

CRPA Carbapenem-resistant *Pseudomonas aeruginosa*

A Serious Public Health Threat 



Information for Facilities

Carbapenem-Resistant *Pseudomonas aeruginosa* (CRPA)

Pseudomonas aeruginosa bacteria are a common cause of infections in healthcare settings. They can **cause pneumonia, bloodstream infections, urinary tract infections, and surgical site infections**, and they are particularly dangerous for patients with chronic lung diseases. Carbapenems are last-line antibiotics used to treat serious multidrug-resistant infections. Carbapenem-resistant *P. aeruginosa* (CRPA) infections are not susceptible to the effects of these antibiotics, and some are resistant to all available antibiotics.

Carbapenemase-Producing CRPA

A small subset of CRPA produce carbapenemases, enzymes that inactivate carbapenem and other β -lactam antibiotics. These **carbapenemase-producing (CP) CRPA are typically resistant to most available antibiotics**. CP-CRPA can share the genetic code for carbapenemases with other bacteria, rapidly spreading resistance.

CARBAPENEMASES MOST IDENTIFIED IN U.S. CRPA

• VIM • KPC
• NDM • IMP • GES

Currently, carbapenemase-producing CRPA are uncommon in the United States. By taking action to detect these multidrug-resistant organisms and intervene to prevent transmission when they are identified, we can limit spread in the United States.



How is CRPA Transmitted?

In healthcare settings, CRPA is transmitted from person to person, via the hands of healthcare personnel or contaminated medical equipment and devices. *Pseudomonas* thrives in the presence of water. Contaminated environmental sources, such as sink drains and toilets, have been increasingly recognized as reservoirs contributing to CRPA transmission.

Who is at risk?

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

- Receive complex medical care, such as intensive care unit admission or having invasive devices
- Have severe or chronic wounds
- Have recent antibiotic exposure
- Were admitted to the same unit of a healthcare facility as a person with CRPA

Anyone who received inpatient medical care or underwent invasive medical procedures outside the U.S. in the past 6 months.



COLONIZATION

Colonization

Colonization means that the organism is found in or on the body, but it is not causing any symptoms or disease. CRPA can colonize many body sites, including the respiratory tract, wounds, and digestive tract. Patients may remain colonized for months to years.

Why is colonization important?

Infections represent only a fraction of the burden of CRPA; many more patients are colonized. Patients colonized with CRPA can be a source of spread to other patients and develop CRPA infections. Because patients colonized with CRPA do not have signs or symptoms of infection, they can go undetected and contribute to silent spread of resistant bacteria.

How can we identify patients colonized with CRPA to stop spread?

Screening tests identify patients colonized with carbapenemase-producing CRPA to prevent transmission to other patients through targeted interventions, like Transmission-Based Precautions. **Screening tests for patients and residents at risk of CRPA colonization are available at no cost through CDC's Antimicrobial Resistance Lab (AR) Network.**

How Your Facility Can Prevent the Spread of CRPA



Timely and Accurate Identification of Patients with CRPA

- Ensure your clinical laboratory can identify CRPA.
- Ask your health department about the availability of specialized testing through CDC's AR Lab Network to identify carbapenemase-producing CRPA from clinical cultures and to screen for CRPA colonization.
- Follow public health recommendations for CRPA colonization screening.
- When transferring a patient colonized or infected with CRPA, notify accepting facilities and units of the patient's CRPA history.
- Work with your health department to understand local CRPA epidemiology.



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.
- Perform hand hygiene after touching a patient or the patient's immediate environment; after contact with blood, body fluids, or contaminated surfaces; and immediately after glove removal.

Did you know?

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

Wash your hands with soap and water whenever they are visibly dirty, before eating, and after using the restroom.



Wear Gown & Gloves When Caring for Patients with CRPA

CRPA can contaminate your hands and clothes while you care for a patient with CRPA or work in their environment. This puts the patients who you care for afterward at risk of acquiring CRPA.

- Protect your patients by wearing a gown and gloves for patient care according to the guidelines for your setting (i.e., Contact Precautions in acute care, Enhanced Barrier Precautions in long-term care).
- 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.
- Ensure high-touch surfaces (e.g., bed rails, light switches, call buttons) are cleaned frequently.
- Dedicate non-critical medical equipment (e.g., stethoscopes, blood pressure cuffs) to CRPA patients whenever possible and always clean and disinfect between patients.
- Ensure shared medical equipment is cleaned and disinfected after each use.



Prevent Transmission from Sinks, Toilets, and Other Wastewater Plumbing

CRPA can contaminate wastewater plumbing, especially sink drains, toilets, and hoppers. Water splashes from these sources has been associated with outbreaks of carbapenemase-producing organisms.

- Clean and disinfect countertops, handles, faucets, and sink basins at least daily.
- Keep patient care items at least three 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

Contact your HAI Prevention Program: www.cdc.gov/hai/state-based/index.html

Learn more about CRPA: www.cdc.gov/hai/organisms/pseudomonas.html

Preventing water-associated infections: <https://www.cdc.gov/hai/prevent/environment/water.html>

About CDC's AR Lab Network: www.cdc.gov/drugresistance/ar-lab-networks/domestic.html

Track carbapenemase-producing CRE: <https://arpsp.cdc.gov/profile/arln/crpa>



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