Introduction
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 located below the ribs in the middle of the back and 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. In fact, it has been called the "last clean stream in America!"

A urinary tract infection (UTI) occurs when bacteria multiplies in the urine, reaching a high enough concentration to cause an infection. UTIs are usually caused by bacteria from your own digestive tract.

How common are UTIs?
UTIs are second only to upper respiratory infections as the most common infection in patients presenting to outpatient clinics in the United States. They are the most common bacterial infections in adult females, especially sexually active and pregnant females. 20-30% of females have a UTI at least once during their lifetimes.

Other groups at higher risk for UTIs include people with structural abnormalities of the urinary tract, the elderly, and those with chronic diseases, such as diabetes.

Why are UTIs more common in women?
Females are more susceptible to UTIs because of their anatomy. The female urethra (the tube which empties urine from the bladder) is situated close to the anus, making it susceptible to infection by bacteria from the rectal area.

In addition, the female urethra is located almost directly in front of the vaginal opening and is much shorter than the male urethra. This makes it easier for bacteria to enter the urethra (especially during vaginal intercourse) and travel up to the bladder where they can multiply and result in a UTI.

What are the different types of UTIs?
- Urinary Tract Infection
  This is a general term used to describe an infection of any part of the urinary tract, from the kidneys down to the urethra.

- Cystitis or Bladder Infection
  These two terms are used to describe a UTI that primarily affects the bladder. This type of infection is also known as a lower UTI because it occurs in the lower part of the urinary tract.

- Pyelonephritis or Kidney Infection
  These two terms are used to describe a UTI that primarily affects the kidney. This type of infection is also known as an upper UTI because it occurs higher up in the urinary tract system.

What are the symptoms?
- Bladder Infections (Cystitis)
  Common symptoms of a bladder infection or any infection in the lower urinary tract include:
  - A burning sensation with urination.
  - Frequent urination.
  - Urgency (the feeling that you have to urinate immediately).
  - Not being able to urinate despite the urge to.
  - Blood in the urine.
  - Lower abdominal pain (over the bladder), especially during urination.
  - Mild low back pain.

  The severity of symptoms varies from person to person. Some people experience only one or two of the above symptoms, while others experience most of them. Symptom onset can also be gradual or sudden.

- Kidney Infections (Pyelonephritis)
  If you experience any of the following symptoms (in addition to the symptoms described above), seek care as soon as possible because you may have a kidney infection:
  - Fever (may be 101°F or higher).
  - Shaking chills.
  - Back pain (usually mid-way up the back on one side).
  - Abdominal pain.
  - Nausea and vomiting.

  It is important to treat kidney infections early to prevent permanent damage to the kidneys. Serious infections may require hospitalization.
How are UTIs diagnosed?
A UTI is diagnosed by the patient’s symptoms, physical exam findings, and results of a urine test looking for signs of infection.

In some cases, a urine sample is sent to the lab for culture. This test identifies the specific bacteria causing the infection and whether antibiotic resistance exists.

How are UTIs treated?
■ Bladder infections (Cystitis) are treated with antibiotics for 3-7 days. It is important to complete the entire antibiotic course, even if you feel better. Although symptoms usually resolve in 1-3 days, the total dose of medicine is necessary to cure the infection.

Phenazopyridine (Azo or Pyridium) is an over-the-counter medication that can be used to decrease painful urination. However, this medication cannot cure a UTI; antibiotics are necessary for treatment.
  o Phenazopyridine should not be used for more than 2 days after antibiotics are started because continued use may mask worsening symptoms.
  o Phenazopyridine will turn your urine (and even sweat and tears) a harmless bright orange color. It can also stain contact lenses as well as rayon-silk clothing.
  o It is important to stop phenazopyridine and seek medical care if your eyes or skin turn yellow.

■ Kidney infections (Pyelonephritis) are treated with antibiotics for 7-14 days. It is important to have close follow-up with your healthcare provider to prevent complications, including permanent damage to the kidney. Hospitalization and intravenous (IV) antibiotics may be needed if symptoms do not improve.

■ Recurrent UTIs can be due to a number of different causes.
  o In some cases, prophylactic antibiotics, taken on a regular or an “as needed” basis, are recommended to prevent UTIs from recurring.
  o A referral to a specialist in Urology may be advised to rule out underlying problems in the urinary tract that may predispose someone to recurrent infections.

Is follow-up necessary?
Follow-up with a medical provider to ensure that the infection has cleared is important if:
  o You have been diagnosed with a kidney infection, or
  o You have any symptoms remaining after completing a full course of antibiotics.

Follow-up is usually not necessary after an uncomplicated bladder infection if symptoms have completely resolved.

How can I prevent UTIs?
Here are some simple steps you can take to prevent UTIs:
■ Use the flush technique. Urinating before and after vaginal intercourse can prevent UTIs. Studies show that females who urinate soon (within 30 minutes) after vaginal penetration can flush out bacteria that may have entered the urethra during intercourse.
  o Cranberry juice may be helpful because it prevents bacteria from sticking to the walls of the urinary tract. However, cranberry juice cannot cure a UTI; an antibiotic is necessary for treatment.
  o Do not drink cranberry juice if you are taking the blood-thinning medication warfarin (Coumadin).

■ Drink plenty of fluids. Hydrate well with caffeine-free fluids (i.e. 8-10 glasses of water a day) to flush out the urinary system.
  ■ Obey the urge. Avoid holding your urine. Urinating frequently decreases stagnant urine in the bladder, making it more difficult for bacteria to accumulate and multiply. Studies have shown that frequent urination decreases the chance of developing a bladder infection.

■ Wipe front to back. Doing this will prevent bacteria around the anus from entering and infecting the urethra.

■ Take showers. Avoid tub baths which may increase the risk of bacteria entering the urethra.

■ Don’t irritate the urethra. Be sure to use enough lubrication during sex (e.g. K-Y Jelly if needed). Avoid feminine hygiene sprays and scented douches, as well as bubble baths.

See your healthcare provider immediately if you have:
  o Symptoms that worsen or fail to resolve with treatment.
  o Fever of 101°F or higher.
  o Shaking chills or sweats.
  o New or persistent vomiting.
  o New or persistent low back pain.

Recommended websites:
  o www.mayoclinic.com
  o www.familydoctor.org

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