



County of Santa Cruz

HEALTH SERVICES AGENCY

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Public Health Division

PUBLIC HEALTH ADVISORY

To:	All Healthcare Providers
From:	Gail Newel, MD, MPH, County Health Officer
Subject:	Multidrug-resistant Organisms found in Santa Cruz County Healthcare Facilities
Date:	April 26, 2021

Situational Update: Santa Cruz County Public Health is alerting healthcare providers of several cases of carbapenemase-producing carbapenem-resistant organisms (CP-CRO), which include carbapenemase-producing carbapenem-resistant Enterobacterales (CP-CRE). Carbapenemases are enzymes that inactivate carbapenems and other β -lactam antibiotics. About 30% of CRE carry a carbapenemase, with *Klebsiella pneumoniae* carbapenemase (KPC) being most common in the U.S. Another less common carbapenemase is New Delhi Metallo-beta-lactamase (NDM). Both NDM/KPC-producing *Enterobacter cloacae* and KPC-producing *Citrobacter freundii*, have been detected in local acute care facilities in our county in recent months. These are rare, drug-resistant organisms that have the potential to spread easily to other patients in healthcare settings. The California Department of Public Health (CDPH) recommends a coordinated approach among healthcare facilities and public health to contain CP-CRO in California.

- CRE were listed in the CDC's 2019 Antibiotic Threats Resistance Report among five classes of bacteria and fungi of urgent concern in the U.S. [Biggest Threats and Data | Antibiotic/Antimicrobial Resistance | CDC](#)
- Novel multidrug-resistant organisms (MRDOs) are resistant to all or most antibiotics PLUS being uncommon in a geographic area or the U.S. (e.g., *Candida auris*) OR have special genes that allow them to spread their resistance to other organisms (e.g., carbapenemase-producing bacteria).
- Novel MDROs require even more aggressive intervention than endemic antibiotic-resistant organisms (such as MRSA and VRE).

KEY MESSAGES

- Carbapenemases are enzymes that inactivate antibiotics in the carbapenem class, such as meropenem, ertapenem, and cilastatin/imipenem
 - These carbapenemases often live on mobile genetic elements and can be passed both within and between bacteria, leading to increased spread of antimicrobial resistance.
- A subset of carbapenem-resistant organisms are carbapenemase-producing and contain a carbapenemase such as KPC, NDM, OXA-48, VIM, or IMP.
- Identification and containment of CP-CRO and other MDRO are a public health priority.
- Carbapenemase testing for CRE and carbapenem-resistant *Pseudomonas aeruginosa* (CRPA) are available through the public health lab. Accessing carbapenemase-testing for carbapenem-resistant *Acinetobacter baumannii* (CRAB) can be done in consultation with Santa Cruz County Public Health and the California Department of Public Health (CDPH) Healthcare-Associated Infections Program.
- Increased vigilance is indicated for the presence of novel MDROs in the aftermath of the pandemic, due to recent:
 - PPE and staffing shortages
 - Increased patient volume and transfers
 - Increased work burden on facility infection-prevention programs
- Coordinated communication between facilities and health departments is essential to prevent spread.
- Infected and colonized (asymptomatic) patients can spread MDROs to others.
- MDROs persist for long periods in the environment.
 - Healthcare personnel (HCP) are not commonly colonized.
 - Rather, transmission often occurs via shared equipment and the movement of HCP from patient to patient.
- Risk factors include healthcare exposures outside of the United States, antimicrobial treatment, and presence of indwelling medical devices such as urinary catheters and endotracheal tubes.
- Infections caused by organisms that produce carbapenemases (e.g., CP-CRE) can be very difficult to treat, and mortality rates for invasive infections are as high as 50%.

REPORTING REQUIREMENTS

- Labs that perform carbapenemase testing to report the following:
 - Any CP positive *Enterobacter* spp., *E. coli*, or *Klebsiella* spp.
- Labs that do not perform carbapenemase testing to report ANY carbapenem resistant *Enterobacter* spp., *E. coli*, or *Klebsiella* spp.

- Other “unusual infectious disease occurrences” of carbapenemase-producing *Pseudomonas aeruginosa*, *Acinetobacter baumannii*, other Enterobacterales (e.g., *Citrobacter freundii*), or unidentified CP organisms.

FACILITY RECOMMENDATIONS

- Perform routine and active surveillance for carbapenem-resistant and carbapenemase-producing organisms.
- If CRE, CRPA, or CRAB are identified, consider accessing carbapenemase testing.
- Place infected or colonized patients in a single-bed room on contact precautions. Ensure transferring facilities inform receiving facilities of patient’s status at time of transfer. [Inter-Facility Infection Control Transfer Form for States Establishing HAI Prevention Collaboratives \(cdc.gov\)](https://www.cdc.gov/infectioncontrol/inter-facility-transfer-form/)
- Work with the local health department (LHD) to investigate cases and to identify and test contacts to cases.
- Dedicate daily care equipment as much as possible, and consider using single-use, disposable, non-critical devices.
- HCP who cannot be dedicated to CP-CRO patients should care for non-CP-CRO patients before CP-CRO patients, whenever feasible.
- Follow and audit standard hand hygiene practices, including the use of alcohol-based hand sanitizer as the preferred method for cleaning hands if not visibly soiled. If hands are visibly soiled, wash with soap and water.
- Clean and disinfect non-dedicated equipment after use, and high-touch surfaces with an Environmental Protection Agency (EPA)-approved healthcare grade disinfectant at regular intervals.

Additional resources:

[Protecting Patients and Stopping Outbreaks | Antibiotic/Antimicrobial Resistance | CDC](#)

[Core Elements of Antibiotic Stewardship | Antibiotic Use | CDC](#)

[CRE Infection Prevention Strategies \(ca.gov\)](#)



Health Alert: conveys the highest level of importance; warrants immediate action or attention.

Health Advisory: provides important information for a specific incident or situation; may not require immediate action.

Health Update: provides updated information regarding an incident or situation; unlikely to require immediate action.