



What Are the Differences Between Cancers in Adults and

Children? [Childhood cancers are often the result of DNA changes very early in life. Learn more on the differences between cancers in adults and children.](#)

Key Statistics for Childhood Cancer [The American Cancer Society's most recent estimates and statistics for cancer in children in the United States are located here.](#)

Cancers that Develop in Children [Learn the most common types of childhood cancers and get detailed information on causes, risk factors and prevention of childhood cancer.](#)

Risk Factors and Causes of Childhood Cancer [Most childhood cancers are a result of DNA changes very early in life. Learn more about the risk factors and the causes of childhood cancer.](#)

Can Childhood Cancers Be Prevented? [Childhood cancer is rarely caused by environmental factors such as radiation exposure. Learn if you can prevent childhood cancer.](#)

Finding Cancer in Children [Cancers in children are often hard to recognize. Find detailed information on signs and symptoms of childhood cancer for early diagnosis.](#)

Treating Children with Cancer [Get information on general types of treatments for cancer in children based on how they work and when they are used. Learn more here.](#)

Late and Long-term effects of Cancer Treatment on Children [Major advances in treatment have made possible to cure many of these childhood cancers. Learn more on surviving childhood cancer.](#)

EASY READING

If Your Child Has Cancer [If your child has just been diagnosed with cancer, this short, simple guide can help.](#)

Common Cancers in Children

- [Brain and Spinal Cord Tumors](#)

- [Ewing Family of Tumors](#)
- [Hodgkin Disease](#)
- [Leukemia](#)
- [Neuroblastoma](#)
- [Non-Hodgkin Lymphoma](#)
- [Osteosarcoma](#)
- [Retinoblastoma](#)
- [Rhabdomyocarcoma](#)
- [Wilms Tumor](#)

[Pediatric Cancer Centers](#)

[When Your Child Has Cancer](#)

[Latest Cancer News](#)

[Stories of Hope](#)

[ACS Research News](#)

What Are the Differences Between Cancers in Adults and Children?

Cancer starts when cells in the body begin to grow out of control. Cells in nearly any part of the body can become cancer, and can spread to other areas of the body. To learn more about how cancers start and spread, see [Cancer Basics](#).

The types of cancers that develop in children are often different from the types that develop in adults. Childhood cancers are often the result of DNA changes in cells that take place very early in life, sometimes even before birth. Unlike many cancers in adults, childhood cancers are not strongly linked to lifestyle or environmental risk factors.

With some exceptions, childhood cancers tend to respond better to certain treatments such as chemotherapy (also called *chemo*). Children's bodies also tend to handle chemotherapy better than adults' bodies do. On the other hand, children (especially very young children) are more likely to be affected by radiation therapy if it is needed as part of treatment. Both chemo and radiation therapy also can cause [long-term side effects](#), so children who have had cancer need careful follow-up for the rest of their lives.

In the United States, most children and teens with cancer are treated at a center that is a member of the Children's Oncology Group (COG). All of these centers

are associated with a university or children's hospital. These centers offer the advantage of being treated by a team of specialists who know the differences between adult and childhood cancers, as well as the unique needs of children and teens with cancer and their families. This team usually includes pediatric oncologists (childhood cancer doctors), surgeons, radiation oncologists, pediatric oncology nurses, physician assistants (PAs), and nurse practitioners (NPs). As we have learned more about treating childhood cancer, it has become even more important that treatment be given by experts in this area.

These centers also have psychologists, social workers, child life specialists, nutritionists, rehabilitation and physical therapists, and educators who can support and educate the entire family. (See [Children Diagnosed With Cancer: Understanding the Health Care System](#) for more on the professionals who help treat children with cancer.)

Any time a child 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 [Children Diagnosed With Cancer: Dealing With Diagnosis](#).

- [References](#)

[See all references for Cancer in Children](#)

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Key Statistics for Childhood Cancers

Childhood cancers make up less than 1% of all cancers diagnosed each year. About 10,380 children in the United States under the age of 15 will be diagnosed with cancer in 2016. Childhood cancer rates have been rising slightly for the past few decades.

Because of major treatment advances in recent decades, more than 80% of children with cancer now survive 5 years or more. Overall, this is a huge increase

since the mid-1970s, when the 5-year survival rate was about 58%. Still, survival rates vary depending on the type of cancer and other factors. The survival rates for a specific type of childhood cancer can be found in our information for that cancer type.

After accidents, cancer is the second leading cause of death in children ages 1 to 14 . About 1,250 children younger than 15 years old are expected to die from cancer in 2016.

- [References](#)

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Cancers that Develop in Children

The types of cancers that occur most often in children are different from those seen in adults. The most common cancers of children are:

- Leukemia
- Brain and spinal cord tumors
- Neuroblastoma
- Wilms tumor
- Lymphoma (including both Hodgkin and non-Hodgkin)
- Rhabdomyosarcoma
- Retinoblastoma
- Bone cancer (including osteosarcoma and Ewing sarcoma)

Other types of cancers are rare in children, but they do happen sometimes. In very rare cases, children may even develop cancers that are much more common in adults.

Leukemia

Leukemias, which are cancers of the bone marrow and blood, are the most common childhood cancers. They account for about 30% of all cancers in children. The most common types in children are acute lymphocytic leukemia (ALL) and acute myelogenous leukemia (AML). These leukemias can cause bone and joint pain, fatigue, weakness, pale skin, bleeding or bruising, fever, weight loss, and other symptoms. Acute leukemias can grow quickly, so they need to be treated (typically with chemotherapy) as soon as they are found.

For more information see [Leukemia in Children](#).

Brain and spinal cord tumors

Brain and central nervous system tumors are the second most common cancers in children, making up about 26% of childhood cancers. There are many types of brain tumors, and the treatment and outlook for each is different.

Most brain tumors in children start in the lower parts of the brain, such as the cerebellum or brain stem. They can cause headaches, nausea, vomiting, blurred or double vision, dizziness, seizures, trouble walking or handling objects, and other symptoms. Adults are more likely to develop tumors in upper parts of the brain. Spinal cord tumors are less common than brain tumors in both children and adults.

For more information see [Brain and Spinal Cord Tumors in Children](#).

Neuroblastoma

Neuroblastoma starts in early forms of nerve cells found in a developing embryo or fetus. About 6% of childhood cancers are neuroblastomas. This type of cancer develops in infants and young children. It is rarely found in children older than 10. The tumor can start anywhere but usually starts in the belly (abdomen) where it is noticed as swelling. It can also cause bone pain and fever.

For more information see [Neuroblastoma](#).

Wilms tumor

Wilms tumor (also called *nephroblastoma*) starts in one, or rarely, both kidneys. It is most often found in children about 3 to 4 years old, and is uncommon in

children older than age 6. It can show up as a swelling or lump in the belly (abdomen). Sometimes the child might have other symptoms, like fever, pain, nausea, or poor appetite. Wilms tumor accounts for about 5% of childhood cancers.

For more information see [Wilms Tumor](#).

Lymphomas

Lymphomas start in immune system cells called *lymphocytes*. They most often start in lymph nodes and other lymph tissues, like the tonsils or thymus. These cancers can also affect the bone marrow and other organs. Symptoms depend on where the cancer is and can include weight loss, fever, sweats, tiredness (fatigue), and lumps (swollen lymph nodes) under the skin in the neck, armpit, or groin.

The 2 main types of lymphoma are Hodgkin lymphoma (sometimes called Hodgkin disease) and non-Hodgkin lymphoma. Both types occur in children and adults.

Hodgkin lymphoma accounts for about 3% of childhood cancers. It is more common, though, in early adulthood (age 15 to 40, usually people in their 20s) and late adulthood (after age 55). Hodgkin lymphoma is rare in children younger than 5 years of age. This type of cancer is very similar in children and adults, including which types of treatment work best.

Non-Hodgkin lymphoma makes up about 5% of childhood cancers. It is more likely to occur in younger children than Hodgkin lymphoma, but it is still rare in children younger than 3. The most common types of non-Hodgkin lymphoma in children are different from those in adults. These cancers often grow quickly and require intensive treatment, but they also tend to respond better to treatment than most non-Hodgkin lymphomas in adults.

For more information see [Non-Hodgkin Lymphoma in Children](#) and [Hodgkin Disease](#).

Rhabdomyosarcoma

Rhabdomyosarcoma starts in cells that normally develop into skeletal muscles. (These are the muscles that we control to move parts of our body.) This type of

cancer can start nearly any place in the body, including the head and neck, groin, belly (abdomen), pelvis, or in an arm or leg. It may cause pain, swelling (a lump), or both. This is the most common type of soft tissue sarcoma in children. It makes up about 3% of childhood cancers.

For more information see [Rhabdomyosarcoma](#).

Retinoblastoma

Retinoblastoma is a cancer of the eye. It accounts for about 2% of childhood cancers. It usually occurs in children around the age of 2, and is seldom found in children older than 6. Retinoblastomas are usually found because a parent or doctor notices a child's eye looks unusual. Normally when you shine a light in a child's eye, the pupil (the dark spot in the center of the eye) looks red because of the blood in vessels in the back of the eye. In an eye with retinoblastoma, the pupil often looks white or pink. This white glare of the eye may be noticed after a flash picture is taken.

For more information see [Retinoblastoma](#).

Bone cancers

Cancers that start in the bones (primary bone cancers) occur most often in older children and teens, but they can develop at any age. They account for about 3% of childhood cancers.

Two main types of primary bone cancers occur in children:

Osteosarcoma is most common in teens, and usually develops in areas where the bone is growing quickly, such as near the ends of the long bones in the legs or arms. It often causes bone pain that gets worse at night or with activity. It can also cause swelling in the area around the bone.

Ewing sarcoma is a less common type of bone cancer, which can also cause bone pain and swelling. It is most often found in young teens. The most common places for it to start are the pelvic (hip) bones, the chest wall (such as the ribs or shoulder blades), or in the middle of the long leg bones.

For more information see [Osteosarcoma](#) and [Ewing Family of Tumors](#).

- [References](#)

[See all references for Cancer in Children](#)

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Risk Factors and Causes of Childhood Cancer

A risk factor is anything that affects the chance of getting a disease such as cancer. Different cancers have different risk factors.

In adults, lifestyle-related risk factors, such as being overweight, eating an unhealthy diet, not getting enough exercise, and habits like smoking and drinking alcohol play a major role in many types of cancer. But lifestyle factors usually take many years to influence cancer risk, and they are not thought to play much of a role in childhood cancers.

A few environmental factors, such as [radiation exposure](#), have been linked with some types of childhood cancers. Some studies have also suggested that some parental exposures (such as smoking) might increase a child's risk of certain cancers, but more studies are needed to explore these possible links. So far, most childhood cancers have not been shown to have environmental causes.

In recent years, scientists have begun to understand how certain changes in the DNA inside our cells can cause them to become cancer cells. DNA is the chemical that makes up our genes, which control nearly everything our cells do. We usually look like our parents because they are the source of our DNA. But DNA affects more than just how we look. It also influences our risks for developing certain diseases, including some kinds of cancer.

Some genes control when our cells grow, divide into new cells, and die.

- Genes that help cells grow, divide, or stay alive are called **oncogenes**.
- Genes that slow down cell division or cause cells to die at the right time are

called ***tumor suppressor genes***.

Cancers can be caused by DNA changes that turn on oncogenes or turn off tumor suppressor genes.

Inherited versus acquired gene mutations

Some children inherit DNA changes (mutations) from a parent that increase their risk of certain types of cancer. These changes are present in every cell of the child's body, and can often be tested for in the DNA of blood cells or other body cells. Some of these DNA changes are linked only with an increased risk of cancer, while others can cause syndromes that also include other health or developmental problems.

But most childhood cancers are not caused by inherited DNA changes. They are the result of DNA changes that happen early in the child's life, sometimes even before birth. Every time a cell divides into 2 new cells, it must copy its DNA. This process isn't perfect, and errors sometimes occur, especially when the cells are growing quickly. This kind of gene mutation can happen at any time in life and is called an **acquired mutation**.

Acquired mutations start in one cell. That cell then passes the mutation on to all the cells that come from it. These acquired DNA changes are only in the person's cancer cells and will not be passed on to his or her children.

Sometimes the causes of gene changes in certain adult cancers are known (such as cancer-causing chemicals in cigarette smoke), but the reasons for DNA changes that cause most childhood cancers are not known. Some may have outside causes like radiation exposure, and others may have causes that have not yet been found. But many are likely to be caused by random events that sometimes happen inside a cell, without having an outside cause.

- [References](#)

[See all references for Cancer in Children](#)

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Can Childhood Cancers Be Prevented?

Unlike many cancers of adults, lifestyle-related risk factors (such as smoking) don't influence a child's risk of getting cancer. A few environmental factors, such as [radiation exposure](#), have been linked with childhood cancer risk. But, in many cases exposure to radiation might be unavoidable, such as if the child needs radiation therapy to treat another cancer. If your child does develop cancer, it is important to know that it is extremely unlikely there is anything you or your child could have done to prevent it.

Very rarely, a child might inherit [gene changes](#) that make them very likely to get a certain kind of cancer. In such cases, doctors may sometimes recommend preventive surgery to remove an organ before cancer has a chance to develop there. Again, this is very rare.

- [References](#)

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Finding Cancer in Children

Screening for cancer in children

Screening is testing for a disease such as cancer in people who don't have any symptoms. Childhood cancers are rare, and there are no widely recommended screening tests to look for cancer in children who are not at increased risk.

Some children have a higher chance of developing a specific type of cancer because of certain [gene changes](#) they inherit from a parent. These children may need careful, regular medical check-ups that include special tests to look for

early signs of cancer.

Possible signs and symptoms of cancer in children

Many cancers in children are found early, either by a child's doctor or by parents or relatives. But cancers in children can be hard to recognize right away because early symptoms are often like those caused by much more common illnesses or injuries. Children often get sick or have bumps or bruises that might mask the early signs of cancer. Cancer in children is not common, but it's important to have your child checked by a doctor if they have unusual signs or symptoms that do not go away, such as:

- An unusual lump or swelling
- Unexplained paleness and loss of energy
- Easy bruising
- An ongoing pain in one area of the body
- Limping
- Unexplained fever or illness that doesn't go away
- Frequent headaches, often with vomiting
- Sudden eye or vision changes
- Sudden unexplained weight loss

Most of these symptoms are much more likely to be caused by something other than cancer, such as an injury or infection. Still, if your child has any of these symptoms, see a doctor so that the cause can be found and treated, if needed.

Other symptoms are also possible, depending on the type of cancer. You can find more information on common symptoms for specific types of childhood cancer in [Cancers that develop in children](#)

Seeing a doctor

The doctor will ask about medical history and symptoms, and examine your child. If cancer is a possible cause, the doctor might order [imaging tests](#) (such as x-rays) or other tests. Sometimes if an abnormal lump or tumor is found, the doctor might need to remove some or all of it so that it can be looked at under a microscope for cancer cells. This is known as a [biopsy](#).

If your child is found to have cancer, [Children With Cancer: Dealing With Diagnosis](#) offers ideas for coping and moving forward after the diagnosis is made.

- [References](#)

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Treating Children with Cancer

Treatment for childhood cancer is based mainly on the type and stage (extent) of the cancer. The main types of treatment used for childhood cancer are:

- Surgery
- [Radiation therapy](#)
- [Chemotherapy](#)

Some types of childhood cancers might be treated with high-dose chemotherapy followed by a stem cell transplant. Newer types of treatment, such as targeted therapy drugs and immunotherapy, have also shown promise in treating some childhood cancers. Often more than one type of treatment is used.

There are exceptions, but childhood cancers usually respond well to chemotherapy because they tend to be cancers that grow fast. (Most forms of chemotherapy affect cells that are growing quickly.) Children's bodies are also generally better able to recover from higher doses of chemotherapy than are adults' bodies. Using more intensive treatments gives doctors a better chance of treating the cancer effectively, but it can also lead to more short- and long-term side effects. Unlike chemotherapy, radiation can often cause more serious side effects in children (especially very young children) than in adults, so its use sometimes needs to be limited. Doctors do their best to balance the need for intensive treatment with the desire to limit side effects as much as possible.

For detailed information on how a certain type of childhood cancer is treated, see our information on that specific [type of cancer](#).

The cancer treatment team

Children with cancer and their families have special needs that can best be met at [children's cancer centers](#). Treatment of childhood cancer in these centers is coordinated by a team of experts who know 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:** doctors who specialize in using medicines to treat children with cancer
- **Pediatric surgeons:** doctors who specialize in performing surgery in children
- **Radiation oncologists:** doctors who specialize in using radiation to treat cancer
- **Pediatric oncology nurses:** nurses who specialize in caring for children with cancer
- **Nurse practitioners (NPs) and physician assistants (PAs):** nurses and other professionals who are specially trained and licensed to practice medicine alongside doctors

The team can also include many professionals other than nurses and doctors. Children's cancer centers have psychologists, social workers, child life specialists, nutritionists, rehabilitation and physical therapists, and educators who can support and care for the entire family. For more information, see [Children Diagnosed With Cancer: Understanding the Health Care System](#).

Getting the best treatment possible

Today, most children with cancer are treated at specialized [children's cancer centers](#). These centers are often members of the Children's Oncology Group (COG). Going to a hospital that specializes in treating childhood cancer helps ensure that a child gets the best available cancer treatment.

These centers offer the most up-to-date treatment by conducting clinical trials (studies of promising new therapies). Children's cancer centers often conduct many clinical trials at any one time, and in fact most children treated at these centers take part in a clinical trial as part of their treatment.

Clinical trials are one way to get state-of-the-art cancer care for your child. They may be the only way to get access to some newer treatments. They are also the

best way for doctors to learn better methods to treat cancer. Still, they might not be right for every child. Talk to your child's cancer care team to learn about possible clinical trials for your child, and ask about the pros and cons of enrolling in one of them.

If your child qualifies for a clinical trial, it's up to you whether or not to enter (enroll) your child into it. Older children, who can understand more, usually must also agree to take part in the clinical trial before the parents' consent is accepted.

To learn more see [Clinical Trials](#).

- [References](#)

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Late and Long-term Effects of Cancer Treatment on Children

During and after cancer treatment, most families are mainly concerned about the short- and [long-term effects](#) of the cancer and its treatment, and concerns about the cancer still being present or coming back.

It is certainly normal for families to want to put the cancer and its treatment behind them and to get back to a life that doesn't revolve around cancer. But it's important to realize that close follow-up care is a central part of this process that offers children the best chance for recovery and long-term survival.

Once treatment is finished, the health care team will set up a follow-up schedule. For many years after treatment, it is very important that children have regular follow-up exams with the cancer care team. As time goes by, the risk of the cancer [coming back](#) goes down. Doctor visits might be needed less often, but they are still important because some side effects of treatment might not show up until years later.

Because of major advances in treatment, more children treated for cancer survive into adulthood. But treatments might affect children's health later in life, so watching for health effects as they get older has become more of a concern in recent years. The earlier any problems are recognized, the more likely it is they can be treated effectively.

Childhood cancer survivors are at risk, to some degree, for several possible late effects of their cancer treatment. It's important to discuss what these possible effects might be with your child's medical team. The risks for each child depend on a number of factors, such as the type of cancer, the specific cancer treatments used, the doses of cancer treatment, and the child's age at the time of treatment. It's very important to discuss possible late side effects with your child's health care team, and to make sure there is a plan to watch for these problems and treat them, if needed. Some of the possible late effects of cancer treatment include:

- Heart or lung problems (due to certain chemotherapy drugs or radiation therapy to the chest area)
- Slowed or delayed growth and development (in the bones or overall)
- Changes in sexual development and ability to have children
- Learning problems
- Increased risk of other cancers later in life

To learn more about the possible specific long-term side effects for a particular type of cancer, see our document on that specific [type of cancer](#).

To help raise awareness of late effects and improve follow-up care of childhood cancer survivors throughout their lives, the Children's Oncology Group (COG) has developed long-term follow-up guidelines for survivors of childhood cancers. These guidelines can help you know what to watch for, what type of screening tests should be done to look for problems, and how late effects can be treated.

To learn more, ask your child's doctors about the COG survivor guidelines. You can also read them on the COG website: www-survivorshipguidelines.org. The guidelines are written for health care professionals. Patient versions of some of the guidelines are available (as "Health Links") on the site as well, but we urge you to discuss them with your doctor.

For more about some of the possible long-term effects of treatment, see [Children Diagnosed With Cancer: Late Effects of Cancer Treatment](#).

- [References](#)

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References: Cancer in Children

American Cancer Society. *Cancer Facts & Figures 2016*. Atlanta, Ga: American Cancer Society; 2016.

American Cancer Society. *Cancer Facts & Figures 2014*. Atlanta, Ga: American Cancer Society; 2014.

American Cancer Society. Cancer site detailed guides. Accessed at www.cancer.org on November 7, 2014.

Cogliano VJ, Baan R, Straif K, et al. Preventable exposures associated with human cancers. *J Natl Cancer Inst*. 2011;103:1827-1839.

National Cancer Institute. A Snapshot of Pediatric Cancers. 2014. Accessed at www.cancer.gov/researchandfunding/snapshots/pediatric on November 7, 2014.

Ross JA, Severson RK, Pollock BH, Robison LL. Childhood cancer in the United States. A geographical analysis of cases from the Pediatric Cooperative Clinical Trials groups. *Cancer*. 1996;77:201-207.

EASY READING

If Your Child Has Cancer

What is cancer?

Cancer can start any place in the body. It starts when cells grow out of control and crowd out normal cells. This makes it hard for the body to work the way it

should.

Cancer can spread from where it started to other parts of the body. Cancer cells in the kidney can sometimes travel to the lungs and grow there. When cancer cells do this, it's called metastasis (meh-TAS-tuh-sis). To doctors, the cancer cells in the lungs look just like the ones from the kidney.

Cancer is always named for the place where it starts. So when kidney cancer spreads to the lungs (or any other place), it's still called kidney cancer. It's not called lung cancer unless it starts from cells in the lungs.

Are there different kinds of cancer?

There are many types of cancer. Cancer can start in any part of the body. It can start in the brain, the bones or muscles, the eye, or even in the blood.

Your doctor can tell you more about the type your child has.

Questions to ask the doctor

- Why do you think my child has cancer?
- Is there a chance my child doesn't have cancer?
- Where do you think the cancer started?
- Would you please write down the kind of cancer you think my child might have?
- What will happen next?

How does the doctor know my child has cancer?

The symptoms of cancer depend on the type of cancer, where the cancer is, how big it is, and how much it affects other parts of your child's body. Talk to your child's doctor about any changes you've noticed. The doctor will ask questions about your child's symptoms and do a physical exam.

If signs are pointing to cancer, more tests will be done. Talk to the doctor about the tests and what they're like. Your child may need medicine to make them sleep for some of these tests.

Tests that may be done

Here are some of the tests your child may need:

Lab tests: Blood and urine tests can be used to help some types of cancer. They can also be used to find out how well your child's body is working.

Ultrasound: For this test, a small wand is moved around on your child's skin. It gives off sound waves and picks up the echoes as they bounce off tissues. The echoes are made into a picture on a computer screen.

X-rays: X-rays of the part of your child's body that might have cancer are sometimes the first tests done. A chest x-ray may also be done to see if the cancer has spread to the lungs.

CT or CAT scan: This test uses x-rays to make detailed pictures of the inside of your body. This test may be done to look for cancer or to see if it has spread.

MRI scan: MRIs use radio waves and strong magnets instead of x-rays to make detailed pictures of the inside of your child's body. MRIs can show the tumor and other parts of the body.

PET scan: PET scans use a kind of sugar that can be seen inside your child's body with a special camera. If there is cancer, this sugar shows up as "hot spots" where the cancer is found. This test can help show if the cancer has spread.

Endoscopy (en-**DAHS**-kuh-pee): This is when a thin, lighted tube is put into your child's body to look inside. The tube may be put in through a small cut in the skin or through a natural opening, like the mouth. The tube lets the doctor look at the tumor and other nearby body parts. A biopsy can be done with tools put into the tube.

Biopsy: In a biopsy (BY-op-see), the doctor takes out a small piece of the lump to check it for cancer cells. A biopsy is often the only way to tell for sure if your child has cancer. There are many ways to do a biopsy. The type used will depend on the size of the lump and where it is in your child's body. Ask the doctor what kind your child will need.

Bone marrow aspiration (ASP-er-**AY**-shun) **and biopsy:** For this test, a hollow needle is put into the center of a bone (most often the back of the hip) to take out a small amount of the liquid inside called bone marrow. (This is where blood cells are made.) The bone marrow is tested to see if there are cancer cells in it.

Grading cancer

The cancer cells in the biopsy sample might be given a grade. This can help doctors predict how fast the cancer is likely to grow and spread. The grade is based on how much the cancer cells look like normal cells. Cells that look very different from normal cells are given a higher grade and tend to grow faster. Ask the doctor to explain the grade of your child's cancer.

Questions to ask the doctor

- What tests will my child need to have?
- Who will do these tests?
- Where will they be done?
- Who can explain them to us?
- How and when will we get the results?
- Who will explain the results to us?
- What do we need to do next?

How serious is my child's cancer?

If your child has cancer (other than leukemia), the doctor will want to find out how far it has spread. This is called staging. Your doctor will want to find out the stage of your child's cancer to help decide what type of treatment is best.

The stage describes how much the cancer has grown in the area where it started. It also tells if the cancer has spread to other parts of your child's body.

Your child's cancer may be stage 0, 1, 2, 3, or 4. The lower the number, the less the cancer has spread. A higher number, like stage 4, means a more serious cancer that has spread from where it first started.

Some kinds of cancer are staged using other systems. Ask the doctor about the cancer stage and what it means for your child.

Questions to ask the doctor

- Do you know the stage of the cancer?
- If not, how and when will you find out the stage of the cancer?
- Would you explain to me what the stage means in my child's case?

- Based on the stage of the cancer, what are the chances of curing it?
- What will happen next?

What kind of treatment will my child need?

The main types of treatment for cancer are:

- Surgery (SUR-jur-ee)
- Radiation (RAY-dee-**A**-shun) treatments
- Chemotherapy (KEY-mo-**THAIR**-uh-pee)
- Targeted drugs
- Immunotherapy (IM-yuh-no-**THAIR**-uh-pee) drugs

Many times more than 1 kind of treatment is used. The treatment plan that's best for your child will depend on:

- The exact type of cancer
- The stage and grade of the cancer
- Where the cancer is
- The chance that a type of treatment will cure the cancer or help in some way
- Your child's age and overall health
- Your feelings about the treatment and the side effects that could come with it

Surgery

Surgery is often used to take out the tumor and a margin or edge of the healthy tissue around it. The type of surgery done depends on where the tumor is. Ask the doctor if your child will need surgery, what kind of surgery your child will have, and what to expect.

Side effects of surgery

Any type of surgery can have risks and side effects. Ask the doctor what you can expect. If your child has problems, let the doctors know. Doctors who treat cancer should be able to help your child with any problems that come up.

Radiation treatments

Radiation uses high-energy rays (like x-rays) to kill cancer cells. It may be used

along with other treatments like surgery or chemo to treat some cancers. Sometimes radiation alone can kill the cancer cells. Radiation can also be used to help treat symptoms like pain and swelling if the cancer has spread.

Radiation can be aimed at the tumor from a machine outside the body. This is called external beam radiation.

Radiation can also be given by putting a small source of radiation in or near the tumor. This is called brachytherapy (BRAKE-ee-**THAIR**-uh-pee).

Sometimes, both types of radiation are used.

Side effects of radiation treatments

If the doctor suggests radiation treatment, talk about what side effects might happen. Side effects depend on the type of radiation that's used, the area being treated, and your child's age. Common side effects of radiation are:

- Skin changes where the radiation is given
- Feeling very tired

Most side effects get better after treatment ends. But some side effects might last longer, or might not show up until years later. For instance, radiation can sometimes affect bone growth, or it can affect the brain. Talk to your child's cancer care team about what you can expect during and after treatment.

Chemo

Chemo (KEY-mo) is the short word for chemotherapy, the use of drugs to fight cancer. The drugs are often given through a needle into a vein. They can also be given as shots or pills. These drugs go into the blood and spread through the body.

Chemo is often given in cycles or rounds. Each round of treatment is followed by a break. Most of the time, 2 or more chemo drugs are given.

Side effects of chemo

Chemo can make your child feel very tired, sick to the stomach, and cause their hair to fall out. But these problems tend to go away after treatment ends.

There are ways to treat most chemo side effects. If your child has side effects,

talk to the cancer care team so they can help.

Some chemo drugs can have other effects that might not show up until years later. For instance, some chemo drugs can affect the heart, or they might raise the risk of getting another cancer later on. Talk to the cancer care team so you know what to look out for.

Targeted drugs

Targeted drugs are made to work mostly on the changes in cells that make them cancer. These drugs affect mainly cancer cells and not normal cells in the body. They may work even if other treatment doesn't. They may be given alone or along with chemo.

Side effects of targeted drugs

Side effects depend on which drug is used. These drugs often make a person feel sick to the stomach and might cause chills, fever, rashes, and headaches. Some cause low blood counts and heart and liver problems. Side effects often go away after treatment ends.

There are ways to treat most of the side effects caused by targeted drugs. If your child has side effects, talk to the cancer care team so they can help.

Immunotherapy drugs

These treatments help your child's own immune system fight the cancer. Immune treatments can be helpful in treating some types of cancer. These treatments are most often given through a needle into a vein.

Side effects of immune therapy drugs

Side effects depend on which drug is used. Some might cause a fever or make your child feel sick. Rarely, these drugs might cause more serious side effects. If your child has side effects, talk to the cancer care team so they can help.

Clinical trials

Clinical trials are research studies that test new drugs or other treatments in people. They compare standard treatments with others that may be better.

If you would like your child to be in a clinical trial, start by asking the doctor if your clinic or hospital takes part in clinical trials. You can also call our clinical trials matching service at 1-800-303-5691 or go online at www.cancer.org/clinicaltrials to find studies near you.

Clinical trials are one way to get the newest cancer treatment. They are the best way for doctors to find better ways to treat cancer. If your child's doctor can find one that's studying the kind of cancer your child has, it's up to you whether to take part. And if you do sign your child up for a clinical trial, you can always stop at any time.

What about other treatments that I hear about?

When your child has cancer you might hear about other ways to treat the cancer or treat your child's symptoms. These may not always be standard medical treatments. These treatments may be vitamins, herbs, diets, and other things. You may wonder about these treatments.

Some of these are known to help, but many have not been tested. Some have been shown not to help. A few have even been found to be harmful. Talk to your child's doctor about anything you're thinking about using, whether it's a vitamin, a diet, or anything else.

Questions to ask the doctor

- Will my child need to see other doctors?
- What treatment do you think is best for my child?
- What's the goal of this treatment? Do you think it could cure the cancer?
- Will treatment include surgery? If so, who will do the surgery?
- What will the surgery be like?
- How will my child's body look and work after surgery?
- Will my child need other types of treatment, too?
- What will these treatments be like?
- What's the goal of these treatments?
- What side effects could my child have from these treatments?
- What can we do about side effects that my child might have?
- Will my child be able to have children someday?
- Are there any other long-term side effects we need to watch out for?
- Is there a clinical trial that might be right for my child?

- What about vitamins or diets that friends tell me about? How will I know if they are safe?
- How soon does my child need to start treatment?
- What should we do to be ready for treatment?
- Is there anything we can do to help the treatment work better?
- What's the next step?

What will happen after treatment?

You'll be glad when treatment is over. But it's hard not to worry about cancer coming back. Even when cancer never comes back, people still worry about it. For years after treatment ends, your child will see their cancer doctor. At first, visits may be every few months. Then, the longer your child is cancer-free, the less often the visits are needed.

Be sure to take your child to all of these follow-up visits. The doctors will ask about symptoms, do physical exams, and may do tests to see if the cancer has come back.

Some cancer treatments can have long-term side effects. Some of these might not show up until years later. Be sure your child keeps seeing a doctor even as they grow older, to watch for any problems that come up.

Having cancer and dealing with treatment can be hard, but it can also be a time to look at life in new ways. You might be thinking about how to improve your child's health. Call us at 1-800-227-2345 or talk to your child's doctor to find out what you can do to help your child feel better.

- [Words to know](#)
- [How can I learn more?](#)

Adenocarcinoma (AD-no-KAR-suh-**NO**-muh): Cancer that starts in the glandular cells that line certain organs and make and release substances into the body, such as mucus, digestive juices, or other fluids.

Biopsy (BY-op-see): Taking out a small piece of tissue to see if there are cancer cells in it.

Bone marrow: The soft middle part of some bones where new blood cells are made.

Carcinoma (CAR-sin-O-muh): Cancer that starts in the lining layer of organs. Most cancers are carcinomas.

Immune system: The body system that fights infection.

Immunotherapy(IM-yuh-no-THAIR-uh-pee): Treatments that uses the body's immune system to fight cancer.

Leukemia (loo-KEY-me-uh): Cancer that starts in the blood.

Lymph nodes (limf nodes): Small, bean-shaped collections of immune system tissue found all over the body and connected by lymph vessels; also called lymph glands.

Lymphoma (lim-FOAM-uh): Cancer that starts in the immune system cells called lymphocytes (LIM-fo-sites), which are a kind of white blood cell.

Malignant (muh-LIG-nunt): Having cancer in it.

Metastasis (muh-TAS-tuh-sis): Cancer cells that have spread from where they started to other places in the body.

Pediatric oncologist (pee-dee-AT-trick on-KAHL-uh-jist): A doctor who treats children who have cancer.

We have a lot more information for you. You can find it online at www.cancer.org. Or, you can call our toll-free number at 1-800-227-2345 to talk to one of our cancer information specialists.

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