TEST

Stool C difficile toxin

A stool test that looks for toxins made by Clostridioides difficile bacteria.

WHAT IT MEASURES
Toxins made by Clostridioides difficile bacteria

SAMPLE
Stool

FASTING NEEDED?
No

HOW LONG IT TAKES
About 5 to 10 minutes for collection

RESULTS IN
Same day to two days, depending on laboratory

USED FOR
Diagnosis

MAIN LIMITATION
Toxin tests can miss infections when toxin levels are low

Overview

A stool C difficile toxin test looks for harmful substances called toxins in a stool sample. These toxins are produced by certain strains of Clostridioides difficile , often shortened to C. difficile or C. diff .

C. difficile can live in the bowel without causing illness. When it produces toxins, it can inflame the bowel and cause diarrhea. This is more likely after antibiotics like amoxicillin or doxycycline have disrupted the usual balance of bacteria in the bowel.

The name of the test can be confusing because laboratories use different methods. A toxin test usually looks directly for toxin A, toxin B, or both. Some laboratories first test for a bacterial marker called GDH. Others use a molecular test, such as PCR, to look for genes that allow the bacteria to make toxins.

Your report should state which methods were used. The result must be interpreted alongside your symptoms, medicines, recent antibiotic use, and other health information.

Why the test is ordered

The test helps determine whether C. difficile may be causing new, unexplained diarrhea. It is often considered when diarrhea begins during or after antibiotic treatment, during a hospital stay, or after recent healthcare contact.

It may also be ordered without these risk factors if your symptoms fit the infection. Antibiotic use increases the chance of C. difficile , but it is not required for the infection to occur.

The test is intended to support diagnosis. It is not normally used to screen people who feel well or to confirm that an infection has cleared after treatment.

Who should have the test

Testing is generally most useful when you have frequent, new, unexplained watery or loose stools. A commonly used testing threshold is three or more unformed stools within 24 hours, although your clinical situation also matters.

Testing may be less useful when diarrhea has a clear alternative explanation, such as recent laxative use. However, a clinician may still arrange testing if symptoms continue after the laxative has worn off or if there are other reasons to suspect infection.

Formed stool is usually not accepted because people without active illness can carry C. difficile . Testing people without diarrhea can therefore produce a positive result that does not explain any symptoms.

Babies commonly carry the bacteria without being ill. Testing infants is generally avoided, and results in children younger than two need particularly careful interpretation.

How to prepare

You do not need to fast. You can eat and drink normally unless you have received separate instructions for another test or procedure.

Ask whether you should collect the sample before starting antibiotics for suspected C. difficile . Antibiotics may reduce the amount of detectable toxin. However, do not delay prescribed treatment or stop any medicine unless the clinician managing your care tells you to.

Tell the healthcare team if you have recently used:

Follow the collection instructions from the laboratory. Use the container provided and label it as directed.

- Antibiotics
- Laxatives, enemas, or bowel-cleansing products
- Treatment for a previous C. difficile infection
- Medicines that slow diarrhea

What happens during the test

The sample is usually collected at home, in hospital, or at a clinic. Pass stool into a clean, dry collection device or disposable container. Try not to let it touch toilet water, urine, toilet paper, or cleaning products.

Use the supplied scoop to place some loose or watery stool into the specimen container. Close the lid firmly. Wash your hands thoroughly with soap and water afterward.

Return the sample promptly according to the laboratory's instructions. C. difficile toxins can break down at room temperature, so a long delay may make them harder to detect. If immediate delivery is not possible, ask whether the sample should be refrigerated.

Understanding your results

Results are often reported as positive, negative, or indeterminate. Interpretation depends on the exact combination of tests used.

A positive toxin result means toxin was detected in the stool. In someone with compatible diarrhea, this supports active C. difficile infection. The result does not show how severe the illness is.

A negative toxin result means toxin was not detected. This lowers the likelihood of active infection, but a toxin test can miss cases when toxin levels are low or the sample was delayed. Some laboratories automatically perform another test when the toxin result is negative.

An indeterminate or discordant result means different parts of a testing panel do not agree. For example, PCR may detect a toxin-producing strain while the direct toxin test is negative. This could represent an infection with toxin below the test's detection level, or carriage of the bacteria without toxin-related illness.

There is no universal numerical reference range for this test. Reporting and interpretation vary by laboratory, test method, age, pregnancy status, medicines, and clinical context.

What affects the results

Several factors can change the result or make it misleading even when the laboratory has performed the test correctly.

Delayed transport or improper storage can allow toxins to break down. This may produce a negative toxin result despite infection.

Starting treatment before collection can reduce toxin levels. A sample collected after several doses may be less likely to test positive.

Low or uneven toxin levels can lead to a negative result. Toxin may not be distributed equally throughout the stool.

A formed stool sample is difficult to interpret. A positive molecular test may identify harmless carriage rather than the cause of symptoms.

Laxatives and bowel preparations do not usually create C. difficile toxin, but they can cause diarrhea that resembles infection. This makes a positive molecular result harder to interpret.

Recent infection or treatment can affect repeat testing. Molecular tests may remain positive because bacterial genetic material can still be present, even after symptoms have improved.

Age is especially important in infants and young children because symptom-free carriage is common. Pregnancy, kidney function, and most routine medicines do not directly create a false toxin result, but they may affect the wider clinical assessment.

Accuracy and limitations

Direct toxin tests are useful because finding toxin in someone with diarrhea supports active disease. However, they are less likely than molecular tests to detect small amounts of C. difficile . This means they can say "negative" when infection is still present.

Molecular tests are better at finding toxin-producing strains, but they may say "positive" when the bacteria are present without causing illness. They detect toxin genes, not necessarily toxin being released in the bowel.

For this reason, many laboratories use a two-step or three-step approach. This may combine GDH, toxin testing, and PCR. No result should be interpreted without considering stool frequency and other possible causes of diarrhea.

Repeating a negative test within a short period usually adds little unless symptoms change or there is a strong reason to question the first sample. Testing after symptoms resolve is not a reliable "test of cure" because some methods can stay positive after recovery.

Risks and complications

Collecting a stool sample has no direct physical risk. The main concern is spreading germs from the sample, which can be reduced by closing the container securely and washing your hands with soap and water.

Alcohol hand gel does not reliably remove C. difficile spores. Soap and water are preferred after using the toilet or handling the sample.

What happens next

If the result supports C. difficile infection, the healthcare professional managing your care will consider treatment based on your symptoms, medical history, and illness severity. They may also review antibiotics, laxatives, or other medicines that could be contributing to diarrhea.

If the test is negative but diarrhea continues, routine follow-up may include reviewing sample quality, the test method used, medicines, and other possible causes. A different stool test or further assessment may be more useful than simply repeating the same test.

Seek prompt medical advice if diarrhea is frequent or worsening, you cannot keep fluids down, you have a fever, or you notice blood in your stool.

Seek urgent or emergency care for severe or rapidly worsening abdominal pain or swelling, fainting, confusion, difficulty staying awake, or signs of serious dehydration such as passing very little urine.

Common questions

Can I eat or drink coffee before collecting the sample?

Yes. Food, water, and coffee do not usually affect the test, so fasting is not needed.

Does the time of day matter?

No particular time is required. The more important issue is getting a fresh sample to the laboratory promptly.

Can I exercise beforehand?

Yes. Exercise does not affect C. difficile toxin levels in a meaningful way.

Can I collect the sample from the toilet?

Avoid collecting stool directly from toilet water. Use the collection device or clean, dry

container supplied or recommended by the laboratory.

Should I stop antibiotics before the test?

Do not stop prescribed antibiotics on your own. If possible, the sample may be collected before treatment begins, but treatment should not be delayed when urgent care is needed.

Do I need another test after treatment?

Usually not if your diarrhea has resolved. Some tests can remain positive after recovery, so a repeat test does not reliably prove that the infection has cleared.

Sources

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