CONDITION

Vancomycin-resistant enterococci

VRE means enterococcal bacteria that are resistant to vancomycin and may colonize the body or cause infection.

WHAT IT IS
Colonization or infection with vancomycin-resistant enterococci

BODY SYSTEM
Gut, urinary tract, bloodstream, wounds, and heart

MAIN SYMPTOMS
Fever, chills, painful urination, wound redness

WHAT CAUSES IT
Antibiotic-resistant bacterial colonization or infection

HOW IT IS DIAGNOSED
Cultures and antibiotic susceptibility testing

MAIN TREATMENT
Site-specific antibiotics and infection source control

CAN IT BE CURED?
Sometimes - infection can clear; colonization may persist

IS IT AN EMERGENCY?
Sometimes - confusion or breathing difficulty may signal sepsis

LONG-TERM OUTLOOK
Most colonized people remain well

Overview

Enterococci are bacteria that normally live in the bowel. They may also be found in the genital tract or on the skin without causing illness. When bacteria live on or in the body without causing symptoms, this is called colonization .

Vancomycin is an antibiotic like amoxicillin or doxycycline used to treat some serious bacterial infections. Vancomycin-resistant enterococci, usually shortened to VRE , have developed resistance to this medicine. This means vancomycin cannot reliably kill them.

Most people who carry VRE are colonized rather than infected. They feel well and do not need antibiotics for VRE. Colonization matters because the bacteria can sometimes enter the urinary tract, bloodstream, wounds, abdomen, or heart and cause an infection. VRE can also spread to other people, especially in healthcare settings.

VRE infections are more difficult to treat than ordinary enterococcal infections because fewer antibiotics work against them. However, other treatment options are often available. The seriousness of an infection depends on where it is, your general health, and whether it has spread.

Symptoms

VRE colonization does not cause symptoms. A positive screening swab from the rectum or surrounding skin does not, by itself, mean that you have an infection.

Symptoms of infection depend on the affected area.

These symptoms have many possible causes. A laboratory test is needed to show whether VRE is responsible.

Older adults and people with weakened immune systems may not develop typical symptoms. New confusion, reduced alertness, or a sudden decline in everyday functioning can sometimes accompany a serious infection.

VRE found in a stool sample does not usually explain diarrhea. Enterococci commonly live in the bowel, and other conditions or medicines are more likely causes of diarrhea.

- Urinary tract infection: burning or pain when urinating, needing to urinate more often, lower abdominal discomfort, or fever
- Wound infection: increasing pain, warmth, swelling, redness, or drainage from a wound
- Bloodstream infection: fever, chills, rapid breathing, weakness, or low blood pressure
- Heart valve infection: ongoing fever, tiredness, breathlessness, or unexplained weight loss
- Abdominal infection: worsening abdominal pain, fever, swelling, nausea, or vomiting

Causes and risk factors

VRE develops when enterococci acquire genetic changes that protect them from vancomycin. Antibiotic exposure can give resistant bacteria an advantage because susceptible bacteria are killed while resistant ones survive and multiply.

VRE usually spreads through direct contact. In healthcare settings, bacteria may pass on unwashed hands or contaminated equipment and surfaces. They are not generally spread through the air like measles or influenza.

Anyone can carry VRE, but colonization and infection are more likely among people who:

Having one of these risk factors does not mean that you will develop VRE. Colonization is not caused by poor personal hygiene, and a positive result is not anyone's fault.

- Have spent a long time in hospital or long-term care
- Have received vancomycin or several other antibiotics
- Have a urinary catheter, intravenous line, feeding tube, or surgical drain
- Have open wounds or have recently had surgery
- Have severe illness or a weakened immune system
- Have had an organ or stem cell transplant
- Have been close to another person carrying VRE in a healthcare setting

Diagnosis

VRE is confirmed by testing a sample in a laboratory. The sample may be blood, urine, fluid, tissue, or material collected from a wound. The laboratory grows the bacteria in a culture and tests which antibiotics can stop them. This is called antibiotic susceptibility testing.

Some laboratories also use molecular tests, such as PCR, to detect genes associated with vancomycin resistance. These tests can provide results more quickly, but the result must still be interpreted in context.

Hospitals may screen for VRE by taking a swab from the rectum or nearby skin. Screening helps infection-control teams limit spread. A positive screening result usually means colonization, not illness.

Finding VRE in urine, a wound, or another non-sterile area does not always prove that it is causing symptoms. Your healthcare team considers the sample site, symptoms, examination findings, and signs of inflammation before deciding whether treatment is needed.

Treatment and management

VRE colonization usually does not need antibiotic treatment. Giving antibiotics when there is no infection does not reliably remove VRE from the bowel and may cause side effects or promote further resistance.

A VRE infection is treated according to where it is and how unwell you are. The laboratory result helps identify antibiotics that are still active. Linezolid and daptomycin are examples used for some serious VRE infections, but they are not suitable for every infection or every

person. Other antibiotics may be options when testing shows that they will work.

Treatment may also involve source control , which means removing or draining the source of infection. This could include draining an abscess, caring for an infected wound, or removing or replacing an infected catheter. Heart valve, bone, or deep abdominal infections may need longer and more complex care.

Your healthcare team may repeat blood cultures or other tests to check whether an infection is clearing. Some antibiotics require blood tests to monitor blood cell counts, kidney function, liver function, or muscle effects.

In hospital, you may be cared for using contact precautions. Staff may wear gloves and gowns, clean equipment carefully, and place you in a single room or with another person carrying the same organism. These measures are intended to protect other patients and should not reduce the quality of your care.

Complications

Colonization itself usually causes no physical complications. The main concern is that VRE may later cause infection or spread to someone who is especially vulnerable.

Possible complications of VRE infection include:

Serious complications are more likely in people who are already critically ill, have invasive medical devices, or have weakened immune systems.

- Infection spreading into the bloodstream
- Sepsis, an extreme body-wide response to infection
- Infection of a heart valve, known as endocarditis
- Deep wound, abdominal, bone, or joint infection
- Return of infection after treatment
- Side effects from the limited antibiotics available

Prevention

VRE cannot always be prevented. Enterococci live naturally in the bowel, and resistant strains may be acquired during necessary medical care. There is no vaccine and no standard medicine that safely and reliably removes VRE colonization.

Careful antibiotic use helps reduce resistance. Antibiotics should be taken only when

prescribed, for the reason they were prescribed, and according to the instructions provided. Do not save or share leftover antibiotics.

Handwashing is the most useful everyday measure. Wash with soap and water after using the toilet, before handling food, and before or after caring for a wound or medical device. Keep wounds covered as advised and avoid sharing towels or washcloths.

At home, ordinary cleaning and laundry are usually enough. Household members who are healthy generally have a low risk of illness. Extra precautions may be needed if someone in the home has an open wound, medical device, or severely weakened immune system.

Healthcare facilities use screening, hand hygiene, protective clothing, equipment cleaning, environmental cleaning, and careful antibiotic use to reduce spread. Follow the facility's instructions if you are visiting or receiving care.

Living with it and what to expect

Most people colonized with VRE continue their usual activities and never develop an infection. Colonization may disappear over time, but it can persist for months or years. A later test may become positive again, especially after antibiotic treatment or another hospital stay.

There is no single test schedule that applies to everyone. Hospitals and care facilities have different screening policies. Tell healthcare staff that you have previously had VRE, particularly before an admission, procedure, or transfer to another facility. This helps them decide whether screening or contact precautions are needed.

A treated infection may clear completely, but recovery depends on the infection site and your overall health. A straightforward urinary or wound infection may improve more quickly than an infection involving the bloodstream, heart valve, bone, or an implanted device. Follow-up may include repeat cultures, blood tests, wound checks, or specialist appointments.

Having VRE should not usually prevent contact with family and friends. Good hand hygiene and sensible wound care are generally more important than avoiding normal social contact.

When to get medical help

Arrange prompt medical advice if you have known VRE and develop symptoms that could represent an infection, such as:

Contact your healthcare team during routine follow-up if you have questions about a positive screening result, contact precautions, returning to work, or visiting a healthcare facility. A

positive colonization result without symptoms is not usually an emergency.

Seek emergency care for possible severe infection or sepsis. Warning signs include difficulty breathing, new confusion, fainting, severe drowsiness, cold or blotchy skin, very little urine, or a rapid decline in your condition. Do not wait for a routine appointment if these symptoms are present.

- Fever or chills
- Pain or burning when urinating
- Increasing wound redness, swelling, pain, or drainage
- Persistent abdominal pain or vomiting
- New or worsening symptoms around a catheter or intravenous line

Common questions

Is VRE the same as MRSA?

No. Both are antibiotic-resistant bacteria, but they are different organisms. VRE involves enterococci that resist vancomycin. MRSA is a type of Staphylococcus aureus that resists methicillin and related antibiotics.

Can VRE go away on its own?

Colonization may become undetectable over time, but there is no way to predict exactly when this will happen. VRE can sometimes be found again after a negative test. An active infection may clear with appropriate treatment and source control.

Why am I not getting antibiotics for a positive VRE test?

If you have no symptoms and the result came from screening, you are probably colonized rather than infected. Antibiotics do not reliably clear bowel colonization and can cause side effects or encourage more resistance.

Can I spread VRE to my family?

VRE can spread through contact with contaminated hands, surfaces, wounds, or body fluids. Healthy household members have a low risk of becoming ill. Handwashing, covering wounds, and not sharing personal towels reduce the chance of spread.

Does VRE cause diarrhea?

Usually not. Enterococci normally live in the bowel, so detecting VRE in stool commonly means colonization. If you have significant or persistent diarrhea, seek medical advice because antibiotics and other infections can cause it.

Can I visit someone in hospital if I carry VRE?

Often, yes, but the hospital may have specific precautions. Tell staff before visiting, clean your hands carefully, and avoid visiting if you have uncontrolled diarrhea, a draining wound, or another active infection.

Sources

- Centers for Disease Control and Prevention. "About Vancomycin-resistant Enterococci." Healthcare-associated infection information
- Centers for Disease Control and Prevention, Healthcare Infection Control Practices Advisory Committee. Management of Multidrug-Resistant Organisms in Healthcare Settings, 2006 , updated 2017
- Arias CA, Murray BE. "The rise of the Enterococcus: beyond vancomycin resistance." Nature Reviews Microbiology . 2012;10:266-278
- O'Driscoll T, Crank CW. "Vancomycin-resistant enterococcal infections: epidemiology, clinical manifestations, and optimal management." Infection and Drug Resistance . 2015;8:217-230
- Miller WR, Murray BE, Rice LB, Arias CA. "Vancomycin-resistant enterococci: therapeutic challenges in the 21st century." Infectious Disease Clinics of North America . 2016;30(2):415-439