TEST

Urine culture - catheterized specimen

A urine culture checks catheter-collected urine for bacteria or yeast causing infection.

WHAT IT MEASURES
Bacteria or yeast growing from catheter-collected urine

SAMPLE
Urine collected through a urinary catheter

FASTING NEEDED?
No

HOW LONG IT TAKES
Usually 5-15 minutes

RESULTS IN
Usually 1-3 days; timing differs by laboratory

USED FOR
Diagnosing infection and guiding antibiotic selection

MAIN LIMITATION
Catheter colonization can mimic infection

Overview

A catheterized urine culture is a laboratory test that looks for bacteria or yeast in urine collected through a urinary catheter. A catheter is a thin tube placed through the urethra, the opening where urine leaves the body, and into the bladder.

The sample may be collected using a temporary catheter that is removed immediately. If you already have an indwelling catheter, urine is usually taken from its sampling port using a sterile technique. It should not be collected from the drainage bag because organisms can multiply there and give a misleading result.

In the laboratory, the urine is placed on special material that supports microbial growth. If an organism grows, the laboratory identifies it and estimates the amount present. It may also test which antibiotics like amoxicillin or doxycycline are likely to work.

A urine culture differs from a urinalysis. A urinalysis looks for signs such as white blood cells, blood, or substances made by bacteria. A culture directly checks whether bacteria or yeast grow from the sample.

Why the test is ordered

The test is mainly used when a urinary tract infection, or UTI, is possible and a catheterized sample is needed. Catheter collection can reduce contamination from skin or genital organisms compared with a poorly collected midstream sample.

A culture may be ordered if you have symptoms such as:

Symptoms can be less specific in someone with an indwelling catheter. Your healthcare team considers the full picture rather than relying on urine appearance, smell, or a culture result alone.

The test can also help select treatment when an infection has not improved, keeps returning, or may involve an antibiotic-resistant organism. In certain situations, testing may be considered during pregnancy or before a procedure involving the urinary tract.

- Burning or pain when passing urine
- A new or frequent need to urinate
- Lower abdominal, side, or back pain
- Fever or chills without another clear cause
- New pelvic discomfort or tenderness around the bladder

Who should have the test

A catheterized specimen may be appropriate when a reliable clean-catch sample cannot be provided. This can include young children, people who cannot control urination, or people who are already using a urinary catheter.

Having a catheter does not automatically mean that a culture is needed. Bacteria commonly live on long-term catheters and may appear in urine without causing an infection. This is called asymptomatic bacteriuria.

Routine cultures in people without symptoms can lead to unnecessary antibiotics. Important exceptions may include pregnancy and preparation for some invasive urologic procedures. The reason for testing should be based on your symptoms, risks, and planned care.

How to prepare

You do not need to fast, and you can usually eat, drink, and take your regular medicines. Tell

the person arranging the test if you have recently taken antibiotics or medicines that prevent UTIs. These can reduce bacterial growth and make the culture appear negative.

If a new catheter will be inserted, you may be asked to lie down and move clothing away from the genital area. Let the healthcare professional know about previous difficult catheter insertions, urethral surgery, injury, or severe discomfort with catheter use.

Do not disconnect an existing catheter or take urine from its drainage bag yourself unless you have been specifically trained and instructed to do so.

What happens during the test

If you do not already have a catheter, the area around the urethra is cleaned. A lubricated sterile catheter is gently passed into the bladder. Urine drains into a sterile container, and the catheter is then removed unless it is needed for another reason.

If you have an indwelling catheter, the tubing is usually clamped briefly if needed so fresh urine collects. The sampling port is disinfected, and urine is withdrawn using sterile equipment. The closed drainage system should remain connected.

A long-standing catheter may sometimes be replaced before the sample is collected, particularly if it is still needed and catheter-associated infection is suspected. This helps avoid sampling organisms growing in the old catheter's surface layer, called a biofilm.

The container is labelled and sent promptly to the laboratory. Collection generally takes a few minutes.

Understanding your results

A result may report no growth , meaning no organism grew under the test conditions. This makes a bacterial UTI less likely, but it does not completely rule one out.

A positive culture names the organism and may report its quantity as colony-forming units per millilitre, or CFU/mL. This is an estimate of how much grew. There is no single count that proves infection in every situation.

Results may also describe mixed growth or mixed flora . This often means several organisms entered the sample during collection, although people with long-term catheters can genuinely carry more than one organism. A repeat sample may be needed.

Antibiotic susceptibility results may label an organism as susceptible, resistant, or use another laboratory category. These findings estimate whether particular antibiotics are likely to control

the organism. They do not mean that every positive culture requires treatment.

Reference ranges and interpretation vary by laboratory, age, sex, pregnancy status, medicines, and clinical context. Your symptoms, urinalysis, collection method, catheter history, and recent treatment all matter.

What affects the results

Several factors can change a culture result even when the laboratory performs the test correctly:

Age, pregnancy, immune function, kidney or urinary tract problems, and the reason for catheter use affect how a result is interpreted. They do not necessarily mean that the measurement itself is wrong.

- Antibiotics: A dose taken before collection can suppress growth and produce a negative or lower-count result.
- Drainage-bag collection: Organisms multiply in the bag, so this can suggest infection when the bladder is not infected.
- Catheter biofilm: Bacteria or yeast living on an old catheter can produce a positive culture without tissue infection.
- Collection contamination: Skin, genital, or bowel organisms can enter the container.
- Delayed transport: Organisms may multiply if untreated urine remains warm for too long.
- Very dilute urine: Heavy fluid intake may lower the number of organisms in the sample.
- Too little bladder contact time: Frequent drainage may reduce the measured bacterial count.
- Recent catheter change: Results may differ before and after an old catheter is replaced.
- Medicines: Antibiotics and some urinary antiseptic medicines can interfere with growth.

Accuracy and limitations

A properly collected catheter specimen is generally less likely to be contaminated than a voided sample. However, no urine culture can perfectly separate infection from harmless colonization.

The test can say "yes" when infection is not present. This is especially likely with long-term catheters because organisms can live in the catheter biofilm and enter the urine. Treating the

culture rather than the person's symptoms can lead to unnecessary antibiotics.

The test can also miss an infection. Antibiotics taken before collection, low organism numbers, very dilute urine, delayed processing, or organisms that do not grow well under routine conditions can cause a negative result.

A urinalysis can show inflammation but cannot by itself confirm the cause. Tests for sexually transmitted infections may be better when urethral infection is suspected. Imaging may be needed for stones, blockage, or structural problems. Blood cultures may be more useful alongside urine testing if a serious bloodstream infection is suspected.

Risks and complications

Taking urine from the sampling port of an existing catheter usually adds little physical risk when sterile technique is used.

Inserting a catheter can cause brief pressure, stinging, or discomfort. Less commonly, it can cause minor bleeding, urethral injury, difficulty inserting the tube, or introduce an infection.

Tell the healthcare professional promptly if insertion causes severe pain or the catheter does not drain.

What happens next

If the culture is negative and symptoms continue, your healthcare team may review the collection timing, recent antibiotics, and other possible causes. A repeat culture, urinalysis, sexual health test, blood test, or imaging study may be considered.

If an organism grows, the result is reviewed with your symptoms and other findings. A positive result without symptoms often represents colonization, particularly with a long-term catheter, and does not always require antibiotics.

If treatment is started before the final culture is ready, it may be changed after the organism and antibiotic susceptibility results are available. Catheter replacement or removal may also be considered when clinically appropriate.

Routine follow-up is suitable for questions about a result, ongoing mild symptoms, or treatment changes. Seek urgent medical help for fever with shaking chills, worsening side or back pain, repeated vomiting, new confusion, marked weakness, or very little urine. Call emergency services for severe breathing difficulty, collapse, or difficulty staying awake.

Common questions

Can I drink coffee before the test?

Yes. Fasting is not needed, and coffee does not usually prevent the test. Avoid forcing large amounts of fluid because very dilute urine can lower the measured organism count.

Does the time of day matter?

Usually not. Fresh collection and prompt transport matter more than the time of day. The sample is often collected when symptoms are being assessed and before antibiotics are started.

Can I exercise beforehand?

Normal activity does not usually affect a urine culture. Exercise may affect other urine findings, such as blood or protein, but it is not a major source of culture error.

Can the sample come from my catheter bag?

Generally no. Urine in the drainage bag is older and may contain organisms that multiplied after leaving the bladder. Samples should usually come from the disinfected sampling port.

Will antibiotics affect the result?

Yes. Antibiotics can stop organisms from growing and cause a false-negative result. Do not stop prescribed medicine on your own, but tell the healthcare team what you have taken and when.

Why is my culture positive if I feel well?

Catheters often become colonized with bacteria or yeast, especially when used for a long time. A positive culture can therefore occur without an active infection. The result should be interpreted with your symptoms and clinical circumstances.

Sources

- Centers for Disease Control and Prevention. Guideline for Prevention of Catheter-Associated Urinary Tract Infections
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- Infectious Diseases Society of America. Clinical Practice Guideline for the Management of Asymptomatic Bacteriuria: 2019 Update
- MedlinePlus. Urine culture
- UK Health Security Agency. Investigation of urine: UK Standards for Microbiology Investigations B 41