HEALTH BASICS

# ECHO virus

ECHO viruses are a historical group of enteroviruses that can cause several kinds of infection.

**WHAT IT IS**
A historical group of human enteroviruses

**WHERE IT COMES UP**
Enterovirus test results, meningitis investigations, and outbreak reports

**WHY IT MATTERS**
Some types are linked to serious infections

**WHAT IT IS NOT**
Not a single disease or diagnosis

**WHO TO ASK**
A primary care clinician or infectious diseases specialist

**HOW IT IS CHECKED**
PCR testing of samples chosen for the suspected condition

## Overview

"ECHO virus" is an older name for a group of viruses, not one virus and not a disease. ECHO originally stood for "enteric cytopathic human orphan." "Orphan" meant that, when these viruses were first identified, they had not yet been linked to a known illness.

Echoviruses belong to the enterovirus group. Enteroviruses are small RNA viruses in the picornavirus family. Many echoviruses are now classified within a species called Enterovirus B . Some viruses that once had echovirus numbers have been renamed or reclassified as scientists learned more about their genetic material.

Because of these changes, laboratories may report "enterovirus" rather than "echovirus." A specialist laboratory may identify a particular type, such as echovirus 11 or echovirus 30, when typing is useful for investigating severe cases or outbreaks.

Finding an echovirus does not, by itself, describe what is happening to a person. The meaning depends on the sample tested, the person's condition, and whether another cause has been found.

## How it works

Echoviruses contain RNA, which carries their genetic instructions. They do not have a fatty outer envelope. This structure helps them remain infectious on hands, objects, and surfaces under some conditions.

Transmission is usually through close contact with material containing the virus. This can include stool, respiratory secretions, or fluid from the mouth and nose. Spread is more likely where people have close contact, including households, childcare settings, and healthcare environments.

After entering through the mouth or nose, an enterovirus can reproduce in the throat or intestines. In some infections, it enters the bloodstream and reaches another part of the body. The body's immune response usually limits this process.

A PCR test looks for viral genetic material. PCR stands for polymerase chain reaction. It can detect enterovirus RNA in samples such as:

The most useful sample depends on the condition being investigated. For example, cerebrospinal fluid is particularly relevant when meningitis is suspected. A stool result can show recent intestinal infection or continued shedding, but it does not always prove that the virus caused a current problem elsewhere in the body.

Routine PCR may identify an enterovirus without giving its exact type. Further typing usually requires sequencing or testing at a specialist or public health laboratory.

- Cerebrospinal fluid, the liquid surrounding the brain and spinal cord
- Blood, especially during some severe newborn infections
- Stool or a rectal swab
- Throat or other respiratory samples

## Why it matters for your health

Many enterovirus infections cause no noticeable illness or only a short, mild illness. However, particular echoviruses have been linked to several named conditions. The importance of a test result therefore comes from its clinical setting, not from the word "echovirus" alone.

Identifying an enterovirus in cerebrospinal fluid can help explain aseptic meningitis. This means inflammation of the lining around the brain and spinal cord when routine testing has not found the bacteria that commonly cause bacterial meningitis.

A result can also help clinicians decide which other tests remain necessary. Bacterial

meningitis and bloodstream infection can initially resemble viral infection and require urgent treatment. Antibiotics like amoxicillin or doxycycline do not treat enteroviruses, but they may be started while bacterial causes are still being investigated. They should not be stopped based only on a general explanation of echoviruses.

Exact typing does not always change an individual's care. It may still be valuable to public health teams that are tracking clusters, investigating outbreaks, or monitoring which enteroviruses are circulating.

There is no routinely used antiviral medicine that specifically clears echoviruses. Care for an identified enterovirus infection is based on the condition involved and the person's needs, such as maintaining fluids or monitoring organ function.

## What can go wrong

Echoviruses have been associated with several different conditions. These include nonspecific fever illnesses, respiratory infections, rashes, and digestive illness. A test cannot reliably distinguish among these conditions without considering the person's examination and other results.

More important associated conditions include:

Young infants, especially newborns, can become more unwell from enterovirus infections than older children or adults. People with significantly weakened immune systems may also have more persistent or serious infection.

A positive result from stool or the respiratory tract needs careful interpretation. Enteroviruses can remain detectable after the original infection, and a person may carry one without it explaining the current condition. Conversely, a negative result does not rule out every enterovirus infection. Timing, sample location, and the specific test all matter.

Seek urgent same-day medical assessment for a baby younger than 3 months with a fever, or for new neck stiffness, a severe headache, repeated vomiting, unusual sleepiness, dehydration, chest pain, or fainting.

Call emergency services for a seizure, severe difficulty breathing, blue or grey lips, inability to wake, sudden marked weakness, or a rash that does not fade when pressed in someone who appears seriously unwell. These signs have many possible causes and are not specific to echoviruses.

- Aseptic meningitis: inflammation of the tissues around the brain and spinal cord
- Encephalitis: inflammation involving the brain itself

- Myocarditis: inflammation of the heart muscle
- Pericarditis: inflammation of the thin sac surrounding the heart
- Sepsis-like illness in newborns: a severe whole-body illness that can resemble bacterial sepsis
- Hepatitis or bleeding problems in newborns: uncommon but potentially serious complications reported with some echovirus types

## What you can do

If "echovirus" or "enterovirus" appears on a test report, ask what sample was tested and whether the result identified a specific type. Also ask whether the result explains the condition being investigated or may represent recent viral shedding.

Keep a record of:

For many routine enterovirus results, there is nothing specific you need to request beyond the follow-up already arranged. Repeat testing and exact virus typing are not automatically useful. They are more likely to be considered during a severe illness, an unusual presentation, or a suspected outbreak.

If someone in your household has a confirmed or suspected enterovirus infection, careful handwashing with soap and water is useful, especially after changing nappies or using the toilet and before handling food. Clean frequently touched surfaces and avoid sharing cups or utensils while someone is unwell. Follow any additional advice from the healthcare or public health team involved.

- The exact wording of the result
- The sample type and collection date
- Whether the test was PCR, culture, or sequencing
- Any other infection results that were positive or negative

## Common questions

Are echovirus and enterovirus the same thing?

An echovirus is a type within the wider enterovirus group. A laboratory may detect an enterovirus without identifying whether it is an echovirus or another enterovirus type.

Does a positive echovirus result mean meningitis?

No. Echoviruses can be found in several settings. A positive cerebrospinal fluid PCR may support a diagnosis of enteroviral meningitis, but a positive stool or throat result does not establish meningitis.

Why is it called an "orphan" virus?

The term came from the period when these viruses had been discovered but had not yet been connected to recognized illnesses. It does not mean they affect orphans.

Can antibiotics treat it?

Antibiotics do not act against echoviruses. They may still be needed when a bacterial infection is possible or has been confirmed.

Can a routine blood test identify an echovirus?

Standard blood counts and inflammation tests cannot identify a specific virus. PCR can look for enterovirus RNA in blood when that sample is appropriate, but blood testing is not required in every situation.

Does the echovirus number predict how serious an infection will be?

Not reliably for an individual. Some types have been associated with particular outbreaks or conditions, but age, immune health, the affected organ, and the overall clinical picture are more important when planning care.

## Sources

- Centers for Disease Control and Prevention. About Non-Polio Enteroviruses
- Centers for Disease Control and Prevention. Clinical Overview of Non-Polio Enterovirus
- International Committee on Taxonomy of Viruses. Picornaviridae: Enterovirus
- Harvala H, Broberg E, Benschop K, et al. Recommendations for enterovirus diagnostics and characterisation within and beyond Europe. Journal of Clinical Virology . 2018;101:11-17
- de Crom SCM, Rossen JWA, van Furth AM, Obihara CC. Enterovirus and parechovirus infection in children: a brief overview. European Journal of Pediatrics . 2016;175:1023-1029