



Carbapenem-Resistant *Enterobacteriaceae* (CRE)

Disease Fact Sheet

What are *Enterobacteriaceae*?

Enterobacteriaceae are a family of bacteria commonly found in the human gut. There are several species of bacteria within the *Enterobacteriaceae* family, which include but are not limited to *Escherichia*, *Klebsiella*, *Enterobacter*, *Salmonella*, *Shigella*, *Citrobacter* and *Yersinia*. Many species of *Enterobacteriaceae* are necessary for digestion and are usually harmless when contained in the gut.

What are CRE?

CRE stands for Carbapenem-resistant *Enterobacteriaceae*. Specifically, three species of the *Enterobacteriaceae* family—*Klebsiella*, *Enterobacter*, and *Escherichia*—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 in treating infections caused by *Enterobacteriaceae*.

How do individuals get CRE infections?

CRE is transmitted from person to person by direct contact with an infected person or by contact with infected body fluids especially from wound drainage or stool. Hands can become contaminated after contact with infected persons or materials and if not washed after contact, can transmit CRE.

Who is at risk for developing CRE infections?

Healthy individuals do not usually get CRE infections. Patients who are hospitalized and who are treated with devices such as catheters and ventilators, or who are taking antibiotics, are at highest risk of becoming infected with CRE. Additional risk factors for developing CRE infections include organ or stem cell transplantation and frequent hospital stays. Residents of nursing homes are also at risk of getting CRE infections.

How are CRE infections treated?

CRE are often resistant to antibiotics that would commonly be prescribed to treat *Enterobacteriaceae* infections. Therefore, laboratory tests are usually done to determine which antibiotics will be most effective in treating CRE infections. Patients who carry CRE but who do not have symptoms of infection may not require treatment.

Why is CRE prevention important?

CRE infections are more difficult to treat and are associated with increased mortality, healthcare costs and length of stay in the hospital compared to infections caused by non-carbapenem-resistant *Enterobacteriaceae*. Carbapenem resistance can be easily transmitted among bacteria in the *Enterobacteriaceae* family, and widespread resistance may result unless effective prevention measures are used.

If I have been diagnosed with a CRE infection, what precautions should be followed at home?

Hand washing is the most important measure for preventing transmission of CRE. Wash hands before preparing or eating food, before and after changing wound dressings, after coughing or sneezing, after blowing your nose, and after using the bathroom. Use household hand soap and warm water and rub hands for at least 20 seconds before rinsing.

If an individual requires continued care at home, caregivers should wear gloves when handling body fluids (urine, wound drainage, etc.), when providing care, or when in contact with surfaces contaminated with body fluids. They should wash hands immediately after removing gloves.

Disposable items soiled by body fluids (dressings, diapers, used gloves, etc.) should be placed in the trash immediately. Good cleaning with soap and water followed by a household disinfectant such as bleach is adequate to disinfect surfaces contaminated with CRE. Launder used clothing, sheets and linens using standard laundry detergent and make sure items are completely dry before using. Used dishes and utensils can be handled and washed as usual.