- Dacarbazine (DTIC)

CHOP

- Cyclophosphamide (Cytosan[®])
- Doxorubicin
- Vincristine (Oncovin[®])
- Prednisone

CVP

- Cyclophosphamide
- Vinblastine
- Prednisone

See [Chemotherapy for Hodgkin Lymphoma](#) to learn more. For more general information, see [Chemotherapy](#)⁴.

Hyperlinks

Shanbhag S, Ambinder RF. Hodgkin lymphoma: A review and update on recent progress. *CA Cancer J Clin*. 2018;68(2):116-132.

Younes A, Carbone A, Johnson P, Dabaja B, Ansell S, Kuruvilla J. Chapter 102: Hodgkin's lymphoma. In: DeVita VT, Lawrence TS, Rosenberg SA, eds. *DeVita, Hellman, and Rosenberg's Cancer: Principles and Practice of Oncology*. 10th ed. Philadelphia, Pa: Lippincott Williams & Wilkins; 2015.

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Treating Hodgkin Lymphoma in Children

- [Treating classic Hodgkin lymphoma \(cHL\) in children](#)
- [Treating nodular lymphocyte-predominant Hodgkin lymphoma in children](#)

Treatment of Hodgkin lymphoma (HL) in children is slightly different from the treatment for adults. As for adults, the main goal in treating HL in children is to cure the lymphoma without causing long-term problems. Doctors adjust the treatment based on the child's age, the extent of the lymphoma, how well the lymphoma is responding to treatment, and other factors.

If the child is past puberty and muscles and bones are fully developed, treatment is usually the same as that given to adults. But if the child has not reached his or her full body size, chemotherapy (chemo) will likely be favored over radiation therapy. This is because radiation can affect bone and muscle growth and keep children from reaching their normal size.

Children's bodies tend to tolerate chemotherapy better in the short term than adults do. But some side effects are more likely to occur in children. Because some of these side effects could be long-term or [might not occur until years later](#)¹, children who survive cancer need careful attention for the rest of their lives.

Since the 1960s, most children and teens with cancer have been treated at special centers designed for them. Being treated in these centers offers the advantage of having a team of specialists who are experienced with the differences between adult

and childhood cancers, as well as the unique needs of children with cancer and their families. This team usually includes pediatric oncologists, surgeons, radiation oncologists, pathologists, pediatric oncology nurses, and nurse practitioners.

Childhood cancer centers also have psychologists, social workers, child life specialists, nutritionists, rehabilitation and physical therapists, and educators who can support the entire family.

Most children with cancer in the United States are treated at a center that's a member of the Children's Oncology Group (COG). All of these centers are associated with a university or children's hospital. As we have learned more about treating childhood cancer, it has become even more important that treatment be given by experts in this area.

In these centers, doctors treating children with HL often use treatment plans that are part of [clinical trials](#)². The purpose of these studies is to find the best treatments that cause the fewest side effects.

Any time a child or teen is diagnosed with cancer, it affects every family member and nearly every aspect of the family's life. You can read more about coping with these changes in [If Your Child Is Diagnosed with Cancer](#)³.

Treating classic Hodgkin lymphoma (cHL) in children

When treating children with classic Hodgkin lymphoma (cHL), doctors often combine [chemotherapy](#) (chemo) with low doses of [radiation](#). The chemo often includes combinations of many drugs rather than just the usual adult ABVD regimen, especially for lymphomas that have unfavorable features or are more advanced. In some situations, the [antibody-drug conjugate brentuximab vedotin \(Adcetris\)](#) might be included in the chemo regimen as well.

This approach has had excellent success rates, even for children with more advanced disease.

Stages IA and IIA, favorable

Treatment generally starts with chemo alone, used at the lowest dose that's likely to result in a cure. PET scans may be used to see if the treatment is working and/or if there's any lymphoma left in the body. If the HL doesn't go away completely, radiation therapy or more chemo might be needed.

Studies have suggested that HL in children can be cured without using radiation. This avoids the long-term problems it can cause. But, **if radiation therapy is used, the dose and area treated are kept as small as possible**. If radiation is used on the lower part of the body in girls and young women, the ovaries should be protected to help [preserve fertility](#)⁴.

Stages I and II, unfavorable

Treatment is likely to consist of a more intense chemo regimen, which might include brentuximab vedotin in some cases. Radiation therapy will likely be given as well, but the dose and field of radiation will be kept as small as possible.

Stages III and IV

Treatment for these more advanced lymphomas typically begins with more intense chemo, which might include brentuximab vedotin. Radiation therapy might be given to areas with bulky disease (areas that contain a lot of lymphoma).

Relapsed or refractory cHL

If the lymphoma comes back or is no longer responding to treatment, different types of chemo regimens might be tried. Other options might include a [stem cell transplant](#) or treatment with an [immunotherapy](#) drug (sometimes along with chemo).

Treating nodular lymphocyte-predominant Hodgkin lymphoma in children

Nodular lymphocyte-predominant Hodgkin lymphoma (NLPHL) is very rare in children. There's no single best treatment, and treatments used are often much like those used to treat cHL and/or those used to [treat adult NLPHL](#).

There is one exception: In the early stages of NLPHL in children, surgery to remove the affected lymph node may be the only treatment needed. After surgery, these childrenThere's no singu

1. www.cancer.org/cancer/survivorship/children-with-cancer/late-effects-of-cancer-treatment.html
2. www.cancer.org/cancer/managing-cancer/making-treatment-decisions/clinical-trials.html
3. www.cancer.org/cancer/survivorship/children-with-cancer/after-diagnosis.html
4. www.cancer.org/cancer/managing-cancer/side-effects/fertility-and-sexual-side-effects/preserving-fertility-in-children-and-teens-with-cancer.html

References

Bartlett NL, Foyil KV. Chapter 105: Hodgkin lymphoma. In: Niederhuber JE, Armitage JO, Dorshow JH, Kastan MB, Tepper JE, eds. *Abeloff's Clinical Oncology*. 5th ed. Philadelphia, Pa. Elsevier: 2014.

Burnelli R, Rinieri S, Rondelli R, et al. Long-term results of the AIEOP MH'96 childhood Hodgkin's lymphoma trial and focus on significance of response to chemotherapy and its implication in low risk patients to avoid radiotherapy. *Leuk Lymphoma*. 2018;1-10.

Children's Oncology Group. Hodgkin Disease: In Treatment. July 2011. Accessed at www.childrensoncologygroup.org/index.php/in-treatment-with-hodgkin-disease on March 21, 2018.

Kahn JM, Ozuah NW, Dunleavy K, et al. Adolescent and young adult lymphoma: collaborative efforts toward optimizing care and improving outcomes. *Blood Adv*. 2017;1(22):1945-1958.

National Cancer Institute. Childhood Hodgkin Lymphoma Treatment (PDQ®)—Health Professional Version. December 1, 2017. Accessed at www.cancer.gov/types/lymphoma/hp/child-hodgkin-treatment-pdq on March 21, 2018.

Shanbhag S, Ambinder RF. Hodgkin lymphoma: A review and update on recent progress. *CA Cancer J Clin*. 2018;68(2):116-132.

Shankar AG, Kirkwood AA, Depani S, et al. Relapsed or poorly responsive nodular lymphocyte predominant Hodgkin lymphoma in children and adolescents - a report from the United Kingdom's Children's Cancer and Leukaemia Study Group. *Br J Haematol*. 2016;173(3):421-431.

Shankar AG, Roques G, Kirkwood AA, et al. Advanced stage nodular lymphocyte



Hodgkin Lymphoma Treatment During Pregnancy

possible long-term effects on the unborn baby. Not all experts agree, but some say that as long as very careful precautions are taken to aim the radiation precisely, limit the doses, and shield the baby, pregnant women with HL in lymph nodes in the neck, underarm area, or inside the chest can get radiation with little or no apparent risk to the baby. If radiation is given, it should be delayed until at least the second trimester, if possible. To date, studies haven't found that delaying radiation treatment is harmful for the mother.

The need to avoid radiation also limits which imaging tests can be used to help determine the [stage²](#) (extent) of the lymphoma and see if treatment is working. CT scans, PET scans, and x-rays all use radiation, so they're avoided if at all possible. MRI scans and ultrasound can be used instead.

Hyperlinks

1. www.cancer.org/cancer/types/hodgkin-lymphoma/detection-diagnosis-staging/how-diagnosed.html
2. www.cancer.org/cancer/types/hodgkin-lymphoma/detection-diagnosis-staging/staging.html

References

Avilés A, Nambo MJ, Neri N. Treatment of Early Stages Hodgkin Lymphoma During Pregnancy. *Mediterr J Hematol Infect Dis*. 2018;10(1):e2018006.

Bartlett NL, Foyil KV. Chapter 105: Hodgkin lymphoma. In: Niederhuber JE, Armitage JO, Dorshow JH, Kastan MB, Tepper JE, eds. *Abeloff's Clinical Oncology*. 5th ed. Philadelphia, Pa. Elsevier: 2014.

National Cancer Institute. Adult Hodgkin Lymphoma Treatment (PDQ®)—Health Professional Version. March 1, 2018. Accessed at www.cancer.gov/types/lymphoma/hp/adult-hodgkin-treatment-pdq on March 21, 2018.

Pinnix CC, Osborne EM, Chihara D, et al. Maternal and Fetal Outcomes After Therapy for Hodgkin or Non-Hodgkin Lymphoma Diagnosed During Pregnancy. *JAMA Oncol*. 2016;2(8):1065-1069.

Younes A, Carbone A, Johnson P, Dabaja B, Ansell S, Kuruvilla J. Chapter 102: Hodgkin's lymphoma. In: DeVita VT, Lawrence TS, Rosenberg SA, eds. *DeVita*,

Hellman, and Rosenberg's Cancer: Principles and Practice of Oncology. 10th ed. Philadelphia, Pa: Lippincott Williams & Wilkins; 2015.

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