



# Treating Bladder Cancer

If you've been diagnosed with bladder cancer, your treatment team will discuss your options with you. It's important to weigh the benefits of each treatment option against the possible risks and side effects.

## How is bladder cancer treated?

Depending on the stage of the cancer and other factors, treatment options for people with bladder cancer can include:

- [Bladder Cancer Surgery](#)
- [Intravesical Therapy for Bladder Cancer](#)
- [Chemotherapy for Bladder Cancer](#)
- [Radiation Therapy for Bladder Cancer](#)
- [Immunotherapy for Bladder Cancer](#)

## Common treatment approaches

Sometimes, the best option might include more than one of type of treatment. Surgery, alone or with other treatments, is part of the treatment for most bladder cancers. Surgery can often remove early-stage bladder tumors. But a major concern in people with early-stage bladder cancer is that new cancers often form in other parts of the bladder over time. Removing the entire bladder (known as a *radical cystectomy*) is one way to avoid this, but it can have major side effects. If the entire bladder is not removed, other treatments may be given to try to reduce the risk of new cancers. Whether or not other treatments are given, close follow-up is needed to look for signs of new cancers in the bladder.

- [Treatment of Bladder Cancer, by Stage](#)

## Who treats bladder cancer?

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

- **Urologists:** surgeons who specialize in treating diseases of the urinary system and male reproductive system
- **Radiation oncologists:** doctors who treat cancer with radiation therapy
- **Medical oncologists:** doctors who treat cancer with medicines such as chemotherapy and immunotherapy

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 of your treatment options, including their goals and possible side effects, with your doctors to help make the decision that best fits your needs. Some important things to consider include:

- Your age and expected life span
- Any other serious health conditions you have
- The [stage](#) and grade of your cancer
- The likelihood that treatment will cure your cancer (or help in some other way)
- Your feelings about the possible side effects from treatment

You may feel that you must make a decision quickly, but it's important to give yourself time to absorb the information you have just learned. It's also very important to ask questions if there is anything you're not sure about.

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.

- [What Should You Ask Your Health Care Team About Bladder Cancer?](#)
- [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 dangerous.

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 Alternative Medicine](#)

## **Help getting through cancer treatment**

Your cancer care team will be your first source of information and support, but there are other resources for help when you need it. Hospital- or clinic-based support services are 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.

- [Find Support Programs and Services in Your Area](#)

## **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](#)
- [Palliative or Supportive Care](#)

*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 him or her questions about your treatment options.*

## **Bladder Cancer Surgery**

Surgery is part of the treatment for most bladder cancers. The type of surgery done depends on the stage (extent) of the cancer.

### **Transurethral resection of bladder tumor (TURBT)**

A transurethral resection of bladder tumor (TURBT), also known as just a transurethral resection (TUR), is often used to determine if someone has bladder cancer and, if so, whether the cancer has invaded the muscle layer of the bladder wall.

This is also the most common treatment for early-stage or superficial (non-muscle invasive) bladder cancers. Most patients have superficial cancer when they are first diagnosed, so this is usually their first treatment. Some people might also get a second, more extensive TURBT as part of their treatment.

#### **How TURBT is done**

This surgery is done using an instrument put up the urethra, so it doesn't require cutting into the abdomen. You will get either general anesthesia (where you are asleep) or

regional anesthesia (where the lower part of your body is numbed).

For this operation, a type of rigid cystoscope called a *resectoscope* is placed into the bladder through the urethra. The resectoscope has a wire loop at its end to remove any abnormal tissues or tumors. The removed tissue is sent to a lab to be looked at by a pathologist.

After the tumor is removed, more steps may be taken to try to ensure that it has been destroyed completely. Any remaining cancer may be treated by fulguration (burning the base of the tumor) while looking at it with the cystoscope. Cancer can also be destroyed using a high-energy laser through the cystoscope.

## **Possible side effects**

The side effects of TURBT are generally mild and do not usually last long. You might have some bleeding and pain when you urinate after surgery. You can usually return home the same day or the next day and can resume your usual activities within a week or two.

Even if the TURBT removes the tumor completely, bladder cancer often comes back (recurs) in other parts of the bladder. This might be treated with another TURBT. But if TURBT needs to be repeated many times, the bladder can become scarred and lose its capacity to hold much urine. Some people may have side effects such as frequent urination, or even incontinence (loss of control of urination).

In patients with a long history of recurrent, non-invasive low-grade tumors, the surgeon may sometimes just use fulguration to burn small tumors that are seen during cystoscopy (rather than removing them). This can often be done using local anesthesia (numbing medicine) in the doctor's office. It is safe but can be mildly uncomfortable.

## **Cystectomy**

When bladder cancer is invasive, all or part of the bladder may need to be removed. This operation is called a *cystectomy*.

**Partial cystectomy:** If the cancer has invaded the muscle layer of the bladder wall but is not very large and only in one place, it can sometimes be removed along with part of the bladder wall without taking out the whole bladder. The hole in the bladder wall is then closed. Nearby lymph nodes are also removed and examined for cancer spread. Only a small portion of people with cancer that has invaded the muscle can have this

surgery.

The main advantage of this surgery is that the person keeps their bladder and doesn't need reconstructive surgery (see below). But the remaining bladder may not hold as much urine, which means they will have to urinate more often. The main concern with this type of surgery is that bladder cancer can still recur in another part of the bladder wall.

**Radical cystectomy:** If the cancer is larger or is in more than one part of the bladder, a radical cystectomy will be needed. This operation removes the entire bladder and nearby lymph nodes. In men, the prostate and seminal vesicles are also removed. In women, the ovaries, fallopian tubes (tubes that connect the ovaries and uterus), the uterus (womb), cervix, and a small portion of the vagina are often removed along with the bladder.

General anesthesia (where you are in a deep sleep) is used for either type of cystectomy.

Typically, these procedures are done through a cut (incision) in the abdomen. You will need to stay in the hospital for about a week after the surgery. You can usually go back to your normal activities after several weeks.

In some cases, the surgeon may operate through several smaller incisions using special long, thin instruments, one of which has a tiny video camera on the end to see inside the pelvis. This is known as laparoscopic, or "keyhole" surgery. The surgeon may either hold the instruments directly or may sit at a control panel in the operating room and maneuver robotic arms to do the surgery (sometimes known as a *robotic cystectomy*). This type of surgery may result in less pain and quicker recovery because of the smaller incisions. But it hasn't been around as long as the standard type of surgery, so it's not yet clear if it is equally as effective.

It is important that any type of cystectomy be done by a surgeon with experience in treating bladder cancer. If the surgery is not done well, the cancer is more likely to come back.

## **Reconstructive surgery after radical cystectomy**

If your whole bladder is removed, you will need another way to store urine and and remove it. Several types of reconstructive surgery can be done depending on your medical situation and personal preferences.

**Incontinent diversion:** One option may be to remove a short piece of your intestine and connect it to the ureters. This creates a passageway, known as an *ileal conduit*, for urine to pass from the kidneys to the outside of the body. Urine flows from the kidneys through the ureters into the ileal conduit. One end of the conduit is connected to the skin on the front of the abdomen by an opening called a *stoma* (also known as a *urostomy*).

After this procedure, a small bag is placed over the stoma to collect the urine, which comes out continuously in small amounts. The bag then needs to be emptied once it is full. This approach is sometimes called an *incontinent diversion*, because you no longer control the flow of urine out of the body.

**Continent diversion:** Another way for urine to drain is called a *continent diversion*. In this approach, a pouch is made from the piece of intestine that is attached to the ureters. One end of the pouch is connected to an opening (stoma) in the skin on the front of the abdomen. A valve is created in the pouch to allow urine to be stored there. You then empty the pouch several times a day by putting a drainage tube (catheter) into the stoma through the valve. Some people prefer this method because there is no bag on the outside.

**Neobladder:** A newer method routes the urine back into the urethra, restoring urination. To do this, the surgeon creates a *neobladder* – basically a new bladder made of a piece of intestine. As with the incontinent and continent diversions, the ureters are connected to the neobladder. The difference is that the neobladder is also sewn to the urethra. This lets the patient urinate normally. Over several months, most people regain the ability to urinate normally during the day, although many people might still have some incontinence at night.

If the cancer has spread or can't be removed with surgery, a diversion may be made without removing the bladder. In this case, the purpose of the surgery is to prevent or relieve blockage of urine flow, rather than try to cure the cancer.

## **Risks and side effects of cystectomy**

The risks with any type of cystectomy are much like those with any major surgery. Problems during or shortly after the operation can include:

- Reactions to anesthesia
- Bleeding from the surgery
- Blood clots in the legs or lungs
- Damage to nearby organs
- Infections at the surgery site

Most people will have at least some pain after the operation, which is usually helped with pain medicines, if needed.

**Effects on urination:** Bladder surgery can affect how you urinate. If you have had a partial cystectomy, this might be limited to having to go more often (because your bladder can't hold as much urine).

If you have a radical cystectomy, you will need reconstructive surgery (described above) to create a new way for urine to leave your body. Depending on the type of reconstruction, you might need to learn how to empty your urostomy bag or to put a catheter into your stoma. Aside from these changes, urinary diversion and urostomy can also lead to:

- Infections
- Urine leaks
- Pouch stones
- Blockage of urine flow

The physical changes that come from removing the bladder and having a urostomy can affect your quality of life as well. Discuss your feelings and concerns with your health care team.

For more about urostomies, see [Urostomy Guide](#).

**Sexual effects of radical cystectomy in men:** Radical cystectomy removes the prostate gland and seminal vesicles. Since these glands make most of the seminal fluid, removing them means that a man will no longer make semen. He can still have an orgasm, but it will be “dry.”

After surgery, many men have nerve damage that affects their ability to have erections. In some men this may improve over time. Generally, the younger a man is, the more likely he is to regain the ability to have full erections. If this issue is important to you, discuss it with your doctor before surgery. Newer surgical techniques may lower the chance of erection problems.

For more on sexual issues and ways to cope with them, see [Sexuality for the Man With Cancer](#).

**Sexual effects of radical cystectomy in women:** This surgery often removes the front part of the vagina. This can make sex less comfortable for some women, although most of the time intercourse is still possible. One option is to have the vagina rebuilt, which is known as *vaginal reconstruction*. There is more than one way to do this, so talk with



your surgeon about the pros and cons of each. Whether or not you have reconstruction, there are many ways to make sex more comfortable.

Radical cystectomy can also affect a woman's ability to have an orgasm if the nerve bundles that run along each side of the vagina are damaged. Talk with your doctor about whether these nerves can be left in place during surgery.

If the surgeon takes out the end of the urethra where it opens outside the body, the clitoris can lose some of its blood supply, which might affect sexual arousal. Talk with your surgeon about whether the end of the urethra can be spared.

For more on ways to cope with these and other sexual issues, see [Sexuality for the Woman With Cancer](#).

**Sexual effects of urostomy:** It's normal for both men and women to be concerned about having a sex life with a urostomy. Having your ostomy pouch fit correctly and emptying it before sex reduces the chances of a major leak. A pouch cover or small ostomy pouch can be worn with a sash to keep the pouch out of the way. Wearing a snug fitting shirt may be even more comfortable. Choose sexual positions that keep your partner's weight from rubbing against the pouch. For more information, see [Urostomy Guide](#).

See [Cancer Surgery](#) for more about surgery as a treatment for cancer.

- [References](#)

[See all references for Bladder Cancer](#)

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## Intravesical Therapy for Bladder Cancer

With intravesical therapy, the doctor puts a liquid drug directly into the bladder (through a catheter) rather than giving it by mouth or injecting it into a vein. The drug can affect the cells lining the bladder without having major effects in other parts of the body

## When might intravesical therapy be used?

Intravesical therapy is used after [transurethral resection of bladder tumor \(TURBT\)](#) for non-invasive (stage 0) or minimally invasive (stage I) bladder cancers to help keep the cancer from coming back.

It is used only for these early-stage cancers because medicines given this way mainly affect the cells lining the inside of the bladder, with little to no effect on cells elsewhere. This means that any cancer cells outside of the bladder lining, including those that have grown deeply into the bladder wall, are not treated. Drugs put into the bladder also can't reach cancer cells in the kidneys, ureters, and urethra, or those that have spread to other organs.

## Types of intravesical therapy

There are two types of intravesical therapy:

- Immunotherapy
- Chemotherapy

### Intravesical immunotherapy

Immunotherapy causes the body's own immune system to attack the cancer cells.

**Bacillus Calmette-Guerin therapy:** Bacillus Calmette-Guerin (BCG) is the main intravesical immunotherapy for treating early-stage bladder cancer. BCG is a germ that is related to the one that causes tuberculosis (TB), but it doesn't usually cause serious disease. BCG is put directly into the bladder through a catheter. The body's immune system cells are attracted to the bladder and activated by BCG, which in turn affects the bladder cancer cells. Treatment is usually started a few weeks after a TURBT and is given once a week for 6 weeks. Sometimes long-term maintenance BCG therapy is given.

Treatment with BCG can cause symptoms that feel like having the flu, such as fever, chills, and fatigue. It can also cause a burning feeling in the bladder. Rarely, BCG can spread through the body, leading to a serious infection. One sign of this can be a high fever that isn't helped by aspirin or similar medicines. If this happens, call your doctor right away. You might want to ask about other serious side effects that would warrant a call to your doctor.

## Intravesical chemotherapy

For this treatment, chemotherapy (chemo) drugs are put directly into the bladder through a catheter. These drugs kill actively growing cancer cells. Many of these same drugs can also be given systemically (usually into a vein) to treat more advanced stages of bladder cancer.

**Mitomycin** is the drug used most often for intravesical chemotherapy. Other drugs that can be used include **valrubicin**, **docetaxel**, **thiotepa**, and **gemcitabine**. Delivery of mitomycin into the bladder along with heating the inside of the bladder, a treatment called *electromotive mitomycin therapy*, may work even better than giving intravesical mitomycin the usual way.

A major advantage of giving chemo directly into the bladder instead of injecting it into the bloodstream is that the drugs usually do not reach other parts of the body. This helps people avoid many of the side effects that can occur with chemo..

The main side effects of intravesical chemo are irritation and a burning feeling in the bladder.

- [References](#)

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## Chemotherapy for Bladder Cancer

Chemotherapy (chemo) is the use of drugs to treat cancer. Chemo for bladder cancer can be given in 2 different ways:

- **Intravesical chemotherapy:** For this treatment, the chemo drug is put directly into the bladder. This type of chemo is used only for very early-stage bladder cancers. It is described in Intravesical therapy for bladder cancer.
- **Systemic chemotherapy:** When chemo drugs are given in pill form or injected into

a vein (IV) or muscle (IM), the drugs enter the bloodstream and travel throughout the body. This is called *systemic* chemotherapy. Systemic chemo can affect cancer cells far away from the main tumor.

## When might chemotherapy be used?

Systemic chemo can be used :

- Before surgery to try to shrink a large tumor so that it can be removed more easily and to lower the chance the cancer will come back. Giving chemo before surgery is known as *neoadjuvant therapy*.
- After [surgery](#) (or sometimes after [radiation therapy](#)). This is called *adjuvant therapy*. The goal of adjuvant therapy is to kill any cancer cells that remain after other treatments but are too small to be seen. This can lower the chance that the cancer will come back later.
- In people getting radiation therapy, to help the radiation work better.
- As the main treatment for advanced bladder cancers, such as those that have spread to distant parts of the body.

## Which chemo drugs are used to treat bladder cancer?

Chemo drugs may be used alone or in combination, depending on what they're being used for, a person's overall health, and other factors.

When chemo is given **with radiation**, the most common drugs used include:

- Cisplatin
- Cisplatin plus fluorouracil (5-FU)
- Mitomycin with 5-FU

When chemo is used **without radiation**, the most common combinations include:

- Gemcitabine and cisplatin
- Methotrexate, vinblastine, doxorubicin (Adriamycin), and cisplatin (called MVAC)
- Cisplatin, methotrexate, and vinblastine (called CMV)
- Carboplatin and either paclitaxel or docetaxel (for patients with poor kidney function)

For some people, the side effects of getting more than one chemo drug might be too

much to handle. For those people, treatment with a single drug, such as gemcitabine or cisplatin, may be a good option. Other drugs sometimes used alone for bladder cancer include carboplatin, docetaxel, paclitaxel, doxorubicin, 5-FU, methotrexate, vinblastine, ifosfamide, and pemetrexed.

Doctors give chemo in cycles, with each period of treatment followed by a rest period to allow the body time to recover. Each cycle typically lasts for a few weeks.

Most bladder cancers are transitional cell (urothelial) cancers, but there are other types as well, including squamous cell carcinoma, adenocarcinoma, and small cell carcinoma. Chemo for these rare types of bladder cancer may use drugs different from those listed above.

## Side effects of chemotherapy

Chemo drugs attack cells that are dividing quickly, which is why they work against cancer cells. But other cells in the body, such as those in the bone marrow (where new blood cells are made), the lining of the mouth and intestines, and the hair follicles, also divide quickly. These cells are also likely to be affected by chemo, which can lead to side effects.

The [side effects](#) of chemo depend on the type and dose of drugs given and how long they are taken. When chemo and radiation are given at the same time, side effects tend to be worse. Common side effects of chemo include:

- Nausea and vomiting
- Loss of appetite
- Hair loss
- Mouth sores
- Diarrhea or constipation
- Increased risk of [infections](#) (because of a shortage of white blood cells)
- Bleeding or bruising after minor cuts or injuries (due to a shortage of blood platelets)
- Fatigue (because of a shortage of red blood cells)

These side effects usually go away after treatment is finished. There are often ways to lessen these side effects. For example, drugs can be given to help prevent or reduce nausea and vomiting. Ask your health care team about the side effects your chemo drugs may cause.

Some chemo drugs can cause other, less common side effects. For example, drugs

such as cisplatin, carboplatin, docetaxel, and paclitaxel can damage nerves. This can sometimes lead to symptoms (mainly in the hands and feet) such as pain, burning or tingling sensations, sensitivity to cold or heat, or weakness. This is called [peripheral neuropathy](#). Some chemo drugs have been linked to an increased risk of leukemia later in life, but this is very rare.

Be sure to report any side effects to your medical team so that they can be treated promptly. In some cases, the doses of the chemo drugs may need to be reduced or treatment may need to be delayed or stopped to prevent the effects from getting worse.

To learn more about chemo, see the [Chemotherapy](#) section of our website.

- [References](#)

[See all references for Bladder Cancer](#)

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## Radiation Therapy for Bladder Cancer

Radiation therapy uses high-energy radiation to kill cancer cells.

### When might radiation therapy be used?

Radiation therapy can be used:

- As part of the treatment for some early stage bladder cancers, after [surgery](#) that doesn't remove the whole bladder (such as TURBT)
- As the main treatment for people with earlier-stage cancers who can't have surgery
- As part of the initial treatment for advanced bladder cancer
- To help prevent or treat symptoms caused by advanced bladder cancer

Radiation therapy is often combined with [chemotherapy](#) to make the radiation more effective. This is known as *chemoradiation*.

## How is radiation therapy given?

The type of radiation most often used to treat bladder cancer, known as *external beam radiation therapy*, focuses radiation from a source outside of the body on the cancer.

Before your treatments start, your radiation team will take careful measurements to find the correct angles for aiming the radiation beams and the proper dose of radiation. This planning session, called *simulation*, usually includes getting imaging tests such as CT or MRI scans.

The treatment is much like getting an x-ray, but the radiation is stronger. The procedure itself is painless. Each treatment lasts only a few minutes, but the setup time – getting you into place for treatment – usually takes longer. Most often, radiation treatments are given 5 days a week for several weeks.

## Possible side effects of radiation therapy

[Side effects](#) of radiation depend on the dose given and the area being treated. They can include:

- Skin changes in areas getting radiation, ranging from redness to blistering and peeling
- Nausea and vomiting
- Bladder symptoms, like burning or pain when you urinate, feeling the need to go often, or blood in urine
- Diarrhea
- Fatigue
- Low blood counts, which can lead to fatigue, easy bruising or bleeding, or increased risk of infection

These effects usually go away after treatment, although some people can have longer-term problems. For example:

- In some people radiation treatments can lead to **incontinence** (problems holding urine) later on.
- Radiation can damage the lining of the bladder. This is known as **radiation cystitis** and can cause long-term problems such as blood in the urine or painful urination.

If you have side effects from radiation therapy, discuss them with your health care team. They can suggest ways to ease many of them.

To learn more about radiation therapy, see the [Radiation Therapy](#) section of our website.

- [References](#)

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## Immunotherapy for Bladder Cancer

Immunotherapy is the use of medicines to help a person's own immune system recognize and destroy cancer cells. Immunotherapy can sometimes be used to treat bladder cancer.

### Intravesical BCG (for some early-stage cancers)

BCG is a type of bacteria related to the one that causes tuberculosis. While it doesn't usually cause a person to get sick, it can help trigger an immune response. BCG can be put directly into the bladder (as a liquid) through a catheter. This activates immune system cells in the bladder, which in turn can attack bladder cancer cells.

For some early-stage cancers, BCG can be used after [transurethral resection of bladder tumor \(TURBT\)](#) to help keep the cancer from coming back. For more details on this treatment, see the section on [intravesical therapy](#).

### Immune checkpoint inhibitors (for advanced cancers)

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 "checkpoints" – molecules 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. But newer [drugs that target these checkpoints](#) hold a lot of promise as cancer treatments.



**Atezolizumab (Tecentriq), durvalumab (Imfinzi), and avelumab (Bavencio)** are drugs that target PD-L1, a protein on cells (including some cancer cells) that helps keep the immune system from attacking them. By blocking PD-L1, these drugs boost the immune response against the cancer cells. This can shrink some tumors or slow their growth.

**Nivolumab (Opdivo) and pembrolizumab (Keytruda)** target PD-1, another protein that normally helps keep the immune system in check. Blocking PD-1 can help the immune system attack the cancer cells.

Any of these drugs can be used in people with advanced bladder that starts growing again after chemotherapy. Atezolizumab and pembrolizumab can also be used in people who can't get the chemo drug cisplatin for some reason.

These drugs are given as intravenous (IV) infusions, typically every 2 or 3 weeks.

## Possible side effects

Common [side effects](#) of these drugs include fatigue, nausea, loss of appetite, fever, urinary tract infections, rash, diarrhea, and constipation.

Less often, more serious side effects can occur. These drugs work by basically removing the brakes 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, or other organs.

It's very important to report any new side effects to your health care team promptly. If serious side effects do occur, treatment may need to be stopped and you may get high doses of corticosteroids to suppress your immune system.

- [References](#)

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# Treatment of Bladder Cancer, by Stage

Most of the time, initial treatment of bladder cancer is based on the tumor's [clinical stage](#), which is how deep it is thought to have grown into the bladder wall and whether it has spread beyond the bladder. Other factors, such as the size and grade of the tumor and a person's overall health, can also affect treatment options.

## Treating stage 0 bladder cancer

Stage 0 bladder cancer includes non-invasive papillary carcinoma (Ta) and flat non-invasive carcinoma (Tis). In either case, the cancer has not invaded the bladder wall beyond the inner layer.

This early stage of bladder cancer is most often treated with [transurethral resection](#) (TURBT). This may be followed either by observation (close follow-up without further treatment) or by [intravesical therapy](#) to try to keep the cancer from coming back.

Of the intravesical treatments, immunotherapy with Bacille-Calmette Guerin (BCG) seems to be better than [chemotherapy](#) at both keeping cancers from coming back and from getting worse. But it also tends to have more [side effects](#).

Stage 0 bladder cancers rarely need to be treated with more extensive surgery. Cystectomy (removal of the bladder) is considered only when there are many superficial cancers or when a superficial cancer continues to grow (or seems to be spreading) despite treatment.

### Stage 0a

For **low-grade** non-invasive papillary (Ta) tumors, the options after TURBT include observation, a single dose of intravesical chemotherapy (usually with mitomycin) within a day of surgery, or weekly intravesical chemo, starting a few weeks after surgery. If the cancer comes back, the treatments can be repeated.

**High-grade** non-invasive papillary (Ta) tumors are more likely to come back after treatment, so intravesical Bacille-Calmette Guerin (BCG) is often recommended after surgery. Another option is intravesical chemotherapy with mitomycin. Either one is usually started several weeks after surgery and is given every week for several weeks. A third option is close observation without intravesical treatment.

## Stage 0is

For flat non-invasive (Tis) tumors, BCG is the treatment of choice after surgery. Patients with these tumors often get 6 weekly treatments of intravesical BCG, starting a few weeks after TUR. Some doctors recommend repeating BCG treatment every 3 to 6 months.

## Follow-up and outlook after treatment

After treatment for any stage 0 cancer, close follow-up is recommended, with cystoscopy about every 3 to 6 months for a least a couple of years to look for signs of the cancer coming back or for new bladder tumors.

The outlook for people with stage 0a (non-invasive papillary) bladder cancer is excellent. These cancers are nearly always cured with treatment. During long-term follow-up care, more superficial cancers are often found in the bladder or elsewhere in the urinary system. Although these new cancers do need to be treated, they rarely are deeply invasive or life threatening.

The long-term outlook for stage 0is (flat non-invasive) bladder cancer is not quite as good as for stage 0a cancers. These cancers have a higher risk of coming back, and may return as a more serious cancer that is growing into deeper layers of the bladder or has spread to other tissues.

## Treating stage I bladder cancer

Stage I bladder cancers have grown into the connective tissue layer of the bladder wall but have not reached the muscle layer.

Transurethral resection (TURBT) is typically the first treatment for these cancers, but it is done to help determine the extent of the cancer rather than to try to cure it. If no other treatment is given, many patients will later get a new bladder cancer, which will often be more advanced. This is more likely to happen if the first cancer is high grade.

Even if the cancer is found to be **low grade**, a second TURBT is often recommended several weeks later. If the doctor then feels that all of the cancer has been removed, [intravesical BCG or mitomycin](#) is usually given. (Less often, close follow-up alone might be an option.) If not all of the cancer was removed, options include either intravesical BCG or cystectomy (removal of part or all of the bladder).

If the cancer is **high grade**, if many tumors are present, or if the tumor is very large when it is first found, radical cystectomy may be recommended.

For people who aren't healthy enough for a cystectomy, [radiation therapy](#) (often along with [chemo](#)) might be an option for treatment, although the chances for cure might not be as good.

## Treating stage II bladder cancer

These cancers have invaded the muscle layer of the bladder wall. [Transurethral resection](#) (TURBT) is typically the first treatment for these cancers, but it is done to help determine the extent of the cancer rather than to try to cure it.

When the cancer has invaded the muscle, [radical cystectomy](#) (removal of the bladder) is the standard treatment. Lymph nodes near the bladder are often removed as well. If cancer is in only one part of the bladder, some patients can be treated with a [partial cystectomy](#) instead. Only a small number of patients are good candidates for this.

Although at this stage the cancer has not been detected outside the bladder, in some cases there may already be tiny deposits of cancer growing elsewhere in the body. For this reason, [chemotherapy](#) is often given either before surgery (neoadjuvant chemo) or after surgery (adjuvant chemo) to lower the chance the cancer will come back.

Many doctors prefer to give chemo before surgery because it has been shown to help patients live longer than surgery alone. When chemo is given first, surgery is delayed. This is not a problem if the chemo shrinks the bladder cancer, but it might be harmful if the tumor continues to grow during chemo.

Another option for some patients may be a second (and more extensive) transurethral resection (TURBT), followed by [radiation](#) and chemotherapy. Some people may prefer this because it lets them keep their bladder, but it's not clear if the outcomes are as good as they are after cystectomy, so not all doctors agree with this approach. If this treatment is used you will need frequent and careful follow-up exams. Some experts recommend a repeat cystoscopy and biopsy during treatment with chemo and radiation. If cancer is found in the biopsy sample, a cystectomy will likely be needed.

For patients who can't have a major operation because of other serious health problems, TURBT, radiation, chemotherapy, or some combination of these may options.

## Treating stage III bladder cancer

These cancers have reached the outside of the bladder and might have grown into nearby tissues or organs.

[Transurethral resection](#) (TURBT) is typically done first to help determine how far the cancer has grown. [Radical cystectomy](#) (removal of the bladder and nearby lymph nodes) is then the standard treatment. [Partial cystectomy](#) is seldom an option for stage III cancers.

Neoadjuvant [chemotherapy](#) (chemo) is often given before surgery. It can shrink the tumor, which may make surgery easier. This can be especially useful for T4a tumors, which have grown outside the bladder. The chemo may also kill any cancer cells that could already have spread to other areas of the body. This approach helps patients live longer than cystectomy alone. When chemo is given first, surgery to remove the bladder is delayed. The delay is not a problem if the chemo causes the bladder cancer to shrink, but it can be harmful if the tumor continues to grow during chemotherapy.

Some patients get chemo after surgery (*adjuvant* treatment) to kill any areas of cancer cells left after surgery that are too small to see. Chemo given after cystectomy may help patients stay cancer-free longer, but so far it's not clear if it helps them live longer.

An option for some patients with single, small tumors might be treatment with a second (and more extensive) transurethral resection (TURBT) followed by a combination of chemotherapy and [radiation](#). If this isn't successful and cancer is found when cystoscopy is repeated, the patient might need cystectomy.

For patients who can't have a major operation because of other serious health problems, treatment options might include TURBT, radiation, chemotherapy, [immunotherapy](#), or some combination of these.

## Treating stage IV bladder cancer

These cancers have reached the abdominal or pelvic wall (T4b tumors) or have spread to nearby lymph nodes or distant parts of the body. Stage IV cancers are very hard to get rid of completely.

In most cases [surgery](#) (even radical cystectomy) can't remove all of the cancer, so treatment is usually aimed at slowing the cancer's growth and spread to help you live longer and feel better. If you and your doctor discuss surgery as treatment option, be sure you understand the goal of the operation – whether it is to try to cure the cancer, to help you live longer, or to help prevent or relieve symptoms from the cancer – before deciding on treatment.

For stage IV bladder cancers that have not spread to distant sites, [chemotherapy](#) (with or without [radiation](#)) is usually the first treatment. If the cancer shrinks in response to treatment, a [cystectomy](#) might be an option. Patients who can't tolerate chemo (because of other health problems) might be treated with radiation therapy or with an [immunotherapy drug](#) such as atezolizumab or pembrolizumab.

For stage IV bladder cancers that have spread to distant areas, chemo is usually the first treatment, sometimes along with radiation therapy. Patients who can't tolerate chemo (because of other health problems) might be treated with radiation therapy or with an immunotherapy drug such as atezolizumab or pembrolizumab. Urinary diversion without cystectomy is sometimes done to prevent or relieve a blockage of urine that could otherwise cause severe kidney damage.

Because treatment is unlikely to cure these cancers, taking part in a [clinical trial](#) may offer you access to newer forms of treatment that might help you live longer or relieve symptoms.

## Treating bladder cancer that progresses or recurs

If cancer continues to grow during treatment (progresses) or comes back (recurs), your treatment options will depend on where and how much the cancer has spread, what treatments you have already had, and on your health and desire for more treatment. It's important that you understand the goal of any further treatment – if it's to try to cure the cancer, to slow its growth, or to help relieve symptoms – as well as the likelihood of benefits and risks.

For example, non-invasive bladder cancer often comes back in the bladder. The new cancer may be found either in the same site as the original cancer or at other sites in the bladder. These tumors are often treated the same way as the first tumor. But if the tumor keeps coming back, the patient may need a [cystectomy](#) (removal of the bladder) at some point.

Cancers that recur in distant parts of the body can be harder to remove with surgery and might require other treatments, such as [chemotherapy](#), [immunotherapy](#), or [radiation therapy](#). For more on dealing with a recurrence, see the website section [Understanding Recurrence](#).

At some point, it may become clear that standard treatments are no longer controlling the cancer. If you want to continue getting treatment, you might think about taking part in a [clinical trial](#) of newer bladder cancer treatments. While these are not always the best option for every person, they may benefit you as well as future patients.

*The treatment information in this document 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 him or her questions about your treatment options.*

- [References](#)

[See all references for Bladder Cancer](#)

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