

Carbapenem-resistant Enterobacteriaceae (CRE)

What are carbapenem-resistant Enterobacteriaceae (CRE)?

Enterobacteriaceae are a group of bacteria normally found in the human gut. Common types include *E. coli* and *Klebsiella* species. Carbapenems are a class of antibiotics that were developed to treat bacteria that are resistant to other drugs. Due to the overuse of these antibiotics, some types of Enterobacteriaceae have developed resistance to carbapenems; these bacteria are called carbapenem-resistant Enterobacteriaceae (CRE).

Who gets CRE?

Healthy people usually do not get CRE infections. In healthcare settings, CRE infections may occur among patients who are receiving treatment for other conditions. Patients whose care requires devices like ventilators (breathing machines), urinary (bladder) catheters, or intravenous (vein) catheters, and patients who are taking long courses of certain antibiotics are most at risk for CRE infections.

How are CRE spread?

CRE can be transmitted via direct person-to-person contact with an infected person or through indirect contact with contaminated items (e.g., medical equipment) or environmental surfaces (e.g., bed rails, door knobs).

What are the symptoms of CRE?

Some people carry CRE bacteria in their bodies without any symptoms. This is called being “colonized”. A person may be colonized for a long time before getting sick or may never get sick. Enterobacteriaceae can cause a variety of infections including gastrointestinal illness, pneumonia, wound infections, and invasive infections of the blood or other body organs. CRE cause the same infections, but the infections are much harder to treat.

How soon after exposure do symptoms appear?

The time between exposure and symptom onset varies for different types of Enterobacteriaceae. For CRE, it is not well known how soon symptoms appear after exposure. In most situations, exposure to CRE does not lead to illness. The person might carry the CRE in his or her body, but not get sick at all, or might get sick from the CRE days or weeks later.

How are CRE diagnosed?

Special laboratory tests are needed to identify specific bacteria that cause infections and which antibiotics, if any, would be effective for treating the infections.

What is the treatment for CRE?

Treatment options depend on the type of CRE infection. Some CRE infections can be treated if the bacteria have not yet developed resistance to certain types of antibiotics. Some types of CRE are “pan resistant” which means the CRE bacteria are resistant to all specific antibiotics tested. If you have CRE, your physician will work with you to figure out the best course of treatment.

What can be done to prevent the spread of CRE?

Use of good infection prevention practices (such as wearing a gown and gloves when caring for patients with CRE, and frequent hand hygiene by healthcare workers) can limit the spread of CRE in healthcare settings. Patients with CRE should follow all instructions given by their care providers and keep their hands clean, especially after touching the affected area or using the bathroom. Friends or family members visiting a hospitalized patient with CRE should follow the hospital’s recommended precautions. Healthcare facilities can follow the guidance outlined in the Centers for Disease Control and Prevention (CDC) CRE toolkit (<http://www.cdc.gov/hai/organisms/cre/cre-toolkit/index.html>).

How can I get more information about CRE?

- 1) If you have concerns about CRE, contact your healthcare provider.
- 2) Call your local health department. A directory of local health departments is located at <http://www.vdh.virginia.gov/LHD/index.htm>.
- 3) Visit the Centers for Disease Control and Prevention website at <http://www.cdc.gov/HAI/organisms/cre/>.
- 4) To learn more about CRE in the healthcare setting, please go to <http://www.vdh.virginia.gov/epidemiology/surveillance/hai/MRSAandMDRO.htm>.