

# Urinary Tract Infections (UTIs)

A urinary tract infection, or "UTI", is an infection of the urethra, bladder, and/or kidneys, the major structures composing the urinary tract. Infections of the urethra (called urethritis) and of the bladder (called cystitis) are more common than infections of the kidney (called pyelonephritis). A bladder infection, if left untreated, may lead to a kidney infection due to bacteria ascending from the bladder, up the ureters, to the kidneys. Since kidneys are vital organs, essential to life, it is important that medical care be sought if any symptoms of a urinary tract infection are present.

UTIs develop when bacteria get into the urinary system, a part of the body which normally has no bacteria. About 85% of these infections are caused by a normal intestinal bacterium named *Escherichia coli*, commonly called *E.coli*. Other intestinal or skin organisms may also produce infection.

## FREQUENCY

UTIs are much more common for women than men. The relatively short urethra in women (about 1 to 1 1/2 inches long) makes it easy for bacteria introduced to the urethra to make their way up to the bladder. Some women may rarely or never experience a UTI in their lives, but others may have several.

Women are also more prone to developing UTIs following sexual intercourse, during which bacteria may inadvertently be introduced to the urethra. UTIs often occur due to unaccustomed frequency of sexual intercourse. Women may experience problems when they only have intercourse sporadically, such as only on vacations, etc. or after receiving oral sex.

Although normal female anatomical features predispose all women to a degree, for most women, UTIs should not be more than an occasional event. If a woman is having an uncommonly high frequency of UTIs (usually considered to be greater than three within a year), the possibility of an uncommon cause should be considered. Anomalies of the urinary tract structures may interfere with mechanisms, which would normally discourage infections. Treatment of the underlying problem may then remedy the problem of recurrent UTIs.

In men, the longer urethra makes UTIs less common, but they do occur. Bacteria are usually flushed out of the urethra with urination before they have a chance to cause infection. Because UTIs are rare in men, the occurrence of even one UTI may be a signal that there is an underlying problem pre-disposing him to developing a UTI. Occasionally an anatomical anomaly can interfere with the normal processes, which remove bacteria from the body before infections develop.

## DIAGNOSIS

Evaluation of a woman with signs of a UTI requires examination of a urine specimen. The typical findings that indicate a UTI are white blood cells (the body's infection-fighters), red blood cells (a sign of extreme irritation), and bacteria in the urine. Normal urine has none of these. The urine can be sent for a culture to identify the causative bacteria and to determine appropriate antibiotic treatment. If there is reason to check for STDs, a pelvic exam may also be performed. When an anatomic problem is suspected, x-rays of the entire urinary tract may be ordered.

University Health Service, University of Rochester – Call 275-2662 to schedule an appointment.

Evaluation of a man with signs of a UTI also requires examination of the urine, following the same guidelines as for women. Because true UTIs are rare in men, evaluation will almost always include tests for STDs. When an anatomic problem is suspected, x-rays of the urinary tract may also be ordered.

## SYMPTOMS

*The symptoms of a urethral or bladder infection are any or all of the following:*

- Discomfort urinating (dysuria)
- Increased frequency of urination, and then only small amounts of urine
- Urgent need to urinate
- Blood in the urine (hematuria)

*The symptoms of a kidney infection are:*

- Back pain
- Side or "flank" pain
- Nausea and/or vomiting
- Fever and/or shaking chills
- Generalized fatigue or ill feeling

Some sexually transmitted infections (STIs) can produce symptoms that resemble those of a UTI. The most common STDs involved are chlamydia and gonorrhea. Genital herpes and some vaginal infections may also mimic UTIs. Although these sexually transmitted organisms infect the urethra, they are classified separately from the common organisms causing UTIs because of their mode of transmission. If a woman or man has symptoms of a UTI but lab tests fail to demonstrate infection with the bacteria that are known to cause UTIs, then the symptoms may be due to an STI.

## TREATMENT

**Medications:** UTIs are treated with antibiotics, agents which rid the body of bacteria. The choice of antibiotic will depend on the organism causing the infection. The results of the urine test will indicate to your health care provider which antibiotics are effective.

Treatment is usually begun at the time of the visit, without waiting the 2-3 days required for test results. Since most infections are caused by *E.coli* or similar bacteria, and since there are several antibiotics which are effective against most infections, the majority of people will already be experiencing improvement by the time test results come back. A few people who have an infection may be resistant to the antibiotic initially chosen. If symptoms or diminished symptoms persist, your health provider should be notified so that an effective alternative medication can be chosen.

A bladder anesthetic is often prescribed to relieve the acute discomfort of UTIs. The most common agent, phenazopyridine hydrochloride (Pyridium), provides rapid relief of symptoms. A harmless, but sometimes surprising and disconcerting side effect is that it turns urine bright orange. The relief of symptoms should not be mistaken for cure of the infection. The full course of the antibiotic must be taken according to instructions and not discontinued, even if symptoms are resolved sooner.

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If problems occur while on the antibiotic, you should notify your health care provider immediately.

Women with frequent, recurrent UTIs, i.e. more than three within a year, may require a preventive regime of medication known as "suppression therapy". There are several different approaches to this type of therapy, all requiring that a woman take a small dose of antibiotic on a regular basis (anywhere from daily, to a few times per week, to each time she has intercourse), for six to twelve months or longer. The choice of antibiotic and the duration of treatment will be specified by her health care provider.

## Non-Medicinal Treatment

A high fluid intake is recommended to help treat UTIs. Fluids have several important functions, including promoting complete dissolving of the antibiotic, which enable you to get full benefit of the drug. Fluids decrease drug precipitation, which can cause kidney stones and increase urine production, which promotes removal of bacteria by "flushing" it out. Fluids also decrease the opportunity for bacteria to travel up the ureters to the kidneys. Water is one of the best fluids to drink. Cranberry juice is also often recommended for its ability to acidify urine, which discourages multiplication of bacteria. Orange juice and most carbonated soft drinks are not recommended, but small amounts may be consumed.

## PREVENTION

Adequate fluid intake on a regular basis is important to good health in both men and women and will help prevent UTIs. After urinating or bowel movement, women should wipe from front to back. For women for whom UTIs are linked with sexual activity, it may help to urinate both before and after intercourse. Commonsense levels of cleanliness usually are adequate, but when UTIs are a problem, special care may be required of both sexual partners.

## SCHEDULING AN APPOINTMENT

Call 275-2662 to schedule an appointment at the University Health Service (UHS). UHS offers a full range of health care services for men and women. You can schedule an appointment with your primary care provider (PCP) or with one of the women's health nurse practitioners for gynecological care. All visits to UHS are strictly confidential.

## LINKS

National Kidney and Urologic Diseases Information Clearinghouse  
<http://kidney.niddk.nih.gov/index.htm>

Urology Channel  
<http://urologychannel.com/uti/>