

CRE (Carbapenem- Resistant Enterobacterales)

CRE are bacteria that are resistant to most antibiotics due to the production of an enzyme called carbapenemase. *Enterobacterales* is a family of bacteria and many of these bacteria live in our environment (such as soil or water). Some of these bacteria live in the human gut. Sometimes the bacteria can get into our bodies and cause pneumonia, kidney and bladder infections, wound infections, and bloodstream infections. CRE can live in or on the body but not make a person sick. This is called colonization. A CRE infection means that the bacteria are in or on the body and are making the person sick.

Because of antibiotic overuse, some of the *Enterobacterales* bacteria have become resistant to most of the available antibiotics. Carbapenem antibiotics were developed to treat bacteria resistant to most other antibiotics, but several years ago this group of organisms became resistant to the carbapenem antibiotics. The organisms are called Carbapenem-Resistant *Enterobacterales* or CRE.

Transmission

Healthy people usually do not get CRE infections—they are most common in patients in hospitals and long-term care facilities like skilled nursing facilities and long-term acute care hospitals. Patients whose care requires devices like ventilators (breathing machines), urinary (bladder) catheters, or intravenous (vein) catheters, patients who are taking long courses of certain antibiotics, and patients with weakened immune systems are among those at risk for CRE infections.

CRE is most often spread:

- **Person-to-person** after contact with contaminated wounds or stool.
- **Environment to person** from an infected or colonized patient to the environment, medical equipment or to the hands of a health care provider (doctor, nurse, etc.) or visitor.

Patients in acute care who have CRE should remain on contact precautions for the duration of the acute care hospitalization. At the present time, it is unknown how long colonization with CRE may last; however, colonization is likely to be long-term. A person can have a CRE infection more than once.

Symptoms

The symptoms of a CRE infection will vary depending on the type and location of the infection. For example, if the bacteria are causing a urinary tract infection (UTI), the signs and symptoms would be that of a UTI.

Diagnosis

A laboratory test can identify if an individual has CRE.

Treatment

Treatment decisions for patients with CRE infections are made on a case-by-case basis by a health care provider. For patients who are colonized with CRE but do not have an infection, treatment is often not required. Treatment is often antibiotics; however, because there are few antibiotics available to treat CRE, they can be difficult to treat. If you have further questions about the treatment of your CRE, contact your healthcare provider.

Prevention

You can protect yourself and others from a CRE infection in several ways.

- **Tell your healthcare provider** if you have been hospitalized in another healthcare facility, including hospitals in other countries.
- **Make sure all healthcare providers clean their hands before caring for you.** If you don't see your providers clean their hands, ask them to do so.
- **Clean your own hands often**, and ask anyone taking care of you to clean their hands:
 - Before preparing or eating food
 - Before touching your eyes, nose, or mouth
 - Before and after changing wound dressings or bandages
 - Before handling medical devices or touching tubes going into your body
 - After using the bathroom
 - After blowing their nose, coughing, or sneezing
- **If you are prescribed antibiotics**, take them exactly as your healthcare provider recommends.
- **Talk to your healthcare provider about your care and any concerns you have.** Ask them what they are doing to protect you from getting an infection while receiving care.
- **People should be educated on the proper precautions to not spread the infection** to others and follow good hygiene/hand-washing principles.
- **If a wound is involved the wound needs to be covered** and any drainage contained.
- **Avoid preventable infections** by ensuring you are current on all recommended vaccines.

Exclusion Guidance

Individuals with CRE should not be excluded from work, school, or child care unless the general exclusions apply.

For additional information about CRE, contact the North Dakota Department of Health and Human Services', Public Health Division, at 800.427.2180

Resources:

- 1) CRE | HAI | CDC. (2019, November 5). CRE | HAI | CDC. <https://www.cdc.gov/hai/organisms/cre/index.html>
- 2) Patients | CRE | HAI | CDC. (2019, November 13). Patients | CRE | HAI | CDC. <https://www.cdc.gov/hai/organisms/cre/cre-patients.html>

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