Virginia Commonwealth University

UNIVERSITY STUDENT HEALTH SERVICES • Fact Sheet

URINARY TRACT INFECTIONS (UTIs)

WHAT IS A UTI?

The **urinary tract system** consists of all the organs involved in the collection and removal of liquid wastes from the body. These organs include the kidneys, ureters, bladder, and urethra:

- The kidneys are 2 bean-shaped organs located below the ribs in the middle of the back. They remove waste from the body in the form of urine.
- Narrow tubes called ureters carry the urine from the kidneys to the bladder.
- Urine is then emptied from the bladder through the urethra.

Despite its unsanitary image, urine is normally free of bacteria. A **urinary tract infection (UTI)** occurs when bacteria enter the urethra and travel up into the bladder. The bacteria that cause UTIs usually come from your own digestive tract (ie. the anal area).

- If the infection stays just in the bladder, it is called a <u>bladder infection or "cystitis"</u>.
- Less commonly, the infection can travel past the bladder and up into the kidneys. This type of UTI is referred to as a kidney infection or "pyelonephritis".

HOW COMMON ARE UTIS?

UTIs are one of the most common outpatient infections diagnosed in the US. Approximately 50-60% of females will have at least one UTI in their lifetimes, and many will experience more than one UTI.

WHY ARE UTIS MORE COMMON IN FEMALES?

The female anatomy increases the risk of developing a UTI because the urethra is situated very close to the anus and is much shorter than a male urethra. This makes it easier for bacteria from the anal area to enter the urethra (especially during vaginal intercourse) and travel up into the bladder.

WHAT ARE OTHER RISK FACTORS FOR UTIS?

You have a higher risk of developing a UTI if you:

- Have sex frequently.
- Use spermicides during sex.
- Had a UTI in the past 12 months.
- Have diabetes.
- Have a structural abnormality of the urinary tract or kidney stones.

There is also evidence suggesting that some people have a genetic predisposition to UTIs, regardless of their health conditions or lifestyle behaviors. These patients appear to have stickier mucosa which increases the risk of vaginal colonization by bacteria that cause UTIs.

WHAT ARE THE SYMPTOMS?

- Bladder Infections (Cystitis) Common symptoms include:
 - Pain or burning with urination.
 - Frequent urination.
 - Urgency (the feeling that you have to urinate immediately).
 - Not being able to urinate despite having the urge.
 - Blood in the urine.
 - Lower abdominal pain (over the bladder), especially during urination.
 - Mild low back pain.

stays.

Kidney Infections (Pyelonephritis)

Symptoms may include those of a bladder infection but typically also include:

- Fever (100°F or higher).
- Chills
- Back pain (usually mid-way up the back on one side).
- Abdominal pain.
- Nausea and/or vomiting.
- Increased fatigue or malaise.

SEEK MEDICAL CARE URGENTLY IF YOU HAVE SYMPTOMS OF A KIDNEY INFECTION! Early treatment is important in preventing complications, such as kidney damage, and hospital

HOW IS IT DIAGNOSED?

A UTI is diagnosed based on your symptoms, physical exam findings, and results of a urine test looking for signs of infection. In some cases, a urine sample is also sent to the lab for culture. A urine culture will identify the specific bacteria causing the infection and whether it is resistant to any antibiotics.

WHAT IS THE TREATMENT?

♦ OVERVIEW

- The usual treatment for a UTI is a course of <u>antibiotics taken by mouth</u>. Over-thecounter medications are available for symptom relief, but they will not cure a UTI.
- <u>Drinking more fluids</u> during treatment is also important to help flush bacteria from the bladder.
- <u>If you are sexually active, it is best to avoid intercourse</u> during treatment to prevent reintroduction of bacteria into the urethra.

✤ BLADDER INFECTIONS (CYSTITIS)

- Antibiotic treatments are usually prescribed for 3-5 days in females and 5-7 days in males.
 - Symptoms should improve within 48 hours of starting the antibiotic (often within hours).
 - It is important to finish the entire antibiotic course, even if symptoms have resolved.
 - If symptoms are not completely gone by the end of the antibiotic course, it is important to follow up with your medical provider for further evaluation and treatment.
- Phenazopyridine (Azo or Pyridium) is an over-the-counter medication that can be used to decrease UTI symptoms. It works by numbing the bladder and urethra, but it cannot cure a UTI.
 - Phenazopyridine can be taken with antibiotics. However, it <u>should not be used for</u> more than 2 days after starting antibiotics because continued use may mask worsening UTI symptoms.
 - Phenazopyridine will temporarily turn your urine (and even sweat and tears) a harmless bright <u>orange color</u>. It may also stain contact lenses, as well as rayon-silk clothing.

***** KIDNEY INFECTIONS (PYELONEPHRITIS)

- Antibiotic treatments are prescribed for 7-14 days. It is important to follow up closely with your healthcare provider to prevent complications, which can include permanent damage to the kidney.
 - Symptoms should begin to improve 24-48 hours after starting the antibiotic.
 - It is important to follow up with your medical provider 1-2 days after starting the antibiotic to assess response to treatment. Notify your medical provider sooner if symptoms are worsening.
- **Over-the-counter pain medications** can be taken for fever and pain. Examples include acetaminophen (Tylenol) and ibuprofen (Advil, Motrin). Ibuprofen should be taken with food to avoid an upset stomach.
- Hospitalization may be necessary if symptoms are severe or do not improve with antibiotics taken by mouth.

HOW DO I PREVENT UTIS?

- Drink plenty of fluids. Hydrating well with caffeine-free fluids will dilute urine and increase urination, which helps keep your bladder bacteria-free. To prevent recurrent UTIs, aim for 2-3 liters of fluid per day.
- Urinate after sex. Urinating soon (within 30 minutes) after vaginal intercourse can help female patients flush out bacteria that may have entered the urethra during sex. Drinking a full glass of water after sex can also help increase urination and wash out sneaky bacteria.
- Wipe front to back. Doing this will keep bacteria from around the anus from contaminating the vagina and urethra.

- Avoid or decrease spermicide use. Studies suggest that spermicides can contribute to bacterial growth and increase the risk of UTIs.
- Avoid holding your urine. Urinating frequently decreases stagnant urine and accumulation of bacteria in the bladder.
- Avoid bubble baths. Showers are preferable because soaking in a bath can increase urethral exposure to bacteria.

RECURRENT UTIS

Recurrent UTIs can be common among healthy young females. They are defined as <u>having ≥ 2 </u> <u>UTIs in 6 months</u> or ≥ 3 UTIs in 12 months. Strategies to prevent recurrences include antibioticsparing options and antibiotic prophylaxis.

- Antibiotic-sparing strategies are preferred to avoid the risk of developing antibiotic resistance. Experts recommend <u>methenamine or cranberry products</u> because they have been shown to decrease the frequency of bladder infections and are generally well-tolerated.
 - Methenamine is an antimicrobial agent that research suggests may be as effective as antibiotic prophylaxis in preventing recurrent UTIs.
 - The typical dose of <u>methenamine hippurate is 1 gram taken by mouth twice daily</u>.
 Do not take methenamine with sulfonamide antibiotics, such as Bactrim.
 - Cranberry products are also recommended by experts to decrease the frequency of bladder infections. Cranberry juice has been shown in labs to prevent bacteria from sticking to the walls of the urinary tract.
 - The optimal dose/formulation is not yet known, but experts suggest drinking an <u>8oz</u> glass of cranberry juice once or twice daily; or taking <u>cranberry concentrate tablets</u> <u>500mg to 1000mg daily</u> for prevention.
 - Do not use cranberry products with the blood-thinning medication warfarin (Coumadin).
 - **Probiotics** may prevent vaginal colonization by uropathogens that cause UTIs, but studies have not been promising for oral probiotics thus far; early data shows that vaginal suppositories may be more effective. Use of probiotics for UTI prevention is not currently recommended, but it is unlikely to be harmful.
 - D-mannose is a natural sugar sold in health food stores that is no longer routinely recommended to prevent UTIs. It is believed to work by competitively binding to bacteria, decreasing the number of bacteria that can attach to the urinary tract. However, large trials have not shown a reduction in bladder infections, and experts recommend other options first (see above).
- Antibiotic prophylaxis may be considered in select cases to prevent recurrent UTIs. Prior to starting these methods, a urine culture will typically be checked 1-2 weeks after UTI treatment to ensure that the previous infection has cleared. Response to prophylaxis is typically assessed after 3 months to determine if it should be continued.
 - Postcoital prophylaxis may be considered if UTIs primarily occur after having sex.
 Patients are instructed to take a single low-dose antibiotic after vaginal intercourse to prevent UTIs.
 - Continuous prophylaxis using a daily low-dose antibiotic may be considered if recurrent UTIs do not seem to be related to sexual activity. However, this method may increase the risk of developing antibiotic resistance.
- A referral to a Urology specialist may be advised in some cases to rule out underlying problems in the urinary tract.

RECOMMENDED WEBSITES: www.familydoctor.org, www.mayoclinic.org