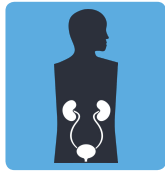


## TOPIC: URINARY TRACT INFECTIONS



# Urinary Tract Infections

### Bacterial

CAUSE: common \_\_\_\_\_ bacteria.

### CAUSE

- Mostly bacterial: *Escherichia coli* (*E. coli*) - > \_\_\_\_\_% of cases.
- Also: *Proteus*, *Pseudomonas*, *Klebsiella*, *Staphylococcus*, *Enterococcus*, *Streptococcus*.
- ◆ Symptomatic \_\_\_\_\_ UTIs extremely rare in \_\_\_\_\_ individuals.
  - ◆ Fungal UTIs (usually caused by \_\_\_\_\_ *albicans*) also occur, but \_\_\_\_\_.

### SPREAD

- ~8x more common among \_\_\_\_\_.
- Shorter \_\_\_\_\_; proximity of urethra and anus.
  - *Staphylococcus saprophyticus* UTIs associated with \_\_\_\_\_ activity.
- ◆ May be caused by catheterization: Catheter-associated UTI (\_\_\_\_\_).

### SYMPTOMS

- ◆ Severity depends on organs involved.

#### \_\_\_\_\_ UTIs

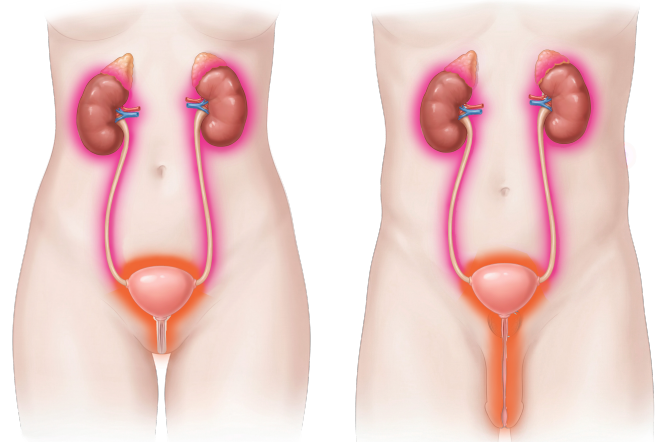
**Ureteritis** (\_\_\_\_\_); **Pyelonephritis** (\_\_\_\_\_).

- Fever, flank/back pain.
- Kidney \_\_\_\_\_.
- Bacteremia (bacteria in \_\_\_\_\_).

#### \_\_\_\_\_ UTIs

**Urethritis** (\_\_\_\_\_); **Cystitis** (\_\_\_\_\_)

- Pain/difficulty urinating (\_\_\_\_\_).
- \_\_\_\_\_ urination.
- Light fever.



### DIAGNOSIS

**Dipstick test:** filter paper dipped in urine sample; tests \_\_\_\_\_ indicators.

- \_\_\_\_\_ → produced by bacteria that cause UTIs.
- Leucocyte esterase (LE) → indicates \_\_\_\_\_ blood cells.

**Quantitative urinalysis:** CFU/mL (colony-forming units) of a single species.

- > \_\_\_\_\_ CFU/mL – infection; also lower counts with other indicators.

**TREATMENT**

Antibiotics (e.g. nitrofurantoin, trimethoprim-sulfamethoxazole).

If \_\_\_\_\_ is encountered, fluoroquinolones can be used.

For pyelonephritis, intravenous broad-spectrum antibiotics (e.g. cephalosporin).

**IMMUNITY**

N/A. Getting a UTI \_\_\_\_\_ risk of re-infection.

**EXAMPLE**

Urinary tract infections are roughly 8x more common in females than in males. Mark the following statements below with a check mark (✓) if the statement represents a reason for this difference, or a cross (X) if it does not.

The female immune system tends to be weaker, so is more prone to infection.	_____
The opening of the female urethra is closer to the anus, so has more exposure to fecal bacteria.	_____
Tampon use is a major, consistent cause of UTIs among females.	_____
Catheterization is roughly 8x more common in females than in males.	_____
The female urethra is much shorter, so there's a shorter distance for pathogenic bacteria to travel.	_____
In males the prostate gland can constrict the urethra, helping prevent infection.	_____

**PRACTICE**

Which pathogen is the most common cause of urinary tract infections?

- a) *Staphylococcus aureus*.                      c) *Candida albicans*.  
 b) *Escherichia coli*.                              d) *Pseudomonas aeruginosa*.

**PRACTICE**

Which of the following terms is matched with the correct definition?

- a) Cystitis: bacterial infection of the urethra.  
 b) Bacteremia: the presence of bacteria in the urine.  
 c) Pyelonephritis: bacterial infection of the kidneys.  
 d) Urethritis: infection of the ureters.