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## About Bladder Cancer

Get an overview of bladder cancer and the latest key statistics in the US.

### Overview and Types

If you've been diagnosed with bladder cancer or are worried about it, you likely have a lot of questions. Learning some basics is a good place to start..

- [What Is Bladder Cancer?](#)

### Research and Statistics

See the latest estimates for new cases of and deaths linked to bladder cancer in the US and what research is currently being done.

- [Key Statistics for Bladder Cancer](#)
- [What's New in Bladder Cancer Research?](#)

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## What Is Bladder Cancer?

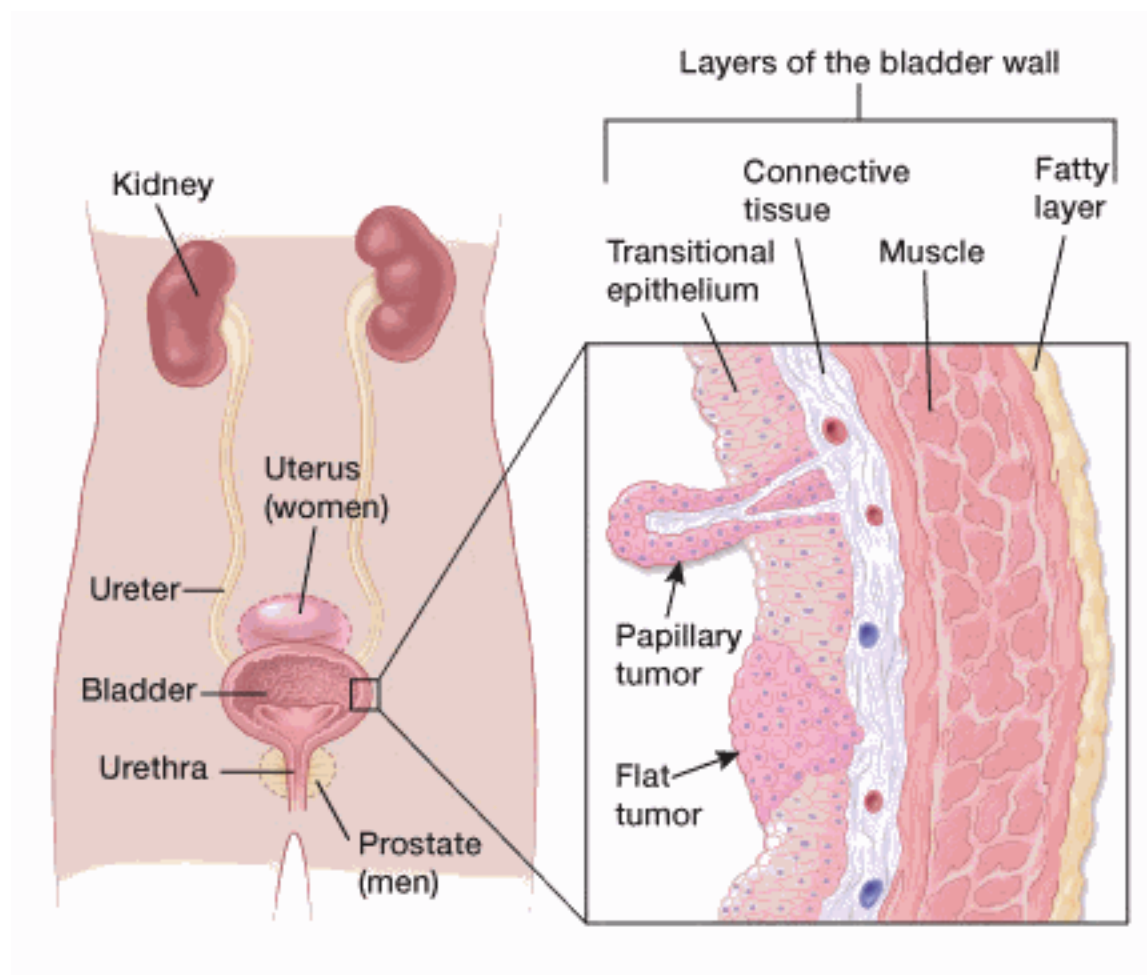
Bladder cancer starts when cells in the urinary bladder start to grow out of control. As more cancer cells develop, they can form a tumor and, with time, might spread to other parts of the body.

- [The bladder](#)

- [Types of bladder cancer](#)
- [Start and spread of bladder cancer](#)

## The bladder

The bladder is a hollow organ in the lower pelvis. Its main job is to store urine. Urine is liquid waste made by the kidneys and then carried to the bladder through tubes called **ureters**. The wall of the bladder is made up of several layers (see image). When you urinate, the muscles in the wall of the bladder contract, and urine is forced out of the bladder through a tube called the **urethra**.



## Types of bladder cancer

Different types of cancer can start in the bladder.

## **Urothelial carcinoma (transitional cell carcinoma)**

Urothelial carcinoma, also known as transitional cell carcinoma (TCC), starts in the urothelial cells that line the inside of the bladder. This is by far the most common type of bladder cancer. If you're told you have bladder cancer, it's very likely to be a urothelial carcinoma.

Urothelial cells also line the inside of other parts of the urinary tract, such as the part of the kidney that connects to the ureter (called the **renal pelvis**), the ureters, and the urethra. People with bladder cancer sometimes have tumors in these places, too, so all of the urinary tract needs to be checked for tumors.

There are different subtypes of urothelial carcinoma, which are based on how the cancer cells look under a microscope. Most often the subtype doesn't affect how the cancer is treated, although some subtypes might be more likely to have gene changes that could affect treatment options.

### ***Urothelial carcinoma with divergent differentiation***

Sometimes urothelial cancers contain very small areas that look like some of the other cancer types below (known as **divergent differentiation**). For example, the cancer may contain areas of squamous or glandular differentiation. Most often, this doesn't affect treatment options.

### **Other cancers that start in the bladder**

Other types of cancer can start in the bladder, but these are all much less common than urothelial (transitional cell) cancer.

### ***Squamous cell carcinoma***

In the US, only about 3% to 5% of bladder cancers are squamous cell carcinomas (SCCs). Seen with a microscope, the cells look much like the flat cells that are found on the surface of the skin.

### ***Adenocarcinoma***

Only about 1% to 2% of bladder cancers are adenocarcinomas. These cancers start in gland-forming cells.

### ***Small cell carcinoma***

Less than 1% of bladder cancers are small cell carcinomas. These cancers start in nerve-like cells called neuroendocrine cells. These cancers often grow quickly and usually need to be treated with chemotherapy like that used for [small cell lung cancer](#).<sup>1</sup>

## **Sarcoma**

Sarcomas are cancers that start in connective tissues in the body. In the bladder, sarcomas can start in the muscle cells of the bladder, although these cancers are very rare. More information on sarcomas can be found in [Soft Tissue Sarcoma](#)<sup>2</sup> and [Rhabdomyosarcoma](#).<sup>3</sup>

## **Start and spread of bladder cancer**

The wall of the bladder has several layers. Each layer is made up of different kinds of cells (see the image above).

Most bladder cancers start in the innermost lining of the bladder, which is called the **urothelium** or **transitional epithelium**. As the cancer grows, it can invade into or through the deeper layers of the bladder wall. As the cancer becomes more advanced, it can be harder to treat.

Over time, the cancer might grow outside the bladder and into nearby structures. It might spread to nearby lymph nodes, or to other parts of the body. When bladder cancer spreads, it tends to go to the lymph nodes, the bones, the lungs, or the liver.

## **Muscle invasive vs. non-muscle invasive bladder cancer**

Bladder cancers are often grouped for treatment purposes based on if they have invaded into the main muscle layer of the bladder wall (see the image above):

- **Non-muscle invasive bladder cancer (NMIBC)** has *not* grown into the muscle layer. This is also sometimes described as **superficial bladder cancer**. Included in this group are both non-invasive (stage 0) bladder tumors (see below), as well as some early invasive (stage I) cancers.
- **Muscle invasive bladder cancer (MIBC)** has grown into the muscle layer of the bladder wall, and possibly deeper. These cancers are more likely to spread, and they tend to be harder to treat.

## **Flat vs. papillary non-invasive bladder tumors**

In non-invasive bladder cancer, the cancer cells are still only in the inner layer (the transitional epithelium) of the bladder wall and have not grown into the deeper layers. These tumors are divided into 2 subtypes, flat and papillary, based on how they grow (see the image above).

**Non-invasive flat carcinomas** do not grow toward the hollow part of the bladder. These tumors are also known as **carcinoma in situ (CIS)**.

**Non-invasive papillary carcinomas** grow in thin, finger-like projections from the inner wall of the bladder toward the hollow center. Different terms might be used to describe these tumors, based on how they look under a microscope:

- **Papillary urothelial neoplasm of low-malignant potential (PUNLMP):** These are very low-grade (slow growing) tumors. They are very unlikely to become invasive, and they tend to have very good outcomes. However, they can sometimes come back after treatment.
- **Non-invasive low-grade papillary urothelial carcinoma (LGPUC):** The cells in these tumors look a little more abnormal. While these tumors rarely become invasive, they are more likely to come back after treatment.
- **Non-invasive high-grade papillary urothelial carcinoma (HGPUC):** In these tumors, the cells look very abnormal. These tumors have a high risk of becoming invasive, and sometimes they can be a sign that there's an invasive cancer nearby.

If either a flat or papillary tumor grows into deeper layers of the bladder, it's called an **invasive urothelial (or transitional cell) carcinoma**.

## Hyperlinks

1. [www.cancer.org/cancer/types/lung-cancer.html](http://www.cancer.org/cancer/types/lung-cancer.html)
2. [www.cancer.org/cancer/types/soft-tissue-sarcoma.html](http://www.cancer.org/cancer/types/soft-tissue-sarcoma.html)
3. [www.cancer.org/cancer/types/rhabdomyosarcoma.html](http://www.cancer.org/cancer/types/rhabdomyosarcoma.html)

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## Key Statistics for Bladder Cancer

Bladder cancer makes up about 4% of cancers in the US. It is the fourth most common cancer in men, but it's less common in women.

- [How many people get bladder cancer?](#)
- [Risk of bladder cancer](#)
- [Extent of cancer at the time of diagnosis](#)

### How many people get bladder cancer?

The American Cancer Society's estimates for bladder cancer in the United States for 2024 are:

- About 83,190 new cases of bladder cancer (about 63,070 in men and 20,120 in women)
- About 16,840 deaths from bladder cancer (about 12,290 in men and 4,550 in women)

The rates of both new bladder cancers and deaths from bladder cancer have been dropping in recent years.

### Risk of bladder cancer

Bladder cancer occurs mainly in older people. About 9 out of 10 people with this cancer are over the age of 55. The average age of people when they are diagnosed with bladder cancer is 73.

Overall, the chance men will develop this cancer during their lifetime is about 1 in 28. For women, the chance is about 1 in 89. However, each person's chances of getting bladder cancer might be higher or lower than this, depending on their [risk factors](#)<sup>1</sup>.

## Extent of cancer at the time of diagnosis

About half of all bladder cancers are first found while the cancer is still only in the inner layer of the bladder wall. These are [non-invasive or in situ cancers](#). About 1 in 3 bladder cancers have spread into deeper layers of the bladder wall but are still only in the bladder. In most of the remaining cases, the cancer has spread to nearby tissues or lymph nodes outside the bladder. Rarely (in about 5% of cases), it has spread to distant parts of the body when it is first found.

To learn about survival statistics, see [Survival Rates for Bladder Cancer](#)<sup>2</sup>.

Visit the American Cancer Society's [Cancer Statistics Center](#)<sup>3</sup> for more key statistics.

## Hyperlinks

1. [www.cancer.org/cancer/types/bladder-cancer/causes-risks-prevention/risk-factors.html](http://www.cancer.org/cancer/types/bladder-cancer/causes-risks-prevention/risk-factors.html)
2. [www.cancer.org/cancer/types/bladder-cancer/detection-diagnosis-staging/survival-rates.html](http://www.cancer.org/cancer/types/bladder-cancer/detection-diagnosis-staging/survival-rates.html)
3. [cancerstatisticscenter.cancer.org/](http://cancerstatisticscenter.cancer.org/)

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## What's New in Bladder Cancer Research?

Research on bladder cancer is being done in many university hospitals, medical centers, and other institutions around the world. Each year, scientists find out more about what causes bladder cancer, how to find it as soon as possible, and how to better treat it.

- [Understanding genetic changes in bladder cancer](#)
- [Bladder cancer early detection and diagnosis](#)
- [Bladder cancer treatment](#)

### Understanding genetic changes in bladder cancer

Scientists have learned a lot about the differences between normal cells and bladder cancer cells. They're also learning how these differences help cancer cells grow and spread to other parts of the body.

Researchers are now developing tests to find gene or protein changes in bladder cancer cells that can help predict a person's prognosis (outlook). These tests might also help doctors choose the best treatment, or help find bladder cancers that come back (recur) after treatment. Some of these types of **biomarker tests** are already being used (see [Tests for Bladder Cancer](#)<sup>1</sup>), and others are now being tested.

Researchers also hope this knowledge can be used to develop new ways to treat bladder cancer, too.

### Bladder cancer early detection and diagnosis

#### Urine tests to look for bladder cancer



Several newer tests look for substances (biomarkers) in urine that might show if a person has bladder cancer (see [Tests for Bladder Cancer<sup>2</sup>](#)). At this time, these tests are used mainly to help diagnose bladder cancer or to look for cancer that has come back (cancer recurrence) in people who have already been treated.

Researchers are now studying if these tests might be helpful even earlier, to screen for bladder cancer in people who don't have symptoms. (See [Can Bladder Cancer Be Found Early?<sup>3</sup>](#))

## Bladder cancer treatment

Many advances in bladder cancer treatment have been made in recent years, and many newer types of treatment are now being studied. Here are some examples.

### Intravesical therapy

For non-muscle invasive bladder cancer, researchers are looking at many new medicines to see if putting them directly into the bladder after surgery can help lower the risk of the cancer coming back. The hope is to find some that are better and/or safer than currently used drugs. New drugs are also needed to treat bladder cancer that doesn't respond to intravesical BCG therapy.

Current studies are also looking at different ways to apply these treatments.

For example, studies are looking at:

- Heating intravesical chemotherapy before it's put into the bladder (known as **hyperthermic intravesical therapy**)
- Delivering the chemo drug mitomycin into the bladder along with a pulsed electrical current, a treatment called **electromotive mitomycin therapy**
- Using combinations of chemo drugs to see if there's a better response
- Adding a gel to the drugs to keep the drugs in contact with the cancer cells for a longer time

See [Intravesical Therapy for Bladder Cancer<sup>4</sup>](#) for more on how drugs are put right into the bladder to treat this cancer.

### Photodynamic therapy

Some researchers are studying if photodynamic therapy (PDT) might be useful in

treating early-stage bladder cancers. In PDT, a light-sensitive drug is injected into the blood. It collects in the cancer cells over a few days. Then a special type of laser light is focused on the inner lining of the bladder through a cystoscope. The light changes the drug in the cancer cells into a new chemical that can kill them.

An advantage of PDT is that it can kill cancer cells with very little harm to nearby normal cells. One drawback is that the chemical must be activated by light, so only cancers near the surface of the bladder lining can be treated in this way. The light can't reach cancers that have grown deeper into the bladder wall or have spread to other organs.

PDT is already used to treat some other types of cancer. To learn more about this kind of treatment, see [Photodynamic Therapy](#)<sup>5</sup>.

### Robotic cystectomy

[Cystectomy](#)<sup>6</sup> (removal of the bladder) is a common treatment for bladder cancer, especially if it invades the muscle layer of the bladder wall. Many surgeons now do **robotic cystectomies**. During these surgeries, they sit at a control panel in the operating room and move robotic arms attached to long, thin surgical instruments. This method lets the surgeon operate through several small cuts (incisions) in the abdomen instead of one large one. This tends to shorten the time a person needs to be in the hospital and helps them recover faster after surgery, although the long-term outcomes with this approach aren't yet clear.

### Bladder-preserving treatments

While cystectomy is often recommended to try to cure bladder cancer (especially if it has invaded the muscle layer in the bladder wall), removing a person's bladder can have a profound effect on their quality of life. Doctors are now studying whether some newer approaches that don't require removing the entire bladder might be just as effective.

For example, **trimodality therapy**, which includes an [extensive transurethral resection of bladder tissue \(TURBT\)](#)<sup>7</sup>, [chemotherapy](#)<sup>8</sup>, and [radiation therapy](#)<sup>9</sup>, is often an option for some people who can't have or don't want a cystectomy.

Researchers are now looking at whether adding newer medicines, such as [immunotherapy drugs](#)<sup>10</sup>, might help make this treatment approach even more effective.

### Treating advanced bladder cancer

Advanced bladder cancers are hard to remove completely, so medicines are often used to try to shrink these tumors. Chemotherapy has been a mainstay of treatment for advanced bladder for many years. Unfortunately, some of the most effective chemo drugs, such as cisplatin, can have major side effects, and some people might not be healthy enough to get them. Even when chemo is given, it doesn't always get rid of all of the cancer.

In recent years, some newer types of medicines have become an important part of the treatment for bladder cancer.

Immunotherapy drugs known as **checkpoint inhibitors** are now an important part of the treatment for many bladder cancers, either alone or combined with chemo or other drugs. Many newer types of immunotherapy are now being studied as well.

**Antibody-drug conjugates (ADCs)** are a newer type of medicine. They combine a chemo drug with an antibody that helps bring the chemo to the cancer cells, sparing normal cells. ADCs are now part of the treatment for many bladder cancers, and many newer ADCs are now being developed.

Many [targeted therapy drugs](#)<sup>11</sup> are now being studied for use in bladder cancer. These medicines target specific parts of cancer cells that make them different from normal cells. Targeted therapy drugs work differently from standard chemo drugs. They may work in some cases when chemo drugs don't, and they tend to have different side effects. As researchers are learning more about the changes in bladder cancer cells, these types of medicines are likely to become more important in treating bladder cancer.

While it's unlikely that any single type of treatment will cure all bladder cancers, researchers are always looking at combining different types of treatment to see if this might be more effective. This might include some newer types of medicines (such as immunotherapy or targeted therapy), as well as treatments that have been used for many years, including surgery, radiation therapy, and chemotherapy.

## Hyperlinks

1. [www.cancer.org/cancer/types/bladder-cancer/detection-diagnosis-staging/how-diagnosed.html](http://www.cancer.org/cancer/types/bladder-cancer/detection-diagnosis-staging/how-diagnosed.html)
2. [www.cancer.org/cancer/types/bladder-cancer/detection-diagnosis-staging/how-](http://www.cancer.org/cancer/types/bladder-cancer/detection-diagnosis-staging/how-)

- [diagnosed.html](#)
3. [www.cancer.org/cancer/types/bladder-cancer/detection-diagnosis-staging/detection.html](http://www.cancer.org/cancer/types/bladder-cancer/detection-diagnosis-staging/detection.html)
  4. [www.cancer.org/cancer/types/bladder-cancer/treating/intravesical-therapy.html](http://www.cancer.org/cancer/types/bladder-cancer/treating/intravesical-therapy.html)
  5. [www.cancer.org/cancer/managing-cancer/treatment-types/radiation/photodynamic-therapy.html](http://www.cancer.org/cancer/managing-cancer/treatment-types/radiation/photodynamic-therapy.html)
  6. [www.cancer.org/cancer/types/bladder-cancer/treating/surgery.html](http://www.cancer.org/cancer/types/bladder-cancer/treating/surgery.html)
  7. [www.cancer.org/cancer/types/bladder-cancer/treating/surgery.html](http://www.cancer.org/cancer/types/bladder-cancer/treating/surgery.html)
  8. [www.cancer.org/cancer/types/bladder-cancer/treating/chemotherapy.html](http://www.cancer.org/cancer/types/bladder-cancer/treating/chemotherapy.html)
  9. [www.cancer.org/cancer/types/bladder-cancer/treating/radiation.html](http://www.cancer.org/cancer/types/bladder-cancer/treating/radiation.html)
  10. [www.cancer.org/cancer/types/bladder-cancer/treating/immunotherapy-for-bladder-cancer.html](http://www.cancer.org/cancer/types/bladder-cancer/treating/immunotherapy-for-bladder-cancer.html)
  11. [www.cancer.org/cancer/types/bladder-cancer/treating/targeted-therapy.html](http://www.cancer.org/cancer/types/bladder-cancer/treating/targeted-therapy.html)

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