

Urinary Tract Infections

FACTS

A urinary tract infection (UTI) is an infection of one or more structures in the urinary tract. Viruses, fungi, or parasites can cause UTIs but by far the most common cause is bacteria. The infection could be in the urethra (the tube leading from the bladder to the outside), the bladder, the ureters (the tubes leading from the kidney to the bladder), or within the kidneys. In most healthy people, the urine in the bladder and other urinary structures is sterile: there are no bacteria present. Even if there are bacteria or other infectious organisms, they are too few in number to cause an infection.

The most common way that bacteria enter the urinary system is from the outside — at the urethra which is an opening at the tip of the penis in men or just above the vagina in women. Bacteria enter at the urethra and go upward toward the bladder. The bacteria can multiply much better when there is urine left in the bladder for long periods of time, for example in people who incompletely empty their bladders when they urinate. Bacteria move more easily upward in women because the female urethra is much shorter than in men. Bacteria normally present in the person's own intestine or vagina cause more than 85% of UTIs. The reason everyone doesn't get a UTI is that the bacteria around the urethra are usually washed away when a person urinates. In persons between the ages of 20 and 50, UTIs occur about 50 times more often in women than in men. After age 50, women are about 10 times more likely to develop UTI than men are.

PREDISPOSING FACTORS

Some people are at greater risk of UTI than others. Factors that increase the likelihood of UTI include the following:

- **Shortness of the urethra**

Bacteria survive longer when they have a shorter distance to travel to the bladder. Once in the bladder they more easily colonize and grow, causing an infection. This factor makes UTI more common in adult women than men.

- **Nearness of the urethra to areas of the body normally containing bacteria or fungi**

The location of the female urethra is very close to the vagina and anus. This also increases the incidence of UTIs for females.

- **Diabetes**

Bacteria live and multiply much faster when sugar is present. Diabetic patients may excrete sugar in their urine at times, making them at greater risk of UTI.

- **Injury to the urethra**

- » Women may develop UTIs after engaging in sexual intercourse if the urethra is bruised during sex.
- » Anyone who has a catheter inserted is at greater risk. (This is due not only to possible injury of the urethra, but also because the catheter itself may introduce bacteria directly into the bladder.)
- » Agitated males who wear external catheters may injure their urethras by pulling or adjusting the external catheter.

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- **Restrictions on urine flow/urinary retention**

Bacteria can continue to multiply much more easily in the bladder if it is incompletely emptied, with “stagnant” urine left behind.

- » In males, enlargement of the prostate gland may cause pressure on the urethra and lead to incomplete emptying of the bladder.
- » Pregnant women are at greater risk because the larger uterus causes pressure on the ureters and may restrict urine flow.
- » Patients with neurologic disorders such as multiple sclerosis may have problems that cause incomplete emptying of the bladder and allow a lot of urine to remain in the bladder after they urinate.
- » Abnormalities in the urinary structures themselves can cause restrictions to urine flow
- » Constantly holding urine in the bladder for long periods of time after feeling the urge to urinate causes retention which acts the same as retaining urine after urinating even though the retention is voluntary.

- **Poor hygiene habits**

- » Women who fail to clean themselves properly after toileting are at much greater risk of infecting the urethra, especially if they wipe feces from the anus towards the vagina and urethra.
- » Males who fail to cleanse the penis properly by pulling back the foreskin are more likely to infect the urethra.
- » Incontinent patients who are not thoroughly cleansed immediately after each incontinent episode are more likely to have fecal contamination of the urethra and/or urethral irritation.

- **Inadequate fluid intake or drinking the wrong kinds of liquids**

- » People who do not drink enough fluids do not produce as much urine. They tend to urinate less frequently so bacteria around the urethra may not be flushed out with urine.
- » Certain types of liquids are better than others. Coffee, tea, colas, chocolate, and alcohol beverages may actually increase the risk of UTI. Water is the very best liquid. Liquids that help keep the urine more acidic, such as cranberry, apple, or orange juice may be helpful in preventing UTI.

COMMON SIGNS AND SYMPTOMS OF UTI

UTIs will almost always cause some signs and symptoms. There may be fewer symptoms in an elderly patient, and in patients with indwelling catheters.

- » Frequent, often urgent desire to urinate
- » Burning or painful sensation during urination
- » Difficulty starting the urine stream despite an urgent desire to urinate
- » Urinating small amounts of urine each time
- » Urinary incontinence

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- » Frequent awakening at night because of the urge to urinate
- » Change in character of the urine (see the following section)
- » Urethral discharge in males
- » Fever
- » Pain or tenderness over the bladder area, in the abdomen, or lower back

COMMON CHANGES IN THE URINE OF A PERSON WITH A UTI

Normal urine is clear, has a light yellow color, a slightly acid odor and most people do not need to urinate more often than every 2-3 hours. The urine may be lighter if the person is drinking a lot of fluids, or become slightly darker if he or she is drinking less than normal amounts of fluids. Urine from a person with a UTI may show the following changes:

- » Cloudy instead of clear
- » Much darker in color
- » Very strong and unpleasant odor, often with an ammonia or fishlike odor
- » Shreds of mucus
- » Blood

PREVENTING UTI IN PATIENTS WITHOUT CATHETERS

There are many simple actions a home health aide should take to help prevent UTIs. These actions are based on factors that predispose a person to UTI.

1. Unless directed otherwise, encourage the patient to drink adequate amounts of water.
2. When the patient needs to urinate, attend to that right away. Do not make the patient wait.
3. Have the patient as upright as possible when urinating into a bedpan. It is preferable to use the commode if at all possible.
4. Make certain that the pathway to the bathroom is not cluttered.
5. If the patient uses a walker or cane, make certain it is always nearby so he or she can use it to get to the bathroom.
6. Provide as much privacy as possible. Many patients find it more difficult to urinate without privacy.
7. Allow the patient plenty of time and do not rush him or her to "hurry up."
8. Follow proper procedures when cleansing the perineum. This includes always wiping a female from front to back, and pulling back the foreskin of males when washing the penis.
9. Thoroughly cleanse the patient and change the diaper as soon as it is soiled.

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PREVENTING UTI IN PATIENTS WITH CATHETERS

Having an indwelling catheter greatly increases the risk of UTI. It is very important to know and follow the principles of drainage, as well as the proper care of the catheter and supplies.

1. Provide catheter and perineal care according to agency policy and the instructions on your assignment sheet. Secure the catheter tubing to the patient's thigh as instructed or according to agency policy.
2. Take great care in changing from a bedside drainage system to a leg bag. Keep in mind that leg bags should not be worn in bed, since the urine will not flow as well.
3. Use aseptic technique each time you must disconnect any portion of the catheter system so that you do not contaminate any surface. Follow the assignment sheet and agency policy in cleansing drainage bags.
4. Take great care in dressing the lower body, making certain the drainage system is always at a level lower than the bladder. Otherwise, urine in the tubing will flow back into the bladder.
5. When assisting with ambulation, make certain the drainage bag is never at a level higher than the patient's bladder.
6. Never allow the drainage bag to become full. When the bag is full, urine will no longer drain into it and will remain in the patient's bladder.
7. Always make certain there are no kinks in the drainage tubing and that the patient is not sitting or lying on it. This might stop the flow of urine.

WHAT TO OBSERVE AND REPORT

You have a responsibility to make observations about the patient's urinary status at each visit and to report any abnormal findings. Keep in mind that abnormal findings may be signs or symptoms of a UTI. Some important observations and information to report include the following:

- **Characteristics of the urine**
 - » Observe the color, clarity, odor, amount.
 - » Report to the supervisor if the urine is cloudy, very dark, contains blood, sediment or mucus, or has a foul odor.
- **Frequency and ease of urination**
 - » Observe for patterns of urination and whether or not they are unusual for the patient.
 - » Report to the supervisor if the patient is urinating much more frequently than usual, seems to have great urgency, is having trouble beginning to urinate, or is urinating small amounts of urine at a time.
- **Functioning of indwelling catheter**
 - » Observe the amounts of urine collecting in the bag. Carefully observe the patient's underwear, bed linen and clothing for any signs of leaking around the catheter.

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- » Report to the supervisor if the catheter is not draining, or if there are any signs that the catheter is leaking.
- **Presence of pain or discomfort**
 - » Observe the patient for signs of discomfort. Ask whether he or she is having any discomfort or pain.
 - » Report to the supervisor if the patient has pain on urination, has lower abdominal discomfort or back pain.
- **Appearance of the perineal area**
 - » Observe the urethral area for swelling, redness, or drainage. Observe the entire perineal area for any signs or symptoms of irritation. Ask the patient whether there has been increased itching in the area.
 - » Report to the supervisor if there is any abnormality of the urethral area or the perineum.
- **Increase in confusion in the elderly**
 - » Observe the status of confusion in elderly patients and whether it has changed. Some elderly patients do not have the usual signs and symptoms of UTI and changes in the level of confusion may be an indication of an undetected UTI.
 - » Report to the supervisor if there is a change in the level of confusion. This may be especially important if a patient is not usually confused.
- **Patient compliance**
 - » Observe how the patient or caregiver manages the catheter and drainage bag. Be alert to habits that may contribute to the development of UTI.
 - » Report to the supervisor if you notice practices that are not compliant with preventing UTI.
- **Presence of urinary incontinence**
 - » Observe the patient's undergarments, bed linen, and clothing for signs of incontinence.
 - » Report to the supervisor if the patient begins having incontinent episodes, or if the incontinence is not being addressed by the patient or caregiver with the use of products to keep the patient dry.

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CASE STUDY: PATIENTS WITH UTIs

Rachel has been a home health aide for many years. Her first visit is to Mrs. Olson who is a 66 year-old patient with multiple sclerosis. About six weeks ago, Mrs. Olson developed a urinary tract infection (UTI) and an oral antibiotic was prescribed. Because Mrs. Olson has difficulty walking, she tends to wait as long as she can before going to the bathroom. During her bath Mrs. Olson tells Rachel that she needs to urinate, then adds, "I'll wait until we are finished here." When she hands Mrs. Olson some tissue to clean herself Rachel notices that Mrs. Olson wipes from the back towards the front.

While tidying the bathroom Rachel sees the antibiotics prescribed for Mrs. Olson over a month ago sitting on the shelf. When she asks Mrs. Olson about it, Mrs. Olson replies, "Well, I took them for several days and then I felt a lot better. I thought I would keep the rest of them in case I have the same thing again."

When the visit was completed, Rachel offered to put some ice water on the table near Mrs. Olson's chair. Mrs. Olson told her that she didn't like the taste of water and also that she tries not to drink very much so she won't have to go to the bathroom so often. "Besides, my coffee is all I need," she said.

Rachel's next visit is to Mr. Hart, a 75 year-old diabetic patient who had a stroke last year and has a foley catheter. He is a bit cantankerous and his wife, who is his primary caregiver, is a little afraid of him. She meets Rachel at the door and says that Mr. Hart insisted on wearing his leg bag to bed again last night and the urine had completely filled it. After greeting Mr. Hart and washing her hands, Rachel attaches the catheter to the bedside drainage bag and notices that several hundred ccs of urine immediately pour into the bag. She asks Mr. Hart why he was wearing the leg bag and he snapped, "I didn't want that old fool messing with everything last night." Mr. Hart's bed linen is soaked with urine and it appears he has been wet for some time. He tells Rachel that happens every time he wears his leg bag at night and admits that he does that often. "She can clean it up. Lord knows, she doesn't do much else," he says. He goes on to tell Rachel not to tell the nurse, since he says the nurse is as fussy as his wife about things like that.

While giving perineal care, Rachel notices a small amount of drainage from the urethra. She asks Mr. Hart whether he is having any discomfort around the catheter and he snaps, "Well of course I do. You would too if you had a tube stuck up in there!" He won't talk about it further. When Rachel is assisting Mr. Hart with his pants, he becomes very impatient and tells her there is no need to be so careful about the drainage bag.

THINK ABOUT IT

Rachel recognizes several things at both the visits that may put Mrs. Olson and Mr. Hart at higher risk for developing UTI. How many of those can you identify?

Review each visit and list other things Rachel would have observed. What should she report to the supervisor about Mrs. Olson? What should she report about Mr. Hart?

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DIRECTIONS: READ EACH QUESTION CAREFULLY. THEN, DETERMINE THE BEST ANSWER. CHECK THE CORRESPONDING BOX ON YOUR ANSWER SHEET. DO NOT WRITE ON THIS POST-TEST.

1. Which of the following is not likely to be a symptom of a urinary tract infection (UTI)?
 - a. Burning on urination
 - b. Frequent desire to urinate
 - c. Diarrhea
 - d. Pain in the lower abdomen

2. Why are adult women more likely than men to develop UTI?
 - a. They don't urinate standing up.
 - b. They have shorter urethras.
 - c. They always have poor hygiene.
 - d. They don't go to the bathroom as often.

3. Which of the following will increase the likelihood of UTI in patients with catheters?
 - a. Having a kink in the tubing
 - b. Placing the drainage bag higher than the bladder
 - c. Waiting until the drainage bag is full before emptying it
 - d. All of the above

4. Which of the following should be reported to your supervisor?
 - a. The patient reports he or she urinates about every three hours.
 - b. A small amount of urine is leaking around the catheter.
 - c. The level of urine in the drainage bag increases during your visit.
 - d. None of the above

5. It is normal for the urine to be slightly lighter or darker, depending on how much fluid the patient is drinking.
 - a. True
 - b. False

6. Which of the following does not predispose a patient to development of UTI?
 - a. Having diabetes
 - b. Poor hygiene habits
 - c. Having heart disease
 - d. Having a catheter

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7. Which of the following measures is not likely to help prevent UTI?
- Assisting the patient to the bathroom at least every half hour
 - Providing as much privacy as possible
 - Encouraging the patient to drink adequate fluids
 - Encouraging the patient to go to the bathroom as soon as he or she feels the urge to urinate
8. Bacteria normally present in the patient's own intestine or vagina are not likely to cause a UTI.
- True
 - False
9. Which of the following statements is true about UTI?
- Bacteria can grow more easily in an empty bladder.
 - Viruses cause most UTIs.
 - Elderly patients will show signs and symptoms sooner than younger patients.
 - A common symptom of UTI is a burning during urination.
10. Patients should always wear a leg bag when they are lying in bed.
- True
 - False

- END -

MONTHLY INSERVICE ANSWER SHEET

In-service Month _____ Year _____

Name _____ Date _____

1. a. ___ b. ___ c. ___ d. ___

2. a. ___ b. ___ c. ___ d. ___

3. a. ___ b. ___ c. ___ d. ___

4. a. ___ b. ___ c. ___ d. ___

5. a. ___ b. ___ c. ___ d. ___

6. a. ___ b. ___ c. ___ d. ___

7. a. ___ b. ___ c. ___ d. ___

8. a. ___ b. ___ c. ___ d. ___

9. a. ___ b. ___ c. ___ d. ___

10. a. ___ b. ___ c. ___ d. ___

