

Carbapenem-Resistant Organisms

Alameda County Public Health Department



Background

Carbapenem-resistant organisms (CROs) are bacteria resistant to carbapenems, and have been identified as [urgent health threats](#) by the CDC due to a need for aggressive action. Since 2017 the Alameda County Public Health Department (ACPHD) has required reporting of Carbapenem-resistant Enterobacteriales belonging to *Klebsiella* spp, *Enterobacter* spp, and *Escherichia coli*, and isolate submissions to the Public Health Lab. CROs of other species are encouraged to be reported and submitted. Alameda is the only county in Northern California that has this requirement through a [health officer order](#) and precedes State reporting mandates which do not include isolate submission.

From mid-2019 to mid-2021, 452 CRO cases were reported to ACPHD and 24% were found to be Carbapenemase-producing. Cases increased dramatically from 2019 to 2021, driven by outbreaks in local long-term care facilities (LTCFs).

Approach

ACPHD works with LTCFs experiencing multidrug-resistant organism (MDRO) outbreaks to limit spread and provide education regarding prevention and control. Key strategies working with outbreak sites include conducting root cause analyses using risk-based epidemiology and genomic data to inform investigations; closure of affected units pending review and implementation of mitigation and prevention measures; admission screenings and improved resident cohorting strategies; and reinforcing interfacility communication as required by the health officer order.

In 2022-2023 services were expanded to include the following:

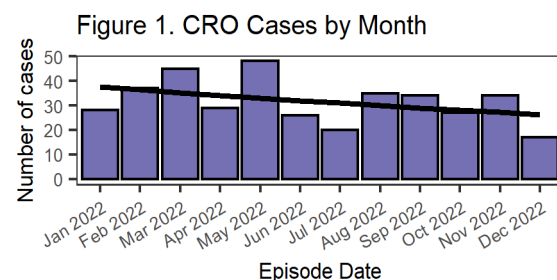
- ◇ More in-person assessments of facilities experiencing COVID-19 or CRO outbreaks
- ◇ Facility-driven infection control adherence monitoring reports and ACPHD validation through periodic in-person observations
- ◇ Monthly MDRO collaboratives to provide a forum to share facility experiences and receive public health updates
- ◇ Engagement of facilities to utilize infection prevention and control (IPC) training and support resources offered through State and other partners
- ◇ A consultant infection preventionist to provide training to ACPHD nurses on IPC fundamentals
- ◇ Biweekly collaboration with all Bay Area counties on MDRO identification, containment and prevention in high-risk facilities

Challenges

- ◇ An increase in the number of facilities with CROs, not just those with subacute (ventilator-equipped) units
- ◇ Reluctance of facilities to fill out interfacility transfer forms
- ◇ Facility reluctance to conduct screening for CROs
- ◇ Reduced willingness of facilities to accept patients with already-confirmed CROs
- ◇ Multiple infection preventionist and key staff turnovers

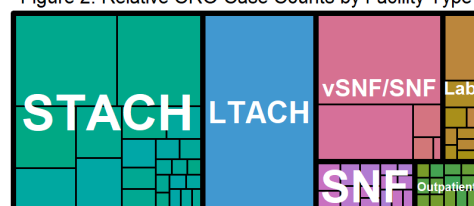
Results/Outcomes

Compared to increases seen in previous years, 2022 saw a decrease in CROs reported to the ACPHD (Fig 1), with a total of 380 new cases. However, the percentage of CROs that were Carbapenemase-producing increased to 32%. 662 isolates were submitted to the Public Health Lab in 2022, double the yearly average from 2019–2021 (331).



More cases identified in short-term acute care hospitals could be traced back to LTCFs than previous years (Fig 2).

Figure 2. Relative CRO Case Counts by Facility Type



Lessons Learned

There is a need for continued engagement with LTCFs on best practices for IPC and CRO awareness; increased capacity for IPC at the local public health level; coordinated regional approach for surveillance, outreach and response activities; and peer-to-peer learning and engagement of healthcare facilities across the continuum of care.