



## Hawaii State Department of Health

### Disease Investigation Branch

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## Carbapenem Resistant Enterobacteriaceae (CRE)

### What is CRE?

Carbapenem-resistant *Enterobacteriaceae* or CRE, are a family of germs that are difficult to treat because they have high levels of resistance to many antibiotics. Some examples of *Enterobacteriaceae* are *Escherichia coli* (*E. coli*), *Enterobacter* species and *Klebsiella* species, which are commonly 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, and wound infections. CRE are *Enterobacteriaceae* that have developed resistance to a group of antibiotics called “carbapenems,” which are often used as the last line of treatment when other antibiotics are not effective.

### How do you get it?

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. Healthy people don't normally get CRE; it is more likely to affect patients who have compromised or weak immune systems or have invasive devices like tubes going into their body.

### What are the symptoms of CRE?

CRE infection causes the same symptoms you would get with any other bacterial infection including fever, redness, swelling, or pain at a specific site if a wound is infected. Specific symptoms depend on the site of infection; a urinary tract infection will have different symptoms than pneumonia or a bloodstream infection, although CRE can cause each type of these infections.

### When do symptoms start?

Some people can be colonized with CRE (i.e., have it in their bodies) and never develop an infection. For those who do go on to have an infection, the development of symptoms varies from days to years after exposure.

### What is the treatment for CRE?

If a person is colonized rather than infected with CRE, they may not require any treatment. If they have CRE infection, antibiotics that will work against it are limited although there may be some options. Treatment decisions should be made on a case-by-case basis with your healthcare provider.

### How do you keep from getting it?

- Tell your doctor if you have been hospitalized in another healthcare facility or country.
- Take antibiotics only as prescribed.
- Expect all doctors, nurses, and other healthcare providers to wash their hands with soap and water or an alcohol-based hand rub before and after touching your body or tubes going into your body. If they do not, ask them to do so.
- Clean your own hands often, especially:
  - Before preparing or eating food
  - Before and after changing wound dressings or bandages
  - After using the bathroom
  - After blowing your nose, coughing, or sneezing
- Ask questions. Understand what is being done to you and the risks and benefits.

For more information, see the CDC's website at <https://www.cdc.gov/hai/organisms/cre/index.html>