

## Urinary Tract Infection

### A Guide for Women

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### Introduction

The urinary system is composed of the kidneys, ureters, bladder, and urethra. This system plays an important role in removing wastes from your body. The kidneys are a pair of bean-shaped organs that lie in the middle of the back, just below the rib cage. One of their functions is to filter waste from your blood. Tubes, called ureters, carry the waste (urine) from your kidneys to your bladder, where it is stored until it exits the body through the urethra. All of these components can become infected, but most infections involve the urethra and the bladder.

### What is a urinary tract infection?

A urinary tract infection (UTI) is an infection that can occur anywhere along the urinary tract. Most UTIs are caused by bacteria, such as *E.coli*, that live in the colon (especially the rectum).

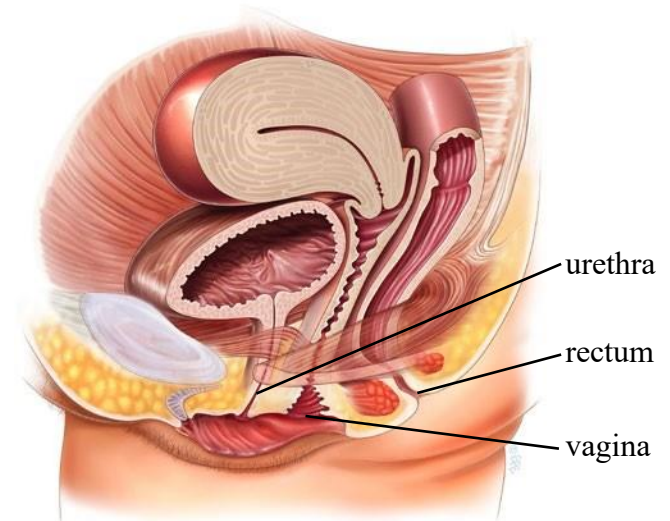
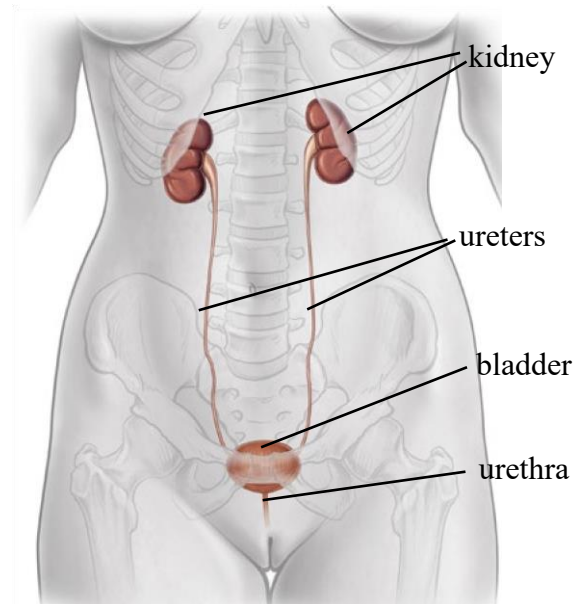
Urinary tract infections have different names depending on what part of the tract is infected. Names given to urinary tract infections include cystitis, which is an infection of the bladder, and urethritis, which affects the urethra (the tube that empties urine from the bladder to the outside). Infection of the kidneys leads to a more serious condition called pyelonephritis.

Adult women are most commonly affected, as their urethra is shorter than men and opens nearer to the anus. This means it is easier for bacteria to enter the urinary system and cause an infection. About 40% of women get at least one attack of cystitis in their lifetime. It is more common in sexually active women during pregnancy, after surgery, and after menopause. It can also occur if the bladder does not completely empty or if catheters are used to empty the bladder.

### How do I know if I have a urinary tract infection?

Your symptoms may vary depending on whether the infection is in your bladder or your kidneys (severe infection). You may feel

pressure in the lower pelvis or lower back ache. There may be stinging, painful, or frequent urination along with an urgent need to urinate, often with little or no urine being passed. Often, there is a need to urinate at night, and the urine may also become cloudy or smell unpleasant. Blood in the urine and fever can also occur along with nausea, vomiting, and chills, indicating a severe infection (infection in the kidneys).



### Why do some women have recurring infections?

Your body has defenses to prevent infections. However, it is possible there may be a slight alteration in the ability of the body to resist bacteria getting into the bladder and causing infection. Bladder or kidney problems may increase the susceptibility to infections. Having sex increases the chance of cystitis in some women.

The vagina, bladder, and urethra are under the influence of the hormone estrogen. After menopause, the levels of estrogen in the body decrease, and the tissues become thinner, weaker, and dryer, increasing the risk of recurrent cystitis. Infections are also

more common during pregnancy because of changes in the urinary tract. In many cases, there is no apparent cause.

### Am I at higher risk of a urinary tract infection after surgery?

A tube called a urinary catheter inserted into your urinary tract during or after surgery increases your risk of having UTI. Urinary retention is also common after surgery and can increase the likelihood of infection. Additional factors like advanced age, being female, and having diabetes can also increase the chances of infection. The type of surgical procedure, surgeries that are done on or near part of the urinary tract, and immobilization after surgery also increase the risk.

### How is a urinary tract infection diagnosed?

UTIs are generally diagnosed with a urine test. The test may reveal pus cells or red blood cells, which indicate infection. A urine culture (clean catch) or catheterized urine specimen may be obtained and tested to determine the type of bacteria in the urine and the appropriate antibiotic for treatment. The specimen must be fresh. It is also important that the woman has separated her labia (lips) during urination to avoid bacteria from the skin and vagina contaminating the specimen.

Further investigations may be required to check the urinary system, including the kidneys. If you suffer from recurrent urinary infections or if your urine shows more than 30 red blood cells, you may be advised to have a cystoscopy in which the inside of your bladder is examined using a camera. You may need an ultrasound scan to check your kidneys, ureters, and bladder. Urinary tract infections in children are unusual, and most doctors would recommend careful investigation in this case.

### Preventing Urinary Tract Infections

The following can help reduce the risk of acquiring a urinary tract infection:

- Drink plenty of fluids (water is best, about 8 glasses a day) - enough to pass clear urine 4 to 6 times a day.
  - Do not let the bladder get too full. Pass urine regularly when you feel the need or have the urge. Don't hold on too long.
  - Avoid constipation.
  - After using the toilet, always wipe from front to back.
  - Cleanse your genital area daily but not too frequently or vigorously. Too much scrubbing and cleaning may slightly damage your genital skin. Bacteria thrive better on damaged skin.
  - Avoid potential irritants such as perfumed bath oils and vaginal deodorants.



- Lubricate adequately during intercourse - it will decrease urethral irritation. If you have gone through the change (menopause), your doctor may consider topical vaginal estrogen therapy.
- Go to the bathroom before and as soon as possible after having sex.
- Your doctor may advise you to take a tablet of antibiotic immediately after sex if you get repeated infections.
- Wear cotton underwear and loose-fitting clothes so air can keep the area dry.
- If you have diabetes, keep your blood sugar under control.

Hiprex (Methenamine hippurate) is a non-antibiotic that is effective in preventing UTI, especially due to E. coli. It breaks down in the urine, making it more acidic (hippuric acid) and also turning it into an anti-bacterial agent (formaldehyde). It works better when taken in conjunction with Vitamin C or similar products that make the urine more acidic. However, this is not an antibiotic and is not used to treat an acute infection. Topical low-dose vaginal estrogen therapy is also effective in post-menopausal women in reducing recurrent UTIs. Both these medications will require a script from your doctor.

Some people take D-mannose, a natural sugar, which is thought to reduce the risk of developing a UTI by preventing the bacteria from sticking to the urinary tract. However, more evidence is needed to know if this is true. This practice appears to be safe and seems to be well-tolerated. Recent studies suggest cranberry products (juice or tablets) are not as effective in preventing UTIs as previously thought and are, therefore, no longer recommended. Current evidence suggests probiotics (live microorganisms, when administered in adequate amounts, conferring a health benefit on the host) are not effective in preventing UTIs.

### How is a urinary tract infection treated?

When you have a urinary tract infection, drink plenty of water so your urine is very diluted. To make your urine less acidic, drink a mixture of 1 teaspoon of bicarbonate of soda with half a pint of water; this will make it sting or burn less when you pass urine. Over-the-counter remedies containing sodium citrate or potassium citrate are also available in solutions or sachets from most pharmacies.

For a simple bladder infection, your physician may prescribe antibiotics for 3-5 days. For a bladder infection with complications such as pregnancy diabetes, or a mild kidney infection, you will usually take antibiotics for 7-14 days. It is important that you finish the full course of antibiotics. Otherwise, the infection could return and may be harder to treat. Ask the doctor for advice again if the symptoms don't improve after 24 hours or get worse, if blood is present in the urine, or if symptoms are accompanied by fever, loin pain, or lower backache.

If you are very sick and cannot take medicines by mouth or drink enough fluids, you may be admitted to the hospital for treatment to prevent the spread of infection and damage to the urinary system and other organs.

If you suffer from recurrent cystitis, you may need a low dose of an antibiotic regularly for a few weeks or months. Vaccines have been developed and appear to be promising in the treatment of recurrent urinary tract infections. There are also options for urinary antiseptics taken by mouth or chemical treatments put directly into the bladder through a small catheter. Consult your doctor for further details and availability in your region.

Early detection and appropriate treatment are essential. A urinary tract infection is uncomfortable, but treatment is usually successful.

For more information, visit [www.YourPelvicFloor.org](http://www.YourPelvicFloor.org).



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This leaflet has been reviewed and approved by both patients and physicians.

