



General information about CRE

CRE, which stands for Carbapenem-resistant Enterobacteriaceae, are a part (or subgroup) of Enterobacteriaceae that are difficult to treat because they are resistant to commonly used antibiotics. Occasionally CRE are completely resistant to all available antibiotics. CRE are an important threat to public health.

What are Enterobacteriaceae?

Enterobacteriaceae are a family of bacteria that include *Klebsiella* species and *Escherichia coli* (*E. coli*), which are found in normal human intestines (gut). Sometimes these bacteria can spread outside the gut and cause serious infections, such as pneumonia, bloodstream infections, urinary tract infections, wound infections, and meningitis. Enterobacteriaceae are one of the most common causes of bacterial infections in both healthcare and community settings. Carbapenem are a type of antibiotic frequently used to treat severe infections.

Who is at risk for CRE?

Healthy people usually don't get CRE infections. CRE primarily affect patients in acute and long-term healthcare settings, who are being treated for another condition. CRE are more likely to affect those patients who have compromised immune systems or have invasive devices like tubes going into their body. Use of certain types of antibiotics might also make it more likely for patients to get CRE. CRE have been spread during ERCP (endoscopic retrograde cholangiopancreatography), a medical procedure that involves inserting a specialized endoscope commonly called a duodenoscope into the mouth and down to the intestine where the bile duct attaches.

Spread of CRE infection

To get a CRE infection, a person must be exposed to CRE bacteria. CRE bacteria are most often spread person-to-person in healthcare settings through contact with infected or colonized people, particularly contact with wounds or stool. CRE can cause infections when they enter the body, often through medical devices like intravenous catheters, urinary catheters, or through wounds caused by injury or surgery.

Treatment of CRE infection

CRE are often resistant to many commonly prescribed antibiotics but may remain susceptible to one or more antibiotics. Decisions on treatment of infections with CRE should be made on a case-by-case basis by a healthcare provider. Some people might be colonized rather than infected with CRE and may not require any treatment.

More Information:

Resistance to carbapenems can be due to a few different mechanisms. One of the more common ways that Enterobacteriaceae become resistant to carbapenems is through the production of *Klebsiella pneumoniae* carbapenemase (KPC). KPC is an enzyme that is produced by some CRE that was first identified in the United States around 2001. KPC breaks down carbapenems making them ineffective. In addition to KPC, other enzymes, such as

NDM-1, VIM, and IMP, can breakdown carbapenems and lead to the development of CRE but they are uncommon in the United States.

[Click here for the map showing states with confirmed Carbapenemase-producing CRE cases \(/hai/organisms/cre/TrackingCRE.html#CREmap\)](/hai/organisms/cre/TrackingCRE.html#CREmap).

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