CONDITION

Urinary tract infections

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

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

BODY SYSTEM
Urinary system

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

WHAT CAUSES IT
Usually bacteria entering the urinary tract

HOW IT IS DIAGNOSED
Symptoms, urine testing, and sometimes urine culture

MAIN TREATMENT
Antibiotics and symptom relief

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

IS IT AN EMERGENCY?
Sometimes - sepsis signs or severe kidney infection

LONG-TERM OUTLOOK
Usually full recovery, though infections may 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, bladder, and urethra. The urethra carries urine out of the body.

Most UTIs affect the bladder or urethra. A bladder infection is also called cystitis . These lower urinary tract infections can be uncomfortable but are usually treatable.

An infection that reaches one or both kidneys is called pyelonephritis . Kidney infections can cause fever, pain in the side or back, and a stronger feeling of illness. They need prompt medical treatment because complications are more likely.

UTI symptoms can overlap with sexually transmitted infections, vaginal conditions, prostate problems, kidney stones, and other causes of urinary pain. Testing may be needed, especially if

the symptoms are unusual, severe, or keep returning.

Symptoms

A lower UTI may cause:

Strong-smelling or cloudy urine alone does not always mean there is an infection. Diet, dehydration, medicines, and harmless bacteria can change how urine looks or smells.

A kidney infection may also cause fever, chills, nausea, vomiting, or pain in the back or side below the ribs. Symptoms may occur on one or both sides.

Older adults can have the usual urinary symptoms. Sudden confusion may occur during serious illness, but confusion alone does not prove that a UTI is responsible. Other causes, including dehydration, medicine effects, and different infections, should also be considered.

Young children may have less specific symptoms, such as fever, vomiting, poor feeding, irritability, or new wetting accidents.

- Pain or burning when passing urine
- Needing to urinate more often or more urgently
- Passing only small amounts of urine
- Pain, pressure, or discomfort low in the abdomen
- Blood in the urine
- Cloudy urine

Causes and risk factors

Most UTIs happen when bacteria enter the urethra and travel upward. The bacteria often come from the bowel. Escherichia coli , commonly called E. coli , causes many bladder infections.

UTIs are more common in people with a shorter urethra because bacteria have less distance to travel to reach the bladder. Sexual activity can move bacteria toward the urethra, but a UTI is not generally considered a sexually transmitted infection. It is not a sign of poor cleanliness.

Factors that can make a UTI more likely include:

Some people have bacteria in their urine without pain, urgency, fever, or other symptoms. This is called asymptomatic bacteriuria . It is not usually treated with antibiotics like amoxicillin or doxycycline , except in specific situations such as pregnancy or before certain procedures involving the urinary tract.

- Pregnancy or changes after menopause
- Previous UTIs
- Spermicide use
- A urinary catheter
- Kidney stones or another blockage to urine flow
- Difficulty emptying the bladder completely
- An enlarged prostate
- Structural differences in the urinary tract
- Diabetes or a weakened immune system

Diagnosis

A healthcare professional will ask about your symptoms, when they started, and whether you have fever, back pain, vaginal or urethral discharge, or other health conditions. They may examine your abdomen or back.

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

A urine culture grows and identifies bacteria from a urine sample. It can also show which antibiotics are likely to work. Culture is particularly useful when infection may involve the kidneys, symptoms return, initial treatment does not help, or antibiotic resistance is a concern. It is also commonly used during pregnancy and for people at greater risk of complications.

You may be asked to provide a midstream sample. This means beginning to urinate into the toilet, collecting urine partway through the flow, and then finishing in the toilet. This helps reduce contamination from skin bacteria.

Repeated or unusual infections may lead to further tests, such as an ultrasound or another scan. Most people with a straightforward bladder infection do not need imaging.

Treatment and management

Bacterial UTIs are treated with antibiotics. The choice and length of treatment are based on where the infection is, your symptoms, pregnancy status, kidney function, allergies, recent

antibiotic use, local resistance patterns, and any urine culture result.

Take an antibiotic exactly as directed. Do not save doses for later or use antibiotics prescribed for somebody else. Contact the prescriber if side effects are difficult to manage or if you cannot keep the medicine down.

Symptoms often begin to improve after treatment starts, but improvement is not always immediate. Seek medical advice if symptoms are worsening or are not starting to settle within the timeframe you were given. A culture result may show that a different antibiotic is needed.

Rest and enough fluid to avoid dehydration may help you feel more comfortable. Drinking excessive amounts does not flush out an established infection and can be harmful. A pharmacist can advise whether a pain reliever is suitable for you.

Kidney infections usually need prompt antibiotics. Hospital care may be needed if you are very unwell, dehydrated, vomiting, pregnant, unable to take medicine by mouth, or at increased risk of complications. Treatment in hospital may include fluids and antibiotics through a vein.

Antibiotics are not usually helpful for bacteria found in urine without symptoms. Unnecessary antibiotic use can cause side effects and encourage antibiotic resistance, which means bacteria become harder to treat.

Complications

Most lower UTIs clear without lasting harm when treated appropriately. Possible complications include infection spreading to the kidneys or, less commonly, entering the bloodstream and causing sepsis.

Kidney infections can occasionally lead to an abscess, which is a pocket of infection, or kidney damage. These problems are more likely when urine flow is blocked, the urinary system has a structural problem, or the immune system is weakened.

UTIs can also return. Repeated symptoms may be caused by new infections, persistent bacteria, or a different condition that feels similar. Further assessment can help clarify the cause.

During pregnancy, a UTI is more likely to progress to kidney infection and may affect pregnancy outcomes. Urinary symptoms or a positive urine test during pregnancy should be reviewed promptly.

Prevention

Not every UTI can be prevented. Anatomy, menopause, pregnancy, bladder-emptying problems, and medical devices may affect risk in ways that personal habits cannot fully control.

Regularly delaying urination may make bladder symptoms worse. Passing urine when you need to and drinking enough to avoid dehydration are reasonable measures, although they cannot guarantee prevention.

Spermicides can increase UTI risk in some people. If infections seem connected with spermicide use, a clinician or sexual health service can discuss other contraceptive options.

After menopause, vaginal oestrogen may reduce recurring UTIs for some people. It is applied locally as a cream, tablet, or ring and is different from whole-body hormone treatment. A clinician can explain its benefits and whether it is appropriate.

Some people try cranberry products. Research suggests they may reduce recurring infections in certain groups, but results are mixed and they do not treat an active UTI. Cranberry products can interact with some medicines.

For frequent UTIs, preventive options may include a carefully selected antibiotic plan or the urinary antiseptic methenamine hippurate. These approaches require medical review because their suitability depends on the pattern of infections, culture results, and other health factors.

Wiping in a particular direction, urinating after sex, or avoiding specific underwear is often suggested. Evidence that these measures prevent UTIs is limited, and having an infection does not mean you have been unhygienic.

Living with it and what to expect

A straightforward bladder infection is usually a short-term condition. Symptoms commonly ease after effective treatment, and most people return to their usual activities without lasting effects.

Some people experience recurring UTIs over months or years. Keeping a brief record of symptoms, urine culture results, sexual activity, contraception, menopause changes, and treatments may help identify a pattern. Repeated antibiotic treatment without confirming the cause may overlook another condition.

Persistent burning, urgency, or bladder pain does not always mean bacteria remain. Vaginal dryness, sexually transmitted infections, stones, pelvic floor problems, and bladder pain syndrome can cause similar symptoms. Further assessment is appropriate when tests are repeatedly negative or symptoms continue between infections.

If you use a long-term urinary catheter or have difficulty emptying your bladder, your care plan

may focus on catheter management, relieving blockage, or improving bladder drainage as well as treating symptomatic infections.

When to get medical help

Seek prompt medical advice if you have possible UTI symptoms and you are pregnant, have a urinary catheter, have a weakened immune system, or have a known kidney or urinary tract problem. Men and children with possible UTI symptoms should also be assessed rather than relying only on self-care.

Arrange urgent same-day assessment if you have:

Call emergency services if you have signs of severe infection or sepsis, such as new confusion, severe difficulty breathing, fainting, blue or mottled skin, or being very difficult to wake. These symptoms do not confirm sepsis, but they need emergency assessment.

For milder bladder symptoms without these risk factors, a pharmacist, primary care service, or urgent care service can advise on testing and treatment. Do not delay assessment if you are becoming more unwell.

- Fever or shaking chills with urinary symptoms
- Pain in your back or side below the ribs
- Vomiting or difficulty keeping fluids or medicine down
- Rapidly worsening symptoms
- Visible blood in your urine
- Symptoms that do not begin improving after treatment starts
- A return of symptoms soon after finishing antibiotics

Common questions

Can a UTI go away on its own?

Some mild bladder infections may settle without antibiotics, but it is not possible to know from symptoms alone which will improve. Kidney infections and infections in higher-risk situations need prompt treatment. Seek advice if symptoms are significant, worsening, or accompanied by fever or side pain.

Is a UTI contagious?

A typical UTI is not passed between people like a cold. Sexual activity can move bacteria

toward the urethra, but the infection itself is not usually sexually transmitted. Burning urination or discharge can also be caused by a sexually transmitted infection, so testing may be appropriate.

Why do I keep getting UTIs?

Repeated infections can be linked with sexual activity, spermicide use, menopause, incomplete bladder emptying, stones, catheters, or urinary tract differences. Sometimes repeated symptoms are caused by another condition. Urine cultures can help distinguish infection from similar problems.

Does drinking cranberry juice cure a UTI?

No. Cranberry products do not cure an established UTI and should not replace appropriate assessment or antibiotics when these are needed. They may help prevent some recurring UTIs, but the evidence is mixed.

Why are there bacteria in my urine if I feel fine?

Bacteria can live in the urinary tract without causing symptoms. This is asymptomatic bacteriuria. Antibiotics are usually unnecessary because treatment often provides no benefit and may cause harm. Pregnancy and certain urinary procedures are important exceptions.

Can a UTI damage my kidneys?

A bladder infection usually does not damage the kidneys. An infection that spreads to the kidneys can occasionally cause complications, especially if treatment is delayed or urine flow is blocked. Fever, vomiting, or side and back pain with urinary symptoms needs prompt assessment.

Sources

- National Institute for Health and Care Excellence. Urinary tract infection (lower): antimicrobial prescribing . NICE guideline NG109
- National Institute for Health and Care Excellence. Pyelonephritis (acute): antimicrobial prescribing . NICE guideline NG111
- National Institute for Health and Care Excellence. Urinary tract infection (recurrent): antimicrobial prescribing . NICE guideline NG112
- Infectious Diseases Society of America. Clinical Practice Guideline for the Management of Asymptomatic Bacteriuria: 2019 Update . Clinical Infectious Diseases, 2019

- American College of Obstetricians and Gynecologists. Urinary Tract Infections in Pregnant Individuals . Clinical Consensus, 2023
- National Institute of Diabetes and Digestive and Kidney Diseases. Bladder Infection (Urinary Tract Infection) in Adults