CONDITION

Urinary tract infection - adults

A urinary tract infection is usually a bacterial infection of the bladder or kidneys.

WHAT IT IS
Infection affecting the bladder, urethra, or kidneys

BODY SYSTEM
Urinary system

MAIN SYMPTOMS
Painful urination, urgency, frequency, lower abdominal pain

WHAT CAUSES IT
Usually bacteria entering the urinary tract

HOW IT IS DIAGNOSED
Symptoms and urine testing, including culture when needed

MAIN TREATMENT
Antibiotics and symptom relief

CAN IT BE CURED?
Yes - most clear with appropriate antibiotics

IS IT AN EMERGENCY?
Sometimes - with sepsis signs or severe illness

LONG-TERM OUTLOOK
Usually full recovery, though infections can return

Overview

A urinary tract infection, or UTI, is an infection in part of the urinary system. This system includes the kidneys, tubes called ureters, the bladder, and the urethra-the tube that carries urine out of the body.

Most adult UTIs affect the bladder. This is called cystitis or a lower UTI. An infection that reaches one or both kidneys is called pyelonephritis , or an upper UTI. Kidney infections are less common but can cause more serious illness.

UTIs are usually caused by bacteria. They often improve with the right antibiotic like amoxicillin or doxycycline , although some mild bladder infections may settle without one. Symptoms can overlap with sexually transmitted infections, vaginal conditions, prostate problems, kidney stones, and other conditions. A healthcare professional may need to check the cause rather than assuming every urinary symptom is a UTI.

Finding and treating a kidney infection promptly matters because it can sometimes spread into the bloodstream or damage kidney function.

Symptoms

A bladder infection commonly causes:

Urine appearance or smell alone does not prove that you have a UTI. Dehydration, food, medicines, and other conditions can also change urine.

A kidney infection may cause bladder symptoms along with:

Symptoms can be less typical in some older or frail adults. However, confusion by itself does not confirm a UTI. Other causes such as dehydration, medicine effects, pain, low oxygen, or another infection also need consideration.

Discharge, genital sores, vaginal irritation, or pain during sex may suggest another condition. Inflammation of the urethra from a sexually transmitted infection can also cause burning during urination.

- Burning or pain when urinating
- Needing to urinate more often or more urgently
- Passing small amounts of urine
- Pain or pressure low in the abdomen
- Cloudy, bloody, or unusually strong-smelling urine
- Fever or chills
- Pain in the side or back, usually below the ribs
- Nausea or vomiting
- Feeling markedly weak or unwell

Causes and risk factors

Most UTIs happen when bacteria from the bowel or surrounding skin enter the urethra and travel upward. Escherichia coli , often called E. coli , is the most common cause.

People with a shorter urethra are more likely to develop bladder infections because bacteria have less distance to travel. Sexual activity can move bacteria toward the urethra, although a UTI is not usually considered sexually transmitted.

Factors that can increase the chance of a UTI include:

Some adults develop repeated infections without an obvious underlying problem. A history of previous UTIs is itself a risk factor for another episode.

Bacteria can sometimes be found in urine without causing symptoms. This is called asymptomatic bacteriuria . It usually does not need antibiotics, except in specific situations such as pregnancy or before certain procedures involving the urinary tract. Unnecessary antibiotics can cause side effects and encourage antibiotic-resistant bacteria.

- Pregnancy
- Menopause and lower oestrogen levels
- Using spermicide, including spermicide-coated contraceptives
- Difficulty emptying the bladder
- An enlarged prostate
- Kidney or bladder stones
- Urinary tract abnormalities
- A urinary catheter
- Recent urinary surgery or procedures
- Diabetes, especially when poorly controlled
- Conditions or medicines that weaken immune defences

Diagnosis

A healthcare professional will usually ask about your symptoms, medical history, pregnancy possibility, medicines, allergies, and previous urine culture results. They may examine your abdomen or back if a kidney infection or another cause is possible.

A urine dipstick can look for signs linked with infection, such as nitrites and white blood cells. These results support a diagnosis but are not perfect. A negative dipstick does not rule out every UTI, and a positive result does not always mean that symptoms are caused by infection.

A urine culture checks whether bacteria grow from a urine sample. It can identify the bacteria and show which antibiotics are likely to work. Results usually take longer than a dipstick test.

A culture may be particularly useful when symptoms are severe, unusual, recurrent, or not improving. It is also commonly used when a kidney infection is suspected, during pregnancy, in men, or when antibiotic resistance is a concern.

Testing for sexually transmitted infections may be appropriate if symptoms or recent sexual contact suggest that possibility.

Scans are not routinely needed for a straightforward bladder infection. Ultrasound, CT, or other tests may be considered if there could be a stone, blockage, abscess, structural problem, or repeated kidney infection.

Treatment and management

Antibiotics are the main treatment for bacterial UTIs. The choice and length of treatment are based on where the infection is, how unwell you are, pregnancy, kidney function, allergies, previous cultures, and local antibiotic resistance.

Take an antibiotic exactly as directed. Do not save it for another illness or share it with someone else. If a culture shows that a different antibiotic is more suitable, the treatment may be changed.

A kidney infection usually needs prompt antibiotic treatment. Some people can take tablets at home. Hospital treatment and antibiotics through a vein may be needed if you are vomiting, dehydrated, severely unwell, pregnant with complications, or unable to take oral treatment.

You can drink enough fluid to avoid dehydration, but forcing unusually large amounts is not necessary. A suitable non-prescription pain reliever may help with discomfort or fever. Check with a pharmacist or healthcare professional if you have kidney disease, stomach ulcers, take blood-thinning medicine, are pregnant, or are unsure what is safe for you.

If a catheter is involved, a healthcare professional may assess whether it is still needed or should be replaced. Do not remove a catheter yourself unless you have been taught and advised to do so.

Symptoms often begin to ease after treatment starts, but the timing is not the same for everyone. Seek reassessment if symptoms worsen or are not starting to improve within about 48 hours of treatment.

Complications

Most bladder infections clear without lasting harm. Complications are more likely when infection reaches the kidneys or urine flow is blocked.

Possible complications include:

In pregnancy, a UTI can be more likely to spread to the kidneys and may affect pregnancy

outcomes. This is why urinary symptoms-and sometimes bacteria found during routine urine testing-are managed differently during pregnancy.

Repeated kidney infections or infections linked with a structural urinary problem can occasionally contribute to lasting kidney damage. This is not the usual outcome of a simple bladder infection.

- Kidney infection
- A collection of infection called an abscess
- Dehydration from fever or vomiting
- Temporary worsening of kidney function
- Sepsis, an extreme body-wide response to infection
- Repeated infections

Prevention

Not every UTI can be prevented. Having one does not mean that you have poor hygiene.

Drinking enough to avoid dehydration and not regularly delaying urination may help. Emptying the bladder after sex is a low-risk habit, although evidence that it prevents UTIs is limited. Avoiding spermicide may reduce infections for people who notice a link.

After menopause, vaginal oestrogen may help prevent recurrent UTIs in some people. It is a local hormone treatment that requires an individual discussion about suitability.

If infections keep returning, options may include a planned low-dose antibiotic, an antibiotic linked to a known trigger, or a non-antibiotic preventive treatment. These approaches need clinical review because benefits, side effects, resistance, kidney function, and pregnancy possibility all matter.

Cranberry products may lower recurrence for some people, but the evidence is not consistent for every group or product. They do not treat an active infection. Cranberry can also interact with some medicines.

Living with it and what to expect

A single bladder infection usually resolves after appropriate treatment and does not cause long-term problems. Tiredness or urinary sensitivity may last a little longer than the strongest symptoms.

Some adults have recurrent UTIs, commonly defined as at least two infections within six months or three within a year. If this happens, keeping a record of symptoms, urine culture results, treatments, and possible triggers can help guide an assessment.

Repeated symptoms do not always mean repeated bacterial infections. Bladder pain syndrome, vaginal changes after menopause, pelvic floor problems, stones, prostate conditions, and sexually transmitted infections can produce similar symptoms. Urine cultures taken during symptomatic episodes can help clarify the pattern.

Over months or years, some people have occasional separate infections, while others have clusters followed by long symptom-free periods. Preventive treatment can reduce episodes for some people, but no method guarantees that they will stop completely.

A UTI is not usually passed between sexual partners. It is reasonable to continue normal activities as you feel able, but rest and fluids may be helpful during an acute infection. Ongoing pain, fever, or repeated disruption to daily life deserves follow-up rather than repeated self-treatment.

When to get medical help

Arrange prompt medical advice if you think you have a UTI and you are pregnant, have a penis, use a catheter, have kidney disease, have a weakened immune system, or have a known urinary tract abnormality.

You should also seek prompt assessment for:

Seek emergency help if you have signs of severe infection or sepsis, such as difficulty breathing, fainting, new severe confusion, being difficult to wake, blue or mottled skin, or feeling extremely unwell. Inability to pass urine with severe lower abdominal pain also needs urgent assessment.

- Fever, chills, or pain in your side or back
- Vomiting or difficulty keeping fluids down
- Visible blood in the urine
- Symptoms that worsen quickly
- Symptoms that are not starting to improve within about 48 hours of treatment
- Repeated infections
- Urinary symptoms with genital discharge, sores, or possible STI exposure

Common questions

Can a UTI go away without antibiotics?

Some mild bladder infections may settle without antibiotics, but it is not possible to predict this safely in every case. Kidney infection symptoms, pregnancy, significant medical conditions, or worsening illness need prompt assessment. Do not delay care if you have fever, back or side pain, vomiting, or severe symptoms.

Can sex cause a UTI?

Sexual activity can move bacteria toward the urethra and trigger a UTI in some people. A typical UTI is not usually sexually transmitted. However, sexually transmitted infections can cause similar burning or urinary discomfort.

Why do my UTIs keep coming back?

Risk factors include sexual activity, spermicide use, menopause, incomplete bladder emptying, stones, catheters, and urinary tract problems. Sometimes no clear cause is found. Culture-confirmed episodes help distinguish recurrent infection from other bladder or genital conditions.

Is blood in my urine normal with a UTI?

A bladder infection can cause a small amount of visible or microscopic blood. It should clear as the infection resolves. Blood that continues after treatment, occurs without infection symptoms, or returns repeatedly needs medical assessment.

Can I treat a UTI by drinking cranberry juice or lots of water?

Neither cranberry nor extra water can reliably cure an active bacterial UTI. Drink enough to avoid dehydration. Cranberry products may help prevent some recurrent infections, but results are mixed and they can interact with certain medicines.

Why do I still have symptoms after antibiotics?

The bacteria may be resistant, the infection may involve the kidneys, or another condition may be causing the symptoms. Symptoms can also take time to settle after bacteria have cleared. Seek reassessment if you are worsening or not beginning to improve within about 48 hours.

Sources

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