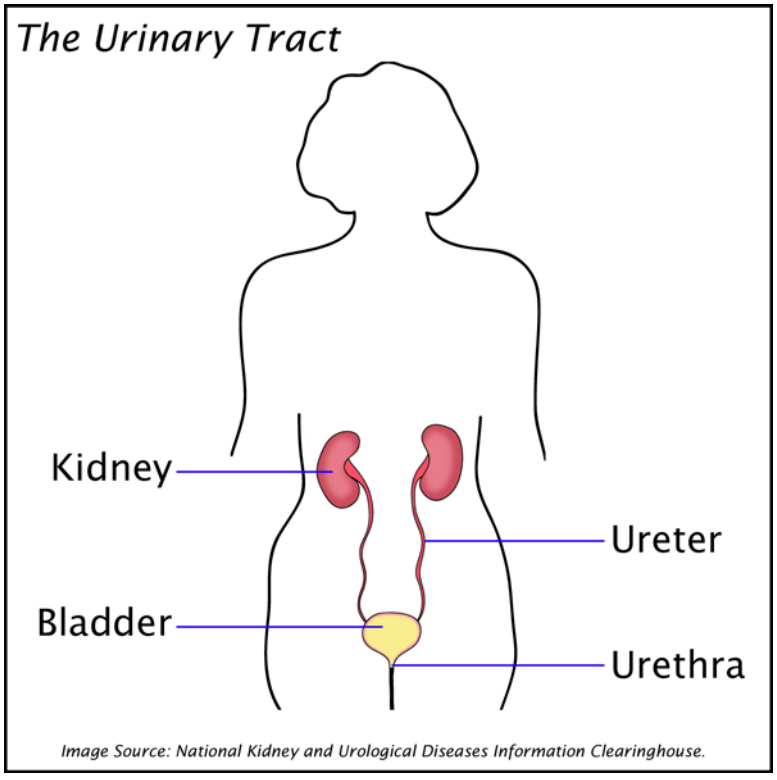
Frequently Asked Questions about Urinary Tract Infections

What is the urinary tract?

Your urinary tract includes the organs that collect and store urine and release it from your body. These organs include the kidneys, which remove liquid waste from the blood in the form of urine, keep a balance of salts and other substances in the blood, and produce a hormone that helps form red blood cells. It also includes the *ureters* or narrow tubes that carry urine from the kidneys to the *bladder*, the triangle-shaped chamber in the lower abdomen that stores urine; and the *urethra*, a tube that carries the urine as it leaves the body. (See the diagram below.)

What are urinary tract infections (UTIs)?

A urinary tract infection (UTI) is an infection anywhere in the urinary tract. Normal urine is sterile. It contains fluids, salts, and waste products, but it is free of bacteria, viruses, and fungi. An infection occurs when microorganisms, usually bacteria from the digestive tract, cling to the urethra, or opening to the urinary tract, and begin to multiply.



What causes UTIs?

Most infections are caused by one type of bacteria, *Escherichia coli (E. coli)*, which normally live in the colon. In most cases, bacteria first begin growing in the urethra and often move on to the bladder, causing a bladder infection or *cystitis*. If an infection is not treated quickly, bacteria could then travel up the ureters to infect the kidneys. This serious condition is called *pyelonephritis*.

Microorganisms called *chlamydia* and *mycoplasma* can also cause UTIs in both women and men. These infections usually occur in the urethra and reproductive system (the uterus, or womb, and the ovaries and fallopian tubes). Unlike *E. coli, chlamydia* and *mycoplasma* can be sexually transmitted, and both partners should be treated for the infection.

Some women have a long-lasting condition called *interstitial cystitis*, also known as painful bladder syndrome or frequency-urgency-dysuria syndrome. With this condition, the wall of the bladder becomes inflamed or irritated, which affects the amount of urine the bladder can hold. Interstitial cystitis can cause scarring, stiffening, and bleeding in the bladder. This complex condition is different from a UTI, and scientists do not know what causes it.

What are the symptoms of a UTI?

Not everyone with a UTI has symptoms, but most people get at least some signs. They can range from slightly irritating to very painful. Symptoms include a frequent urge to urinate, but only passing a small amount of urine and a burning sensation, pressure, or pain in the area of the bladder or when urinating. The urine itself may look milky or cloudy, even reddish if blood is present. It is not unusual to feel tired, shaky or washed out. Often, women feel an uncomfortable pressure above the pubic bone, and some men feel fullness in the rectum. A fever may mean the infection has reached the kidneys. Other symptoms of a kidney infection include pain in your back or your side below the ribs, nausea or vomiting, and chills. It is very important to see your health care provider at the first sign of pain, irritation, or blood when you urinate or if you have discomfort in or near your abdomen, back, or sides. An untreated UTI can lead to a kidney infection. An untreated or recurrent kidney infection can lead to scarring of the kidneys and permanent kidney damage.

Who is at risk for UTIs?

Some people are more likely to get a UTI than others, but about one of every five women will develop a UTI in her lifetime. Women have more UTIs than men do. It may be because women's urethra is relatively short, which allows bacteria quick access to the bladder. It may also be because a women's urethral opening is near sources of bacteria from the anus and vagina.

For many women, sexual intercourse seems to trigger an infection. According to several studies, women who use a diaphragm are more likely to develop a UTI than women who use other forms of birth control. Recently, researchers found that women whose partners use a condom with a spermicidal foam tend to have growth of *E. coli* bacteria in their vagina. Unlubricated condoms or condoms with a spermicidal foam increase irritation and help bacteria cause symptoms of a UTI. Other options include using lubricated condoms without spermicide or a nonspermicidal lubricant.

Women are at a higher risk for UTIs after they experience menopause. The walls of the urinary tract become thinner after menopause, which weakens their mucous linings. The mucous linings are then less able to resist bacteria. The muscles of the bladder also become less elastic (or cannot stretch the way they used to) and the bladder may not empty completely. This can contribute to a UTI.

Any abnormality of the urinary tract that blocks the flow of urine (a kidney stone, for example) makes an infection more likely. A common source of infection is *catheters*, or tubes placed in the bladder to help people who are unconscious or critically ill to urinate. Bacteria on the catheter can infect the bladder, so hospital staff take special care to keep the catheter sterile and to remove it as soon as possible. People with diabetes also have a higher risk of a UTI because of changes in the immune system. Any disorder that suppresses the immune system, like diabetes, raises the risk of a UTI.

Do you develop more urinary tract infections during pregnancy?

Pregnant women do not seem more likely to get UTIs than other women. However, when a UTI does occur in pregnant women, it more likely to travel to the kidneys. Scientists think that hormonal changes and shifts in the position of the urinary tract during pregnancy make it easier for bacteria make it easier for bacteria to travel up the ureters to the kidneys. For this reason, many health care providers test a pregnant woman's urine during her routine visits. If you have symptoms of a UTI while you are pregnant, visit your health care provider right away because the infection could cause premature delivery of your baby and other risks such as high blood pressure.

How is a UTI diagnosed?

To find out whether you have a UTI, your health care provider will test a sample of urine for pus and bacteria. You will be asked to give a "clean catch" urine sample by washing the genital area and collecting a "midstream" sample of urine in a sterile container. (This method of collecting urine helps prevent bacteria around the genital area from getting into the sample and confusing the test results.) The urine sample is then sent to the laboratory to be examined for white and red blood cells and bacteria. Then the bacteria are allowed to multiply in a culture. After the bacteria grow, it is tested against different antibiotics to see which drug best destroys the bacteria. This last step is called a *sensitivity test*. Although your health care provider may begin treatment before the bacterial cultures are back from the lab, the cultures will confirm the diagnosis and may cause a change in the antibiotic your health care provider chooses for you.

If the UTI doesn't clear up with treatment, or if you have had several bladder infections, you may need a test called a *cystoscopy*. A flexible tube with a light and camera is inserted into the bladder to remove samples of urine and tissue. Your health care provider might order other tests that produce pictures, or images, of the urinary tract, such as the intravenous pyelogram (IVP). This text provides x-ray images of the bladder, kidneys, and ureters. Another imaging test you might need is an *ultrasound exam*, which gives pictures from the echo patterns of sound waves bounced back from internal organs.

One test allows women with frequent infections to test their first-morning urine sample by themselves. Dipsticks (a type of testing paper that looks like a stick, which you can dip into a sample of your urine) that change color when an infection is present are now available in drug stores without a prescription.

How is a UTI treated?

UTIs are treated with antibiotics (a medicine that kills bacteria), usually for seven to ten days. For some infections, however, you may only need a single dose of an antibiotic. The choice of antibiotic and length of treatment depend on your health history and the type of bacteria causing the infection. The antibiotic drugs most often used to treat UTIs are

- *trimethoprim* (Trimpex);
- *trimethoprim/sulfamethoxazole* or TMP/SMZ (Bactrim, Septra, Cotrim);
- *amoxicillin* (Amoxil, Trimox, Wymox);
- *nitrofurantoin* (Macrodantin, Furadantin),

- and *ampicillin*.

Other antibiotics are sometimes used as well, including *ofloxacin* (Floxin), *norfloxacin* (Noroxin), *ciprofloxacin* (Cipro), and *trovafloxin* (Trovan). Some antibiotics are not safe to take during pregnancy. Talk with your health care provider about the risks and benefits of taking the different medications.

Getting proper treatment will prevent your urinary tract problems from getting worse and affecting other parts of your body. You can help prevent kidney infections by seeing your health care provider as soon as you have symptoms of a UTI. If you are in pain, ask your health care provider to prescribe a pain reliever since various drugs are available. A heating pad may also help.

What if I keep getting UTIs?

Most healthy women do not get repeat infections. However, women who have had three UTIs are likely to continue having them. Four out of five of these women get another UTI within 18 months of the last UTI. Many women have them even more often. If you have frequent infections (three or more a year), ask your health care provider about one of the following treatment options:

- Taking low doses of an antibiotic, such as TMP/SMZ or *nitrofurantoin*, daily for six months or longer. Research has shown this therapy to be effective without causing serious side effects.
- Taking a single dose of an antibiotic after sexual intercourse.
- Taking a short course (one or two days) of antibiotics when symptoms appear.

Are there steps I can take to prevent a UTI?

Drink plenty of water every day to help flush bacteria out of your system. Some health care providers suggest drinking cranberry juice or taking Vitamin C (ascorbic acid) supplements, which keep the number of bacteria in your system down. Cleanse the area around the rectum and vagina each day. Urinate when you feel the need (or about every two to three hours, and before and after sex). Wipe the genital area from front to back to prevent bacteria from entering the vagina or urethra. It also helps to take showers instead of baths; avoid irritating douches and feminine hygiene sprays; and wear panties with a cotton crotch, which absorbs moisture. Some women say drinking a lot of water after sexual activity helps to prevent new infections.

For more information...

For more information about urinary tract infections, contact the National Women's Health Information Center at (800) 994-9662 or TDD at 1-888-220-5446. Visit NWHIC's web site at www.4woman.gov. Other organizations that you can contact are listed below.

National Kidney and Urologic Diseases Information Clearinghouse
Phone Number(s): (800) 891-5390
Internet Address: http://www.niddk.nih.gov/health/kidney/nkudic.htm

American Foundation for Urologic Disease
Phone Number(s): (800) 242-2383
Internet Address: http://www.afud.org/

American College of Obstetricians and Gynecologists (ACOG) Resource Center
Phone Number(s): (202) 638-5577 Resource Center
Internet Address: http://www.acog.org/

Parts of this FAQ were adapted from the National Institute of Diabetes & Digestive & Kidney Disease's (NIDDK) "Urinary Tract Infections in Adults" and "What I Need to Know About Urinary Tract Infections."

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