



## Urinary Tract Infection

Urinary tract infection (UTI) is one of the most common infections. A UTI can be an infection of the bladder (cystitis) or a more serious infection of the kidney (pyelonephritis). Most patients with a UTI have an uncomplicated bladder infection that is easily treated with a short course of antibiotics.

Most UTI's are caused by the bacteria *Escherichia coli* (*E. coli*), which is commonly found in feces. The bacteria can move from the anus to the urethra and into the bladder (and less commonly into the kidney), causing the infection. *E. coli* have certain properties that enable this movement, including the ability to adhere to the lining of the urethra and bladder.

Common symptoms of cystitis:

- Pain or burning when urinating
- Frequent need to urinate
- Urgent need to urinate
- Blood in the urine
- Discomfort in the middle of the lower abdomen (suprapubic pain)

A patient who does not have symptoms, but has bacteria in the urine is said to have asymptomatic bacteriuria. This is especially common in elderly men and women. Treatment is not usually needed for asymptomatic bacteriuria, except during pregnancy. For this reason, routine urinalysis are no longer performed with annual examinations.

Burning with urination can also occur in people with vaginitis (e.g., yeast infection) or urethritis (inflammation of the urethra). The presence of blood in the urine is common in cystitis, but not in vaginitis or urethritis. Vaginal discharge, odor, itching, or pain with sexual intercourse are typical features of vaginitis. Urethritis is possible if the patient has a new sexual partner, has a partner with urethritis, or gradually develops symptoms over several weeks.

### Diagnosis of UTI

Simple cystitis is usually diagnosed based upon symptoms alone. A urinalysis is helpful to confirm the diagnosis if the symptoms are not clear. In patients with symptoms, treatment should be started immediately. A urine culture can help confirm that the bacteria is sensitive to the antibiotic that was prescribed.

One way to distinguish between UTI and vaginitis is by performing a urinalysis to determine if there are white blood cells present in the urine. A urine culture grows the bacteria from the urine in a laboratory and tests for antibiotic sensitivity. It usually requires about 48 hours to grow.

### Treatment of UTI

In young, healthy adolescents and adults with simple cystitis, the usual treatment includes a three to seven day course of antibiotics. The typical drugs chosen are: trimethoprim-sulfamethoxazole (Bactrim®), nitrofurantoin (Macrobid®), ciprofloxacin (Cipro®), levofloxacin (Levaquin®), Amoxicillin. Ciprofloxacin and levofloxacin should not be used by women who are pregnant or

nursing. Generic versions of these medications are as effective as the brand name drug and are much less expensive.

Symptoms generally resolve one to three days after starting treatment. It is important to take the full course of antibiotics to completely eliminate the infection. Follow-up testing is not needed in healthy, young women with simple cystitis if symptoms resolve.

If needed, a prescription analgesic medication that numbs the bladder and urethra (phenazopyridine [Pyridium®]) can be taken to reduce the burning pain of some UTI's. A similar medication is available without a prescription (e.g., Uristat). Both medications cause the urine to appear discolored (usually blue or orange) and can interfere with laboratory testing. The analgesic should not be used for more than 48 hours due to the risk of side effects. Analgesics do not eliminate the infection and must be taken along with an antibiotic. If urinary symptoms persist for more than two or three days, call back to confirm that the urine culture showed that the particular bacteria is sensitive to the antibiotic that was prescribed.

Increasing fluid intake may help flush bacteria from the bladder. Because there are no definitive studies on the effectiveness of cranberry juice for the treatment of a UTI, we do not recommend the use of cranberry juice to treat UTI's. Cranberry juice and vitamin C may help prevent UTI's from occurring.

Pregnant women with a UTI or asymptomatic bacteriuria (a UTI without symptoms) need to be treated to reduce the risk of pyelonephritis and pregnancy-related complications. Pregnant women with a UTI may be given prophylactic antibiotics for the remainder of the pregnancy to prevent recurrent infection which can lead to preterm labor.