

## FAQs for MDROs

1. What is antibiotic resistance?
  - Antibiotic resistance occurs when bacteria (germs) change in a way that decreases the ability of antibiotics to fight the bacteria. The bacteria survive and continue to multiply, causing more harm.
2. What is a multi-drug resistant organism?
  - Multi-drug resistant organisms (MDROs) are common bacteria that have developed resistance to multiple types of antibiotics. These bacteria are present on the bodies of many people, including on the skin, in the nose or other moist areas of the body, and in body fluids.
3. How common is antibiotic resistance?
  - CDC estimates that each year in the United States, approximately 2 million people are infected with multidrug resistant organisms (MDROs). Additionally, at least 23,000 people die as a result of infections caused by these bacteria every year.
4. What are the results of antibiotic resistance?
  - Antibiotic resistance limits our ability to use existing antibiotics to treat infections, increases the cost of health care, and results in greater disability and death.
5. What are the risk factors for antibiotic resistance?
  - The inappropriate use of antibiotics is considered to be the single most important risk factor leading to antibiotic resistance. Other risk factors include exposure to healthcare, such as hospitals and nursing homes.
6. What kind of illnesses can MDROs cause and how serious are they?
  - MDROs can cause infections in almost any part of the body, including the blood, lungs, urinary tract, wounds or skin. Symptoms vary based on the site that is infected (e.g., cough if in the lungs, urinary symptoms if in the bladder). The severity of these infections depends on the type of bacteria that causes the infection and the site of the body where the infection occurs. Thus, severity of illness can vary from small skin infections that are easily and quickly treated with appropriate wound care and antibiotic ointment to serious life threatening infections of the blood, lungs, or nervous system that can take months to treat.
7. What are Enterobacteriaceae?
  - Enterobacteriaceae are a large group of many different bacteria that are a normal part of the human gut.
8. What is an extended-spectrum beta ( $\beta$ )-lactamase producing organism?

- Extended-spectrum beta ( $\beta$ )-lactamases (ESBLs) are enzymes (tools) made by some bacteria that can inactivate antibiotics, making these bacteria more difficult to treat.
- ESBL-producing organisms are a group of bacteria that are resistant to a variety of antibiotics, including strong antibiotics.
- Patients with bloodstream infections caused by ESBL-producing Enterobacteriaceae are about 57% more likely to die than those with bloodstream infections caused by an Enterobacteriaceae that do not produce ESBLs.

9. What are carbapenem resistant Enterobacteriaceae (CRE)?

- Enterobacteriaceae are bacteria that are a normal part of the human gut. Common examples are *Klebsiella* species and *Escherichia coli* (*E. coli*). Carbapenem resistant Enterobacteriaceae or CRE are Enterobacteriaceae that have become resistant to one of the most powerful antibiotic groups currently available, the carbapenems. This resistance can make disease caused by CRE extremely difficult to treat.

10. What is imipenemase metallo beta ( $\beta$ )-lactamase (IMP)?

- Imipenemase metallo beta ( $\beta$ )-lactamase (IMP) is a specific chemical tool made by a CRE bacteria which allows it to inactivate powerful carbapenem antibiotics. It is uncommon in the United States but has been seen in other parts of the world.

11. Should I be worried about catching a disease from a family member who has an infection with a MDRO?

- Family and household members of persons infected with these bacteria should not be concerned about getting the disease from their family member unless they have significant illness themselves, such as open wounds. Most people will not get sick if they are exposed to these bacteria.
- Some people can carry these bacteria in the gut or other body sites and not be sick from the MDRO. They can still spread the bacteria to others without knowing it. Washing hands regularly is very important to try and prevent this spread.
- While some people can carry these bacteria and not be sick, these bacteria may cause infections if they gain access to body sites that are usually sterile like the bladder, the lungs, or the bloodstream.

12. To prevent the spread of antibiotic resistance it's important for healthcare providers to follow infection prevention measures recommended by CDC including:

- Wash hands with soap and water or an alcohol-based hand rub before and after caring for a patient
- Carefully clean and disinfect rooms and medical equipment.
- Wear gloves and a gown before entering the room of a patient with an MDRO, including CRE.

- Keep patients with an MDRO, including CRE, infection or colonization in private room.
- Whenever possible, dedicate individual equipment and staff to patients with MDROs, including CRE.
- Only prescribe antibiotics when necessary.

13. General recommendations to the public regarding MDROs:

- It is important to tell your doctor if you have tested positive for any MDRO, including CRE.
- Tell your doctor if you have been hospitalized in another facility or country.
- Tell your doctor if you lived in an inpatient facility (such as a nursing home).
- 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 wash their hands, ask them to do so.
- Clean your own hands often, especially:
  - Before and after visiting a loved one in a healthcare setting
  - After touching door knobs, bed rails, bedside tables, remote controls or phones
  - Before eating
  - Before touching your face
  - After using the restroom, blowing your nose, coughing or sneezing