

# CRE (Carbapenem-Resistant Enterobacteriaceae) Infection

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## What is a CRE infection?

CRE, which stands for **carbapenem** [karb-eh-PEHN-em]-**resistant enterobacteriaceae** [EN-tuh-ro-bak-TEER-ee-uh-se-e] is a serious and sometimes deadly infection. This family of germs are difficult to kill because the medicines meant to treat them often fail to work. CRE are fast becoming a threat to public health in both healthcare facilities and in community settings.

**Enterobacteriaceae bacteria are found in normal human intestines.** Sometimes, these bacteria can spread outside the intestines and cause serious infections in the urinary tract (kidneys or bladder), bloodstream, wounds, and lungs (such as pneumonia).

Carbapenems are a group of antibiotics usually used to treat serious infections that other antibiotics can't cure. Some Enterobacteriaceae can no longer be treated with carbapenems because they have developed "resistance" to these antibiotics.

## How are CRE spread?

Healthy people usually don't get CRE infections. CRE have primarily been a problem among people with underlying medical problems, especially those with medical devices or chronic wounds. For those who are ill, there are 3 key ways you can be exposed to CRE germs:

- 1 From person-to-person contact, usually through contact with wounds or stool (poop)
- 2 Through medical devices that people have when being treated for other conditions, such as urinary catheters, ventilators, or IV catheters
- 3 Through wounds caused by injury or surgery

### *What is an antibiotic-resistant infection?*

Germs (bacteria) cause infections. Antibiotic medicines are used to treat infections because they kill germs. Over time, some germs develop the ability to survive when exposed to commonly used antibiotics.

When this happens, the infection that can no longer be cured with these antibiotics is referred to with an antibiotic-resistant bacteria name.

For example, carbapenem-resistant enterobacteriaceae infection is the name for a group of bacteria (enterobacteriaceae) that have become "resistant" (no longer killed by) carbapenem antibiotics.

## Who is most at risk for CRE?

Otherwise-healthy people are at relatively low risk for problems with CRE.

CRE primarily affect patients who:

- Have been treated for another condition in an acute facility (such as an intensive care unit) or long-term healthcare setting (such as a nursing home or rehabilitation hospital).
- Have weakened immune systems (such as from cancer treatment).
- Have invasive devices (like tubes) going into their body.
- Take certain types of antibiotics.
- Travel to certain countries (especially Israel, Greece, Italy, South America, China, and India). Risks are particularly high for those who have been hospitalized in these regions.

## What are the symptoms?

Symptoms of CRE can differ from patient to patient, depending on where the infection occurs (such as the lungs or bladder). Typical symptoms include:

- Fever and chills
- Overpowering drowsiness or sleep
- Sores that don't heal

## Can CRE be treated?

Many people who have the CRE germ in or on their body do not get an infection from them. These people are said to be “colonized” with CRE, and they do not need to take antibiotics. However, they do need to prevent spreading the disease to someone who is ill.

If the CRE cause an infection, there are limited antibiotics that may work, which makes this type of infection very serious. Some infections might be treated with other therapies, such as draining the infection. Some types of CRE are resistant to all antibiotics, but this is still very rare.

Because treatment can be difficult, it is very important to stop the spread of CRE.

## What if I have CRE?

Always follow your healthcare provider's instructions.

If your healthcare provider prescribes antibiotics, take them **exactly** as instructed and **finish** the full course, even if you feel better before you run out of medicine.

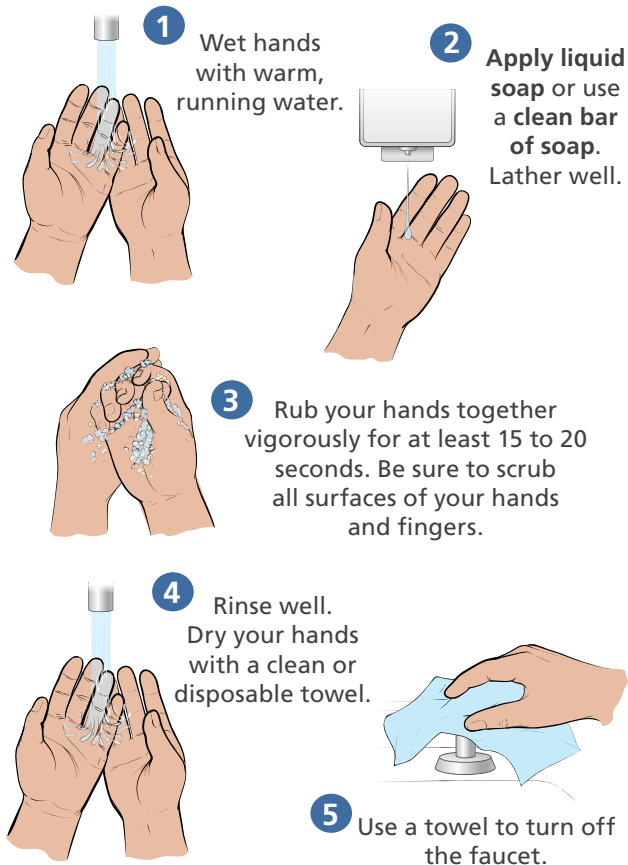
Wash your hands (see the illustration at right), especially after you touch any infected area and after using the bathroom. Follow any other hygiene advice your healthcare provider gives you.

Make sure visitors to your hospital room or home as well as those taking care of you at home take these special precautions:

- Wash their hands often:
  - After contact with wounds, helping you use the bathroom, or cleaning up stool (poop)
  - After handling any medical device, such as a urinary catheters, especially when caring for more than one ill person at home
- Wear gloves if there's any chance of coming into contact with body fluids or blood



### Hand washing with soap and water



### Hand washing with a hand sanitizer



People can become infected if they touch surfaces that are contaminated with germs. Healthcare providers can spread the germs if they don't wash their hands often enough. If you don't see your healthcare providers clean their hands, please ask them to do so.

## Preventing CRE infections IN THE HOSPITAL

If you are hospitalized and either have a history of CRE or are actively infected, you will need to be placed in contact isolation, which means that:

- The staff will wear a gown and gloves when they come into the room.
- There will be a sign on the door to let staff know what precautions are required.
- Visitors will need to wash their hands before entering and after leaving the room and not touch anything you touch or your dressings.

Depending on the lab results, you may also have a nurse who is only caring for you and no other patients at the same time.

### YOUR HEALTHCARE PROVIDERS will do these things:

- **Clean their hands** with soap and water or with hand sanitizer **before and after** caring for each patient (see page 2).
- **Carefully clean and disinfect** all hospital rooms and medical equipment on a regular basis.
- **Put you in a private room** whenever possible or, if not possible, make sure you are in a room with someone else with a CRE infection.
- **Wear gloves and a protective gown** before entering your room and remove them before leaving.
- **Remove temporary medical devices** (such as catheters) as soon as possible.
- **Only prescribe antibiotics when necessary.**
- (In some cases) Test you for these bacteria early in your care.

### YOU can do these things:

- **Tell your care providers** if you have been in a long-term care facility, transferred from another hospital, or hospitalized in another country.
- **Take antibiotics only as prescribed.**
- **Make sure all healthcare providers clean their hands** before and after touching your body or tubes going into your body (see page 2). If they don't, ask them to do so.
- **Clean your own hands often**, especially:
  - Before you prepare or eat food
  - Before and after changing wound dressings or bandages
  - After you use the bathroom
  - After you blow your nose, cough, or sneeze
- **Ask lots of questions.** Make sure you understand what is being done to you and why as well as the risks and benefits of any treatment choice you and your doctor make together. **Use the next page to write down your questions.**



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