

Information on Multi-drug Resistant Organisms (MDROs) for Healthcare Workers in Long Term Care - Carbapenem resistant Enterobacteriaceae (CRE)



What is CRE?

Enterobacteriaceae are a family of gram-negative bacteria normally found in the intestines of people. They include *Escherichia coli*, *Klebsiella pneumoniae* and *Enterobacter* species, among others. Carbapenem is a very potent antibiotic used against gram-negative rods. Bacteria that are carbapenem resistant are also resistant to many other antibiotics and may be difficult or impossible to treat.

What types of infections are caused by CRE?

Enterobacteriaceae, including CRE can cause urinary tract infections, pneumonia, blood stream infections and other serious infections.

Why should I care about CRE?

CRE can spread from one patient to another in hospitals and long term care facilities if good infection control is not in place. CRE is very difficult to treat. Patients with CRE infection can die from their infection. To provide the best possible care for your patients, take action to protect them against CRE

How does CRE spread?

CRE is shed in the feces of patients who are infected or colonized ('carrying') the bacteria. Patient skin, hands and bedding are likely to be contaminated with the bacteria. Frequently-touched surfaces in the patient room, including doorknobs, bedrails, light switches, toilets, bedpans and bedside commodes, bathroom fixtures, etc. are also likely to be contaminated. Draining wounds, feces and urine will have high numbers of bacteria. Patients who have urinary or fecal incontinence or draining wounds or uncontrolled secretions are more likely to contaminate the environment. Healthcare workers can spread CRE if they do not use gowns and gloves when coming into contact with the patient environment or if they do not wash their hands between patients. Equipment like blood pressure cuffs, thermometers and glucometers can also become contaminated with CRE.

How can I tell if someone has CRE?

Patients who are infected with CRE have signs and symptoms of infection, but patients who are colonized ('carrying') with CRE have no symptoms. The infection preventionist in your facility should have a system to alert you and other healthcare providers if someone is infected or colonized with a resistant organism. Learn the system is in your facility and pay special attention to hand hygiene and contact precautions with patients who are infected or colonized with CRE.

Division of Infectious Disease Epidemiology

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What should I do to prevent the spread of CRE?

Use standard precautions with all patients. Always wash hands before going into any patient room and after direct contact with any patient or patient care environment. Use soap and water:

- If hands are visibly soiled or
- before eating or
- after using the bathroom or
- after contact with a patient with *Clostridium difficile*.

Otherwise, alcohol-based hand gel is preferred.

For CRE patients who require total care or who have draining wounds or fecal or urinary incontinence or uncontrolled secretions, use contact precautions:

- Wear gloves when touching the patient's intact skin or surfaces and articles in close proximity to the patient. Don gloves upon entry into the room.
- Wear a gown whenever anticipating that clothing will have direct contact with the patient or potentially contaminated environmental surfaces or equipment in close proximity to the patient. Don gown upon entry into the room. Remove gown and wash hands before leaving the patient-care environment.
- After gown removal, assure that clothing does not contact patient or patient care environment
- Do not share equipment between patients. If equipment such as glucometers must be shared, carefully disinfect the equipment between patients, following manufacturer's guidelines.

For CRE patients who are mainly independent, follow standard precautions, making sure you use gloves and gowns for contact with uncontrolled secretions, pressure ulcers, draining wounds, stool incontinence and ostomy tubes / bags. These patients may be allowed to ambulate and socialize based on their ability to observe proper hand hygiene and contain their secretions and excretions. Follow your facility guidelines.

If your facility is having an outbreak, your infection preventionist will ask you to take special precautions. He or she may ask you to gown and glove prior to entering the room of any patient colonized or infected with CRE.

If a patient is in contact precautions, wash hands before putting on gowns and gloves. Remove gowns and gloves and discard inside the patient room before exiting. Wash hands after removing gowns and gloves. After removing gowns and gloves take care not to contaminate clothing and hands by direct contact with the patient care environment. If patients are cohorted, remove gown and gloves and wash hands and put on a clean gown and gloves between patients. Follow your facility guidelines for room placement of CRE patients. If possible, CRE patients should be placed in a private room or cohorted with other CRE patients. If absolutely necessary, they can be placed with a low risk non-colonized patient.

For more information see CDC updated toolkit:

<http://www.cdc.gov/hai/organisms/cre/cre-toolkit/>

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