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Regional Outbreak of Highly Drug-resistant Carbapenemase-producing *Acinetobacter baumannii*

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The California Department of Public Health (CDPH) and local public health partners are alerting healthcare providers of a prolonged, multi-facility regional outbreak of New Delhi metallo-beta-lactamase-producing carbapenem-resistant *Acinetobacter baumannii* (NDM CRAB) in patients with exposures to acute care hospitals (ACH), skilled nursing facilities (SNF), and long-term acute care hospitals (LTACH) (see Figure 1). Most cases have also been oxacillinase (OXA)-23-producing (79%). NDM and OXA-23 are carbapenemases that inactivate carbapenem and other antibiotics. NDM CRAB are rare, highly drug-resistant pathogens; approximately 85% of the isolates tested in this outbreak have been pan-nonsusceptible (intermediate or resistant) to all antimicrobials. NDM CRAB can cause serious bloodstream, wound, urinary tract, and respiratory infections in patients, with high mortality rates and limited antimicrobial treatment options. *A. baumannii* tend to persist in the healthcare environment and can be transmitted between patients through shared surfaces and medical equipment.

From May 2020 to April 2021, the HAI Program and local public health partners have identified 52 patients with confirmed NDM CRAB clinical isolates (24) or through colonization screening (28) as an epidemiologically-linked patient; 43 patients in Stanislaus, 4 in Alameda, 1 in San Joaquin, 2 in Merced, 1 in Tuolumne, and 1 in Santa Clara counties. In addition, at least 17 probable NDM CRAB cases (patients with a pan-nonsusceptible CRAB isolate not tested for carbapenemases who are epidemiologically-linked to known cases or outbreak facilities) have been identified in Stanislaus county. Clinical cases have been identified in wound (11), respiratory (8), urine (7), blood (3), and abscess (1) specimens. Whole genome sequencing of 16 isolates from this outbreak shows a 0-17 single-nucleotide polymorphism difference, suggesting that these isolates are highly related and points to a common source of exposure.

The extensive spread of NDM CRAB indicates the high transmissibility of this organism both within healthcare facilities and across interconnected healthcare facility networks. Confirmed cases have been identified at 10 healthcare facilities (8 ACH, 1 SNF, 1 ventilator-equipped SNF, and 1 LTACH), and report prior healthcare exposures in at least 7 ACH and 8 long-term care facilities. To prevent further transmission, early detection through active surveillance and prompt infection control interventions are crucial to mitigate potential outbreaks. The HAI Program recommends the following strategies to healthcare facilities:

Active Surveillance

- Patients who are not known to be colonized with NDM CRAB and admitted from healthcare facilities experiencing NDM CRAB outbreaks should be screened for carbapenemase-



producing organisms (including CRAB) and placed on empiric Contact precautions while awaiting results. Local health departments can notify facilities of where outbreaks are occurring.

- Facilities can screen for NDM CRAB by:
 - Collecting respiratory, urine, wound, or axilla/groin cultures and if positive for CRAB, obtaining carbapenemase testing; OR
 - Obtaining rectal colonization testing through the CDC Antibiotic Resistance Laboratory Network (AR Lab Network) in coordination with their local health department.
- Once a patient has been identified with NDM CRAB, it is not necessary to rescreen them.

Routine Surveillance

- Obtain carbapenemase testing for CRAB isolates, particularly pan-nonsusceptible CRAB.
 - Carbapenemase testing is available through some local public health laboratories.
- Routine laboratory testing for CRAB is available through the AR Lab Network Targeted Surveillance program.
 - Clinical laboratories can become sentinel surveillance sites and routinely submit CRAB isolates to the AR Lab Network for bacterial identification and confirmation, and carbapenemase and antimicrobial susceptibility testing at no cost to the healthcare facility or lab.
 - The AR Lab Network can provide slants and shipping materials to support these efforts.

Infection Control

- Place any patient with CRAB on Contact precautions, and if possible, in a single room.
- If there is more than one patient with NDM CRAB admitted, consider cohorting these patients together, and dedicate staff and medical equipment, when possible.
- Do **NOT** reuse or extend use of gloves or gowns (<https://www.cdc.gov/coronavirus/2019-ncov/hcp/infection-control-recommendations.html>).
- Routinely clean and disinfect surfaces and shared medical equipment in the patient care environment, unit, or facility using an Environmental Protection Agency (EPA)-registered hospital-grade disinfectant effective against *A. baumannii*.
- Perform hand hygiene before putting on personal protective equipment (PPE), after removing PPE, and before and after patient contact.
- Regularly monitor healthcare personnel adherence to infection prevention practices (<https://www.cdph.ca.gov/Programs/CHCQ/HAI/Pages/MonitoringAdherenceToHCPracticesThatPreventInfection.aspx>).
- Continue infection control measures for the duration of a CRAB-colonized or -infected patient's admission. There is no 'clearance' for CRAB colonization.

Communication

- Communicate a patient's multidrug-resistant organism status to any receiving healthcare facility prior to transfer. This includes patients who are confirmed with NDM CRAB as well as any patient with a confirmed CRAB (carbapenemase mechanism unknown or not tested) culture.

- Communicate status of exposed patients discharged from outbreak facilities to receiving healthcare facilities. Recommend screening exposed patients for NDM CRAB (see active surveillance).

Reporting Requirements

- Report any cases of carbapenemase-producing organisms, other unusual or highly-resistant organisms including pan-nonsusceptible CRAB, or outbreaks of CRAB to your local health department and the CDPH HAI Program at HAIProgram@cdph.ca.gov.

Additional Resources

CDPH Carbapenem-Resistant Organisms (*Pseudomonas*, *Acinetobacter* species) Quicksheet

https://www.cdph.ca.gov/Programs/CHCQ/HAI/CDPH%20Document%20Library/CRO_Quicksheet_Oct2020.pdf

CDPH Carbapenem-Resistant and Carbapenemase-Producing Organisms Webpage

https://www.cdph.ca.gov/Programs/CHCQ/HAI/Pages/CRE_InfectionPreventionStrategies.aspx

CDC/CDPH Webinar on Multidrug-resistant Organism Prevention

<https://youtu.be/5ulpo7wi6xk> (Recording)

https://www.cdph.ca.gov/Programs/CHCQ/HAI/CDPH%20Document%20Library/C_auris_AHR_CDC_CDPHshareWebinarCombined_ADA_121020.pdf (Slides)

CDC *Acinetobacter* in Healthcare Settings

<https://www.cdc.gov/hai/organisms/acinetobacter.html>

For more information, please contact the HAI Program at HAIProgram@cdph.ca.gov.

Figure 1. Confirmed and Probable NDM CRAB Cases Identified in California through May 10, 2021

