TEST

Rotavirus antigen test

A rotavirus antigen test checks a stool sample for proteins from rotavirus.

WHAT IT MEASURES
Rotavirus proteins in a stool sample

SAMPLE
Stool

FASTING NEEDED?
No

HOW LONG IT TAKES
About 5 to 10 minutes to collect

RESULTS IN
Same day to two days, varying by laboratory

USED FOR
Diagnosis

MAIN LIMITATION
Recent oral vaccination can cause a positive result

Overview

A rotavirus antigen test looks for proteins from rotavirus in a stool sample. Rotavirus can cause vomiting and watery diarrhea, especially in babies and young children. Adults can also become infected.

Most antigen tests are designed to detect group A rotavirus, the type responsible for most human infections. The laboratory usually uses an immunoassay. This means that antibodies in the test bind to rotavirus proteins if they are present.

This is usually a qualitative test: the result is reported as "detected" or "not detected," rather than as a number. Some laboratories use molecular tests, such as polymerase chain reaction, or PCR, instead. PCR looks for the virus's genetic material and can detect smaller amounts.

Why the test is ordered

Many short episodes of diarrhea do not need laboratory testing. Treatment is often based on replacing lost fluids, regardless of the exact virus involved.

A rotavirus antigen test may be ordered when knowing the cause could help with:

The result does not show how dehydrated or unwell you or your child may be. Those questions require an assessment of symptoms and, sometimes, other tests.

- Investigating severe, persistent, or hospital-associated diarrhea
- Separating rotavirus from other causes of vomiting and diarrhea
- Managing infection-control precautions in a hospital or care setting
- Investigating several linked cases, such as an outbreak
- Confirming a suspected case for public health surveillance

Who should have the test

Testing may be considered for a baby or child with significant acute diarrhea, particularly if hospital care is needed. It may also be useful when several people in a household, childcare setting, hospital, or care home become ill.

Adults are tested less often because rotavirus is a less common identified cause of adult diarrhea and symptoms may be mild. Testing may still be appropriate during an outbreak, after close contact with an infected child, or when illness is severe.

A rotavirus antigen test is not usually a routine screening test for someone without symptoms. It may also add little when diarrhea is mild, improving, and unlikely to require a specific infection-control decision.

How to prepare

You do not need to fast. You can eat, drink water, and have coffee unless you are preparing for another test at the same time.

Tell the clinician or laboratory if the person being tested recently received an oral rotavirus vaccine. The vaccine contains weakened virus that can pass into stool for a period after vaccination and may affect the result.

Follow the collection kit instructions. Stool should not be mixed with urine, toilet water, soap, or cleaning products. Do not stop medicines unless a clinician has specifically told you to do so.

If you cannot return the sample immediately, ask how it should be stored. The correct temperature and time limit vary by laboratory and by the test method used.

What happens during the test

You will receive a clean container and, often, a small scoop attached to its lid. Stool is passed into a clean, dry collection container or onto a collection sheet. A small amount is then placed in the sample pot.

For a baby in diapers, the laboratory may provide special instructions. Liquid stool can soak into the diaper lining, so collecting from the absorbent part may not provide a suitable sample. Do not use creams, powders, or material from a wet diaper unless the instructions permit it.

Close the container firmly and label it as directed. Wash your hands well with soap and water after handling the sample. Return it promptly to the requested collection point.

Understanding your results

A positive or detected result means the test found rotavirus antigen. In someone with recent vomiting and watery diarrhea, this supports rotavirus as a cause. It does not measure illness severity or show whether dehydration is present.

A positive result after a recent oral rotavirus vaccine may reflect vaccine virus rather than a naturally acquired infection. A specialized molecular test may sometimes distinguish vaccine strains from other strains, but routine antigen tests cannot.

A negative or not detected result means rotavirus antigen was not found in that sample. It makes rotavirus less likely but does not completely rule it out. The sample may have been taken when little virus was present, or the antigen test may have missed an infection that a molecular test could detect.

There is no universal numerical reference range for this test. Report wording and interpretation vary by assay, laboratory, age, recent vaccination, medicines, pregnancy status, and clinical context. Sex and pregnancy do not usually alter the antigen itself, but they may affect how symptoms and other findings are assessed.

What affects the results

Several factors can make a result misleading even when the laboratory performed the test correctly:

Most ordinary foods, coffee, physical activity, and common medicines do not directly change the amount of rotavirus antigen in stool. The important medicine-related issue is the oral

rotavirus vaccine.

- Recent oral vaccination: Vaccine virus may be shed in stool and produce a positive result
- Collection timing: Testing late in the illness may miss the virus as the amount in stool falls
- Sample contamination: Urine, toilet water, soap, or cleaning chemicals can interfere with testing
- Poor storage or delay: Antigen may become harder to detect if the sample is handled incorrectly
- Very watery or inadequate samples: Dilution or too little stool may reduce the amount available for testing
- Test method: Rapid antigen tests may miss low amounts that a molecular test can detect
- More than one infection: Finding rotavirus does not prove that it is the only cause of the symptoms

Accuracy and limitations

Accuracy differs among manufacturers, laboratories, sample types, and circulating virus strains, so there is no single reliable percentage for every rotavirus antigen test.

Antigen tests can miss an infection when the amount of virus is low, the sample is collected late, or storage conditions are unsuitable. Molecular tests such as PCR generally find smaller amounts of virus and may be a better choice when a high level of certainty is needed.

A positive antigen test is usually meaningful during a compatible illness. However, a false positive can occur because of recent vaccination, contamination, or uncommon test interference. Detection also does not prove that rotavirus is causing every symptom, especially if another infection is present.

A broader molecular stool panel may be more useful when several viruses, bacteria, or parasites could explain severe or persistent diarrhea. Public health laboratories may use additional testing to identify the strain or investigate an outbreak.

No stool test can assess dehydration. Examination, fluid intake, urine output, alertness, and sometimes blood tests are more useful for that purpose.

Risks and complications

Collecting a stool sample does not cause pain and has no direct medical risk. The main concern

is spreading infection while handling stool, which can be reduced by careful handwashing and cleaning contaminated surfaces.

What happens next

If rotavirus is detected, care usually focuses on replacing fluids and monitoring for dehydration. Antibiotics like amoxicillin or doxycycline do not treat rotavirus because it is a virus. A clinician may recommend specific fluids or further assessment based on age, symptoms, and medical history.

A negative result may lead to no further testing if symptoms are mild and improving. If illness is severe, prolonged, or unusual, another stool test or an assessment for a different cause may be needed.

Arrange routine follow-up if diarrhea is not improving, keeps returning, or you have questions about feeding and fluid replacement.

Seek urgent medical help for signs of dehydration, such as very little urine, a very dry mouth, no tears when crying, unusual sleepiness, or an inability to keep fluids down. Blood in the stool, severe abdominal pain, or a fever in a young baby also needs prompt medical advice.

Call emergency services if the person is difficult to wake, collapses, has trouble breathing, or appears severely unwell.

Common questions

Can I eat or drink coffee before the test?

Yes. Food, water, and coffee do not affect stool rotavirus antigen testing. Follow separate instructions if other tests are being done.

Does the time of day matter?

No. Collect the sample when you can return it within the laboratory's stated time. Collection during active diarrhea is generally more useful than waiting until symptoms have resolved.

Can I exercise before collecting the sample?

Yes. Exercise does not directly affect rotavirus antigen in stool.

Can I collect the sample from a diaper?

Sometimes. Liquid stool can soak into the absorbent lining, so use the method provided by the laboratory. Avoid stool mixed with urine, creams, or powder.

Will a recent rotavirus vaccine affect the result?

It can. Vaccine virus may pass into stool and be detected by an antigen test. Tell the clinician and laboratory the vaccination date; do not delay needed medical assessment.

Does a negative result rule out rotavirus?

No. A negative antigen result lowers the likelihood but can miss low levels of virus. A molecular stool test may be considered when confirmation remains important.

Sources

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