

An Urgent Public Health Threat



For Healthcare Providers

Carbapenem-Resistant Organisms (CROs)

CROs are opportunistic bacteria that can cause a variety of different types of infections. Infections caused by CROs don't respond to common antibiotics and some are resistant to all available antibiotics.

Carbapenems are last-line antibiotics used to treat serious multidrug-resistant infections. In the United States, about 2-3% of *Enterobacterales* associated with healthcare-associated infections are resistant to carbapenems.

CRO infections **don't respond to common antibiotics** and invasive infections are associated with high mortality rates. Some CROs are resistant to all available antibiotics.

Common CPOs:

- ◇ *Escherichia coli*
- ◇ *Klebsiella pneumoniae*
- ◇ *Pseudomonas aeruginosa*
- ◇ *Acinetobacter baumannii*
- ◇ *Enterobacter cloacae*

Carbapenemase-Producing Organisms (CPOs)

A subset of CROs, called carbapenemase-producing organisms, produce enzymes that inactivate carbapenems and other β -lactam antibiotics. CPOs can share the genetic code for carbapenemases with other bacteria. CPOs are **primarily responsible for the rapid spread of multidrug-resistant bacteria** in healthcare settings.



How are CPOs Transmitted?

CPOs spread through direct or indirect contact with patients infected or colonized with CPOs or contaminated environment and surfaces. In healthcare, transmission usually occurs from person to person via hands of health care personnel and contaminated shared medical equipment (e.g., portable X-ray machines). Some environmental sources, such as sink drains and toilets, can be important reservoirs contributing to CPO transmission.

Who is at risk?

Hospital patients and long-term care facility residents, especially those who:

- *receive complex medical care (i.e., intensive care unit admission or having invasive devices);
- *have severe or chronic wounds;
- *have recent antibiotics exposure; or
- *had medical care outside the United States in the past year.

INFECTIONS



COLONIZATION

Colonization

Colonization means that an organism is found in or on the body, but it is not causing any symptoms or disease. CPOs colonize the digestive and respiratory tract, skin, wounds and other body sites. Patients may remain colonized with a CPO indefinitely.

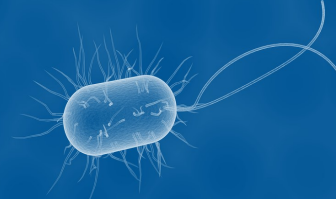
Why is colonization important?

Infections are only a fraction of the burden of CPOs. Many more patients are colonized. Patients who are colonized with CPOs can be a source of spread to other patients. They are also at higher risk of developing infection than patients who are not colonized. And because patients colonized with CPOs don't have signs or symptoms, colonization can go undetected and lead to silent spread of antibiotic-resistant bacteria.

How can we identify colonized patients?

Identifying patients colonized with a CPO helps to prevent transmission to other patients. Colonization is detected by a screening test for patients and residents who are at risk of CPO colonization or infection.

Screening tests are available at no cost.



How You Can Prevent the Spread of CPOs



Timely and Accurate Identification of Patients with CPOs

- * Follow public health recommendations for CPO colonization screening.
- * When transferring a patient colonized or infected with a CPO, notify accepting facilities and units of the patient's CPO history.
- * Work with your health department to understand local CPO epidemiology.

Alcohol-based hand sanitizers are the preferred method for cleaning your hands in most clinical situations.



Perform Hand Hygiene

- * Clean your hands immediately before touching a patient, before performing an aseptic task (e.g., placing an indwelling device), before handling invasive medical devices, and before moving from work on a soiled body site to a clean body site on the same patient.
- * Clean your hands after touching a patient or the patient's immediate environment; after contact with blood, body fluids, or contaminated surfaces; and immediately after glove removal.



Wear Gown & Gloves When Caring for Patients with CPO

- * CPOs can contaminate your hands and clothes while you care for a patient with a CPO or work in their environment. This puts the patients whom you care for afterward at risk of getting a CPO.
- * Protect your patients by wearing a gown and gloves for patient care (i.e., Contact Precautions).
- * Don and doff your personal protective equipment (PPE) in the right order and take care not to self-contaminate during doffing.
- * Always change your PPE between patients or residents.



Clean and Disinfect the Patient Environment and Medical Equipment

- * Follow your facility's cleaning and disinfection protocols.
- * Clean and disinfect high-touch surfaces (e.g., bed rails, light switches, call buttons) frequently.
- * Dedicate non-critical medical equipment (e.g., stethoscopes, blood pressure cuffs) to CPO patients whenever possible and always clean and disinfect between patients.
- * Clean and disinfect shared medical equipment (e.g., portable X-ray machine) between each patient.



Prevent Transmission from Sinks, Toilets, and Other Wastewater Plumbing

CPOs can contaminate wastewater plumbing, especially sink drains, toilets, and hoppers. Splashes from these sources are associated with outbreaks of CPOs.

- * Clean and disinfect countertops, handles, faucets, and sink basins at least daily.
- * Keep patient care items at least 3 feet away from sinks, toilets, and hoppers.
- * Do not discard patient waste in sinks.
- * Avoid discarding beverages or other sources of nutrients in sinks or toilets.

Resources

Learn more about CPOs: <https://rebrand.ly/CRO-Toolkit>

Contact the Oregon HAI Program: healthoregon.org/hai

About CDC's AR Lab Network: www.cdc.gov/antimicrobial-resistance-laboratory-networks/php/about/testing-services



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