

# Preventing Multidrug-resistant Organism (MDRO) Transmission in the Setting of COVID-19

August 18, 2021

Presented via Webinar

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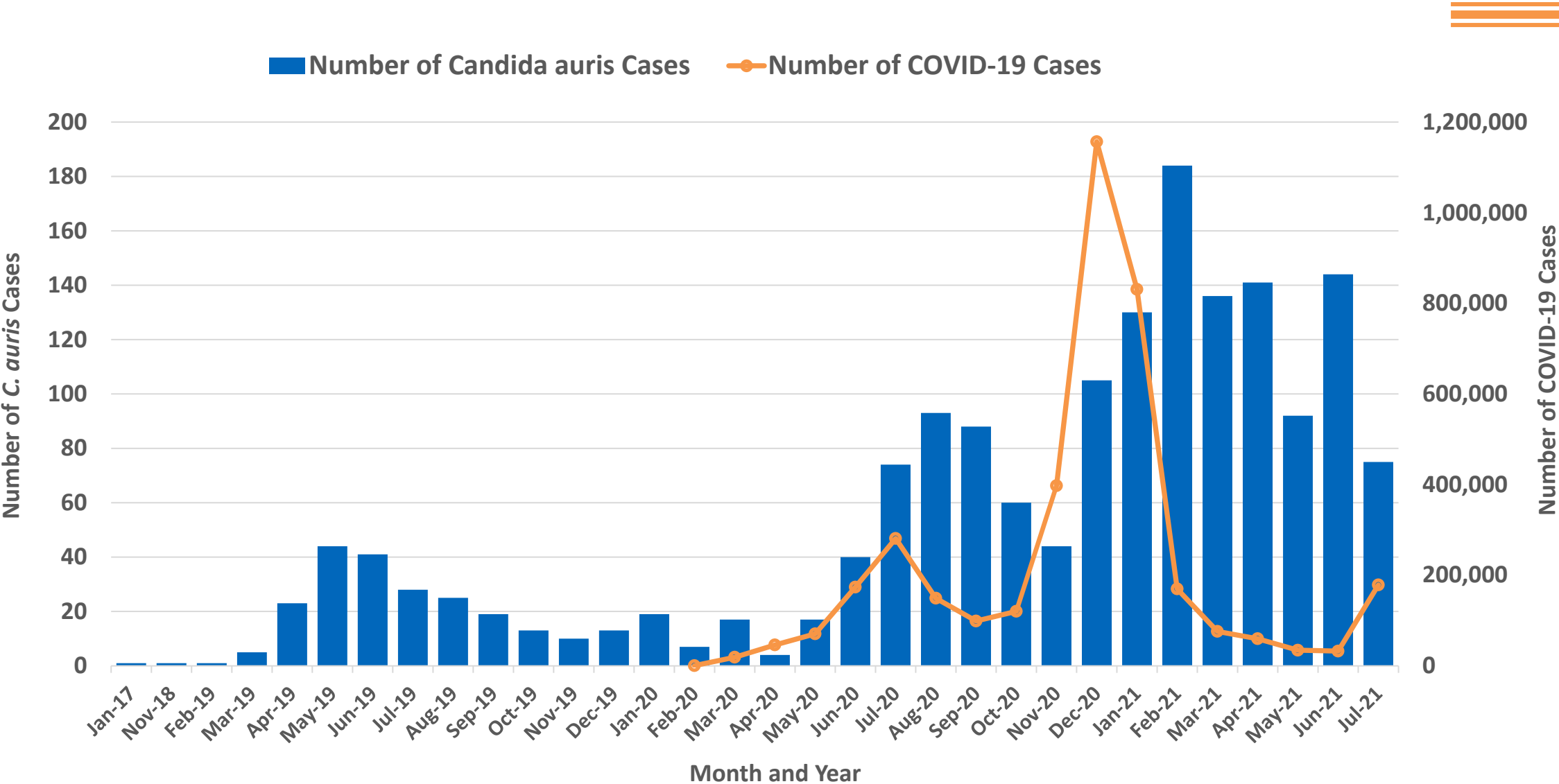
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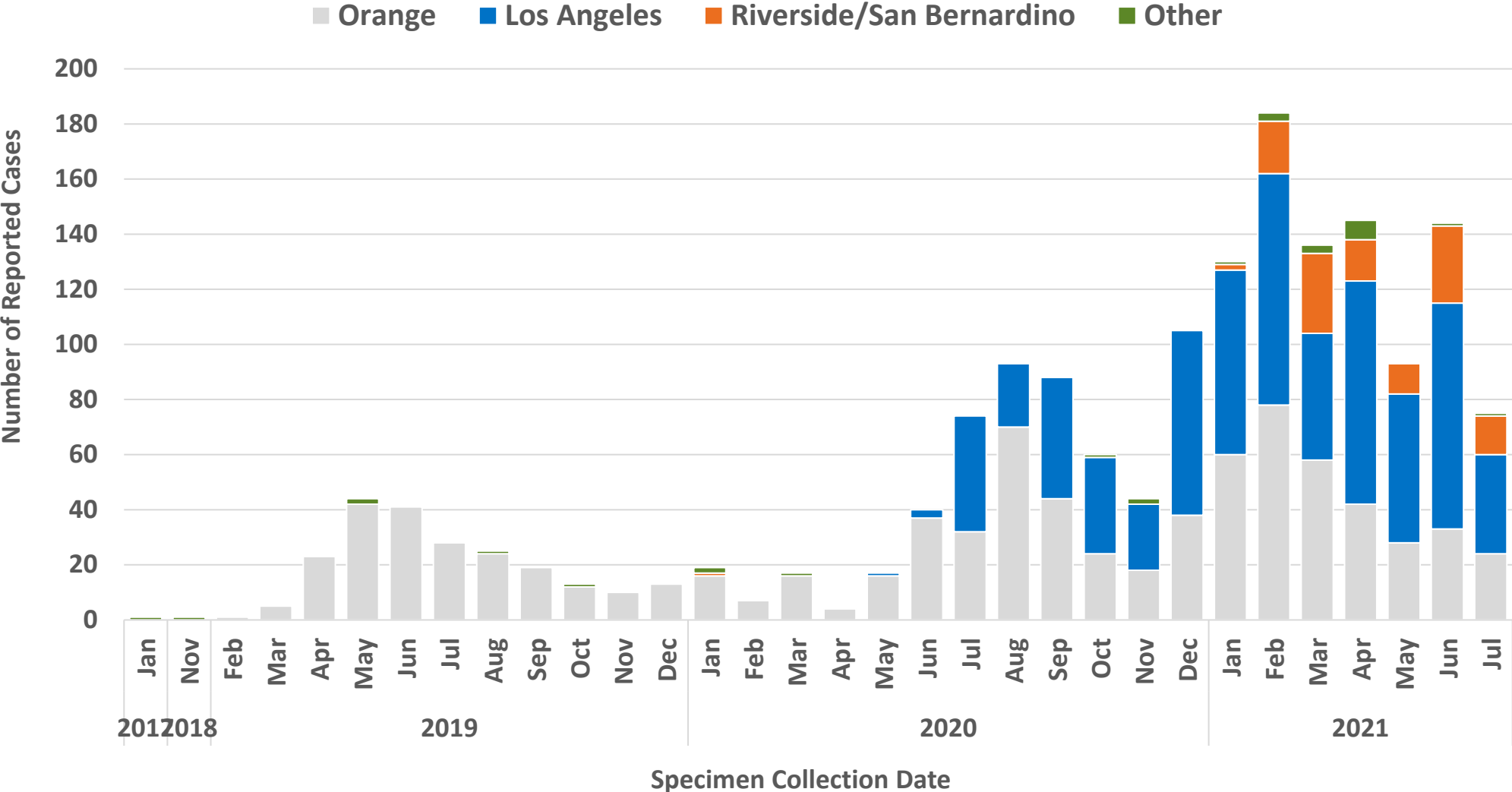
## Objectives

- Provide updates on multidrug-resistant organism (MDRO) resurgence in the setting of COVID-19 in California
- Describe healthcare-associated MDRO
- Discuss basic infection prevention and control (IPC) measures to contain MDRO and SARS-CoV-2 transmission in healthcare facilities

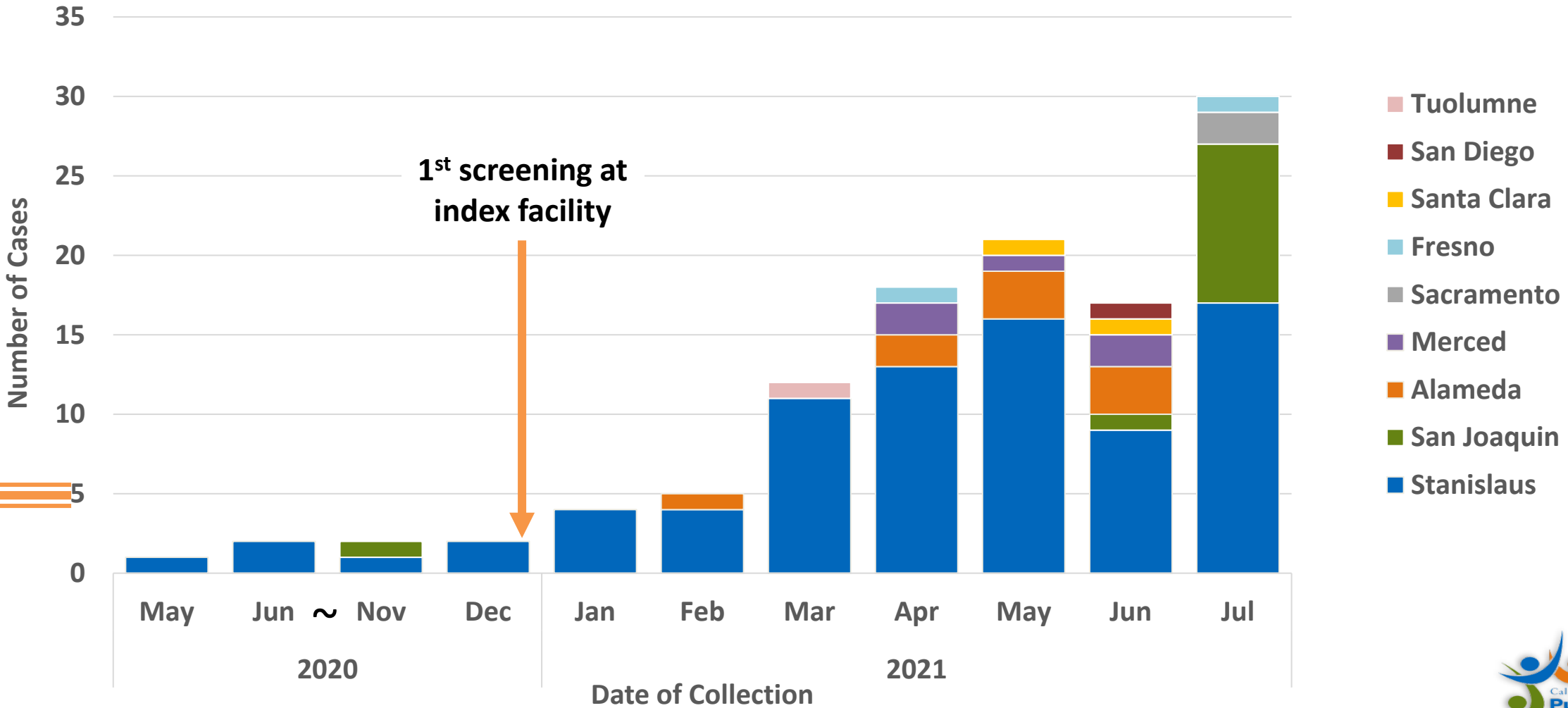
# C. auris and COVID-19 Cases in CA through July 2021



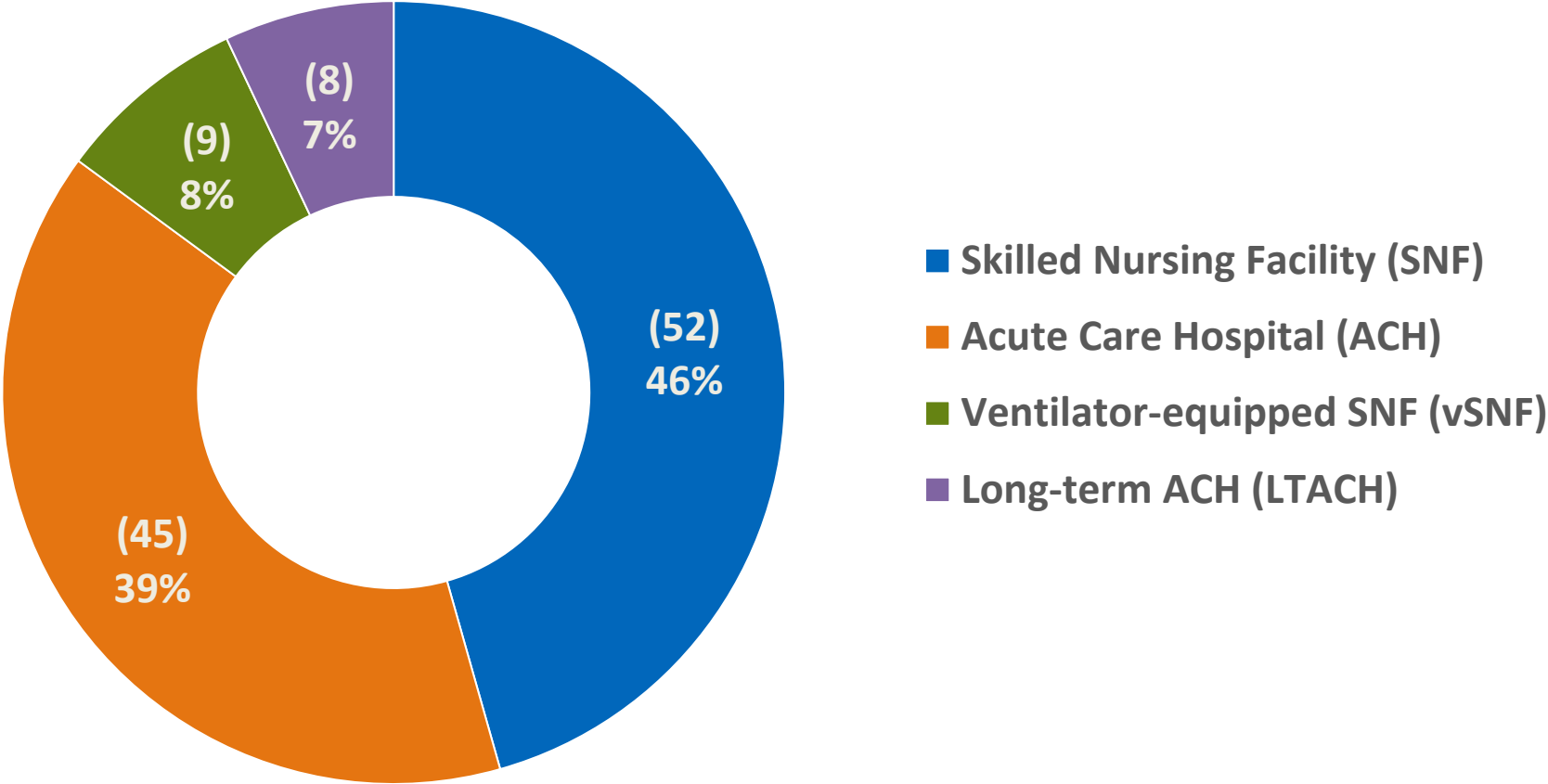
# C. auris Cases Reported by Local Health Jurisdiction through July 2021 (N=1702)



# Highly drug-resistant (NDM) *Acinetobacter* in CA May 2020 – July 2021 (N=114)



# Highly drug-resistant (NDM) *Acinetobacter* Affected Facility Types (N=114)



NDM=New Delhi metallo-beta-lactamase (carbapenemase)



# COVID-19 and Surge-related IPC Challenges in Healthcare Settings

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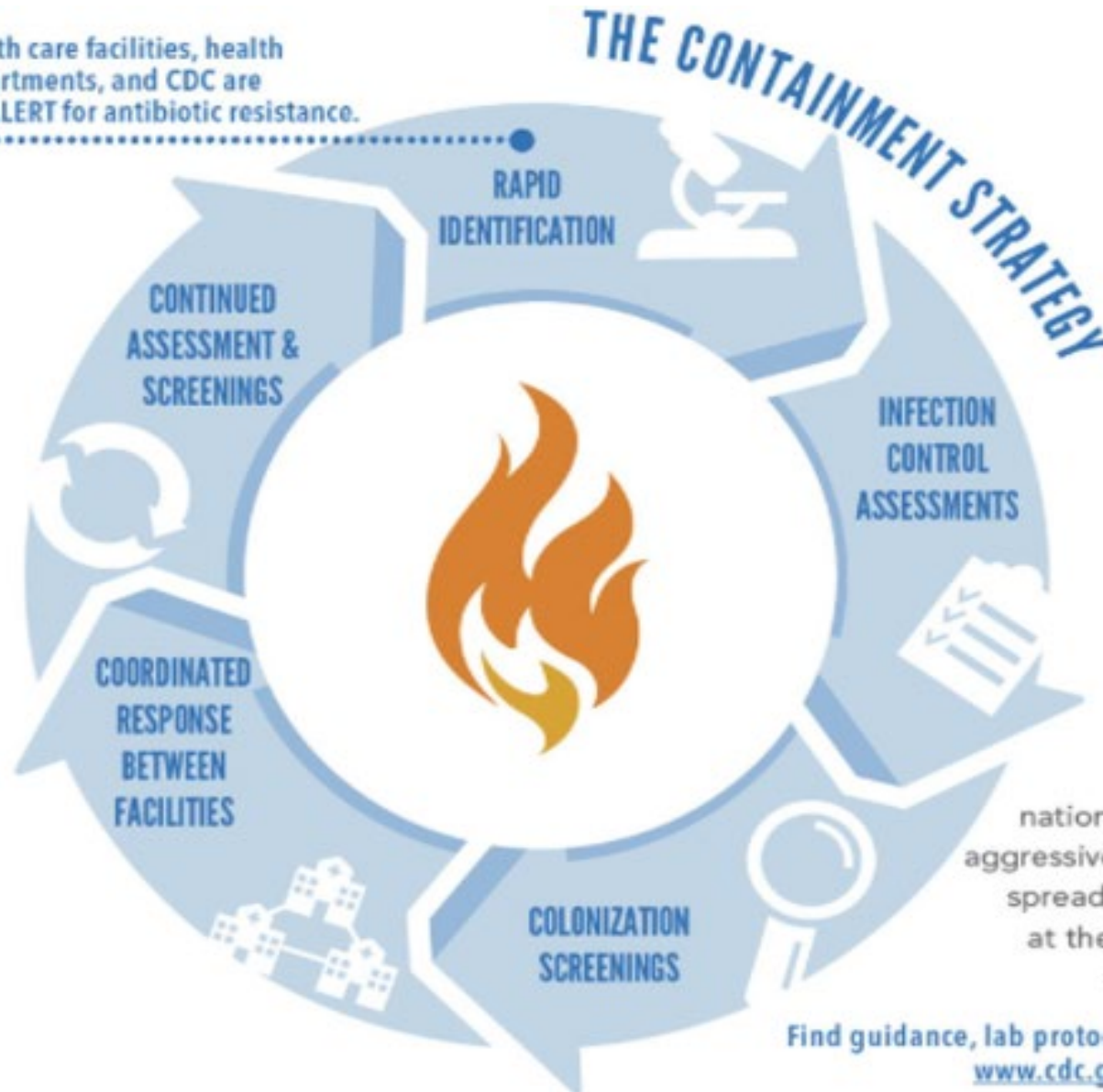
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- Cohorting patients on COVID-19 status only
  - Improper and over use of PPE (e.g., double-gloving, -gowning)
  - Inadequate environmental cleaning and disinfection (e.g., agent without MDRO label claim or contact time achieved for SARS-CoV-2 only)
  - Implementation of crisis capacity strategies during perceived PPE shortages (e.g., extended use of gowns/gloves)
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# What Can We Do?



Health care facilities, health departments, and CDC are ON ALERT for antibiotic resistance.



**Early detection, infection control and public health-coordinated responses needed to contain spread**

Public health teams nationwide can launch early, aggressive responses to contain spread and protect people— at the first sign of antibiotic resistance, every time.

Find guidance, lab protocols, and more resources: [www.cdc.gov/HAI/Outbreaks/MDRO](http://www.cdc.gov/HAI/Outbreaks/MDRO)



# Healthcare-associated MDRO\*: What We Know

	<i>C. auris</i>	<i>Acinetobacter</i>	Other MDRO (e.g., CRE)	<i>C. diff</i>
Causes outbreaks in healthcare settings	X	X	X	X
Leads to substantial morbidity and mortality	X	X	X	X
Risk factors include frequent or extended healthcare exposure, antimicrobial use	X	X	X	X
Patients can remain colonized for many months (no “clearance” recommendations)	X	X	X	X
Persistent in the healthcare environment	X	X		X
Difficult to identify	X			

\*Including *Clostridioides difficile* (*C. diff*); *C. auris*=*Candida auris*; CRE = carbapenem-resistant Enterobacterales



# Healthcare-associated MDRO\*:

## Containment, Infection Control Measures

	<i>C. auris</i>	<i>Acinetobacter</i>	Other MDRO (e.g., CRE)	<i>C. diff</i>
Good hand hygiene – ABHS preferred	X	X	X	Soap & water
Contact precautions, single room if possible	X	X	X	X
Thorough environmental cleaning and disinfection	Use <a href="https://www.epa.gov/pesticide-registration/list-p-antimicrobial-products-registered-epa-claims-against-candida-auris">List P/List K agent</a> ( <a href="https://www.epa.gov/pesticide-registration/list-p-antimicrobial-products-registered-epa-claims-against-candida-auris">https://www.epa.gov/pesticide-registration/list-p-antimicrobial-products-registered-epa-claims-against-candida-auris</a> )	X	X	Use <a href="http://www.epa.gov/pesticide-registration/list-k-epas-registered-antimicrobial-products-effective-against-clostridium">List K agent</a> ( <a href="http://www.epa.gov/pesticide-registration/list-k-epas-registered-antimicrobial-products-effective-against-clostridium">www.epa.gov/pesticide-registration/list-k-epas-registered-antimicrobial-products-effective-against-clostridium</a> )
Routine adherence monitoring	X	X	X	X
Cohorting of patients and healthcare personnel	X	X	X	X
Lab surveillance	X	X	X	X
Screening of high-risk contacts	X	X	X	

\*Including *Clostridioides difficile* (*C. diff*); ABHS=alcohol-based hand sanitizer; *C. auris*=*Candida auris*; CRE=carbapenem-resistant Enterobacterales



### Containment, Infection Control Measures

	<i>C. auris</i>	<i>Acinetobacter</i>	Other MDRO (e.g., CRE)	<i>C. diff</i>	SARS-CoV-2
Good hand hygiene – ABHS preferred	X	X	X	Soap & water	X
Contact precautions, single room if possible	X	X	X	X	+ respirator, eye protection
Thorough environmental cleaning and disinfection	Use <a href="https://www.epa.gov/pesticide-registration/list-p-antimicrobial-products-registered-epa-claims-against-candida-auris">List P/List K agent</a> (https://www.epa.gov/pesticide-registration/list-p-antimicrobial-products-registered-epa-claims-against-candida-auris)	X	X	Use <a href="http://www.epa.gov/pesticide-registration/list-k-epas-registered-antimicrobial-products-effective-against-clostridium">List K agent</a> (www.epa.gov/pesticide-registration/list-k-epas-registered-antimicrobial-products-effective-against-clostridium)	Use <a href="http://www.epa.gov/pesticide-registration/list-n-disinfectants-coronavirus-covid-19">List N agent</a> (List P/List K agent OK) (www.epa.gov/pesticide-registration/list-n-disinfectants-coronavirus-covid-19)
Routine adherence monitoring	X	X	X	X	X
Cohorting of patients and healthcare personnel	X	X	X	X	X
Lab surveillance	X	X	X	X	X
Screening of high-risk contacts	X	X	X		X

\*Including *Clostridioides difficile* (*C. diff*); ABHS=alcohol-based hand sanitizer; *C. auris*=*Candida auris*; CRE=carbapenem-resistant Enterobacterales



# Infection Control Basics: Hand Hygiene (HH)

- Use ABHS as preferred method (soap and water if hands visibly soiled *C. difficile* outbreak)
- Place ABHS dispensers in as many patient/resident care locations as possible
- More than just “gel-in/gel-out”; remember the **5 moments**
- Gloves are **NOT** a substitute for HH; perform HH before donning and after doffing PPE
  - Do not use ABHS on gloves
- Perform adherence monitoring



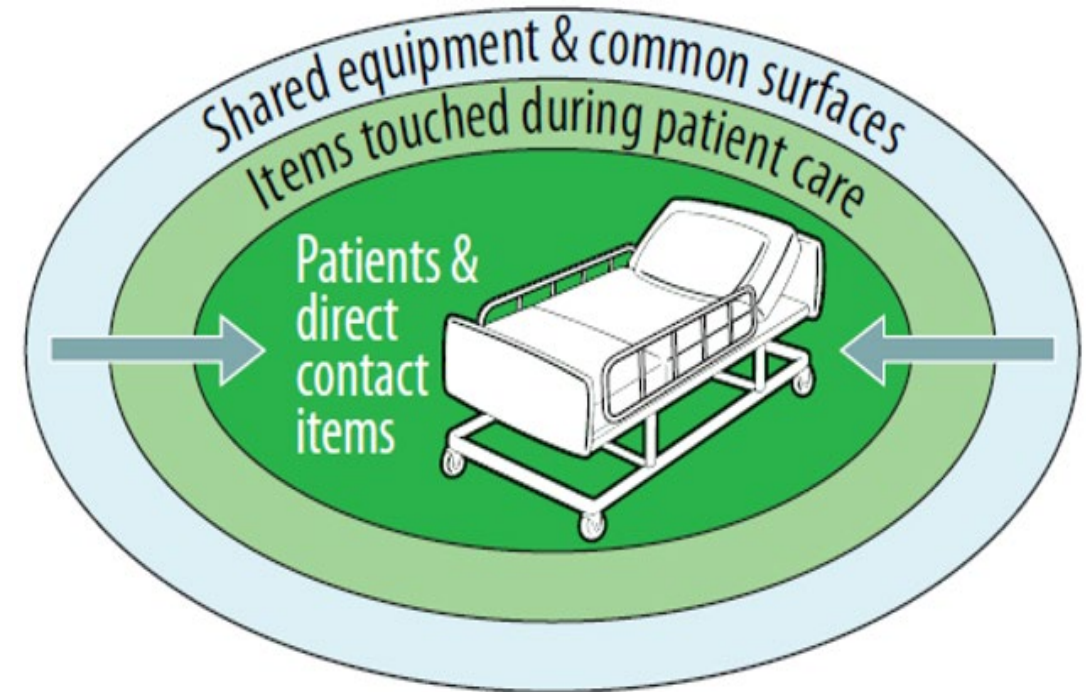
[WHO 5 Moments for Hand Hygiene](http://www.who.int/infection-prevention/campaigns/clean-hands/5moments/en/)

([www.who.int/infection-prevention/campaigns/clean-hands/5moments/en/](http://www.who.int/infection-prevention/campaigns/clean-hands/5moments/en/))

# Infection Control Basics: Environmental Cleaning

- High-touch surfaces, clean to dirty
- Read labels: know contact time
- Who cleans what: nursing vs EVS
- Observe and monitor with fluorescent marker, ATP
- Training, re-training
- For *C. auris*, use [List P agent](#) (List K, bleach OK); consider for prevention

(<https://www.epa.gov/pesticide-registration/list-p-antimicrobial-products-registered-epa-claims-against-candida-auris>)



[CDC Environmental Cleaning Procedures](#)

([www.cdc.gov/hai/prevent/resource-limited/cleaning-procedures.html](http://www.cdc.gov/hai/prevent/resource-limited/cleaning-procedures.html))



## Infection Control Basics: PPE

- **Do not practice** extended use or reuse of gowns\* and gloves
- Double-gowning and -gloving are **NOT** recommended
- Perform HH before donning and after doffing PPE
- Everyone should adhere, including physicians and ancillary staff
- Keep signage simple and consistent

\*Contact local [Medical Health Operational Area Coordinator](https://emsa.ca.gov/medical-health-operational-area-coordinator/) to request additional supplies (https://emsa.ca.gov/medical-health-operational-area-coordinator/) and use [Strategies for Optimizing the Supply of Isolation Gowns](http://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/isolation-gowns.html) (www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/isolation-gowns.html).



**STOP CONTACT PRECAUTIONS STOP**

**EVERYONE MUST:**

 Clean their hands, including before entering and when leaving the room.

**PROVIDERS AND STAFF MUST ALSO:**

 Put on gloves before room entry. Discard gloves before room exit.

 Put on gown before room entry. Discard gown before room exit. **Do not wear the same gown and gloves for the care of more than one person.**

 Use dedicated or disposable equipment. Clean and disinfect reusable equipment before use on another person.

 U.S. Department of Health and Human Services  
Centers for Disease Control and Prevention

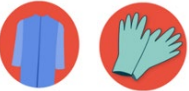
[CDC Contact Precautions Signage \(PDF\)](#)

(www.cdc.gov/infectioncontrol/pdf/contact-precautions-sign-P.pdf)

# Infection Control Basics: Transmission-based Precautions



- Standard precautions + additional PPE by known organism
- Keep it simple, clear signage



• **Contact:** *C. auris*, Carbapenem-resistant Enterobacterales/*Pseudomonas/Acinetobacter*, MRSA, VRE



• **Contact + Enteric/Spore:** *C. difficile*, Norovirus



• **Droplet:** Influenza



• **Airborne:** Tuberculosis, Measles, Varicella



• **Contact + Respirator + Eye Protection:** COVID-19



## Infection Control Basics: Patient Placement (Cohorting)

- Cohort patients with the same MDRO, regardless of specimen source, infection or colonization status
  - *C. auris* with *C. auris*
  - By carbapenemase/resistance mechanism (e.g., NDM), then by organism
- Place in the same geographic location
- Avoid unnecessary patient movement
- **Cohorting can be very complicated, so please consult with local public health or HAI prior to cohorting residents with MDROs!**



## HEALTHCARE-ASSOCIATED INFECTIONS PROGRAM

# Communication

- Key to preventing interfacility transmission!
- **Actively seek and relay MDRO status of all admissions**
- Flag medical record for future admissions
- Establish a system between IP, nurse & case manager, ED to ensure clear communication
- Use interfacility transfer form
- Educate patients and family
- **MDRO status cannot be used as a basis for denying admission to a facility**

### HEALTHCARE FACILITY TRANSFER FORM

Affix patient labels here.

Use this form for all transfers to an admitting healthcare facility.

Patient Name (Last, First): \_\_\_\_\_

Date of Birth: \_\_\_\_\_

MRN: \_\_\_\_\_

Transfer Date: \_\_\_\_\_

Receiving Facility Name: \_\_\_\_\_

Contact Name: \_\_\_\_\_

Contact Phone: \_\_\_\_\_

Sending Facility Name: \_\_\_\_\_

Contact Name: \_\_\_\_\_

Contact Phone: \_\_\_\_\_

#### PRECAUTIONS

Patient currently on precautions?

If yes, check all that apply:

Yes  No

Airborne  Contact  Droplet  Enhanced Standard\*

Personal protective equipment (PPE) to consider at receiving facility\*:



Gloves



Gown



Mask



N95/PAPR



Eye Protection

Long-term care facilities may implement Enhanced Standard precautions for patients with MDRO or risk factors for transmission, i.e., gown and glove use for high-contact care activities (<https://www.cdph.ca.gov/Programs/CHCQ/LCP/CDPH%20Document%20Library/AFL-19-22.pdf>); such patients may be on Contact precautions in acute care settings.

**ORGANISMS** (Include copy of lab results with organism ID and antimicrobial susceptibilities.)

Patient has multidrug-resistant organism (MDRO) or other lab results requiring precautions?

Yes (record organism(s), specimen source, collection date)  No

Exposed to MDRO/other (record organism(s) and last date(s) of exposure if known)

Organism	Carbapenemase (if applicable)**	Source	Date
<input type="checkbox"/> <i>Candida auris</i> ( <i>C. auris</i> )			
<input type="checkbox"/> <i>Clostridioides difficile</i> ( <i>C. diff</i> )			
<input type="checkbox"/> <i>Acinetobacter</i> , multidrug-resistant (e.g., CRAB**)			
<input type="checkbox"/> Carbapenem-resistant Enterobacterales (CRE**)			
<input type="checkbox"/> <i>Pseudomonas aeruginosa</i> , multidrug-resistant (e.g., CRPA**)			
<input type="checkbox"/> Extended-spectrum beta-lactamase (ESBL)-producer			
<input type="checkbox"/> Methicillin-resistant <i>Staphylococcus aureus</i> (MRSA)			
<input type="checkbox"/> Vancomycin-resistant <i>Enterococcus</i> (VRE)			
<input type="checkbox"/> No organism identified (e.g., molecular screening test**)			
<input type="checkbox"/> Other, specify: (e.g., SARS-CoV-2 (COVID-19), lice, scabies, disseminated shingles ( <i>Herpes zoster</i> ), norovirus, influenza, tuberculosis)			

\*\*Note specific carbapenemase(s) (e.g., NDM, KPC, OXA-23) if known

[Interfacility Transfer Communications Guide](https://www.cdph.ca.gov/Programs/CHCQ/HAI/Pages/InterfacilityCommunication.aspx)

([www.cdph.ca.gov/Programs/CHCQ/HAI/Pages/InterfacilityCommunication.aspx](https://www.cdph.ca.gov/Programs/CHCQ/HAI/Pages/InterfacilityCommunication.aspx))



## Antimicrobial Stewardship (AS)

### Limit unnecessary use of antimicrobial agents

- Broad-spectrum antimicrobials (e.g., carbapenems)
- Antifungal treatment not recommended for *C. auris* isolated from noninvasive sites without evidence of infection

### CDPH AS Program Honor Roll

([www.cdph.ca.gov/Programs/CHCQ/HAI/Pages/Honor\\_Roll.aspx](http://www.cdph.ca.gov/Programs/CHCQ/HAI/Pages/Honor_Roll.aspx))



## Key Messages

- MDRO transmission in healthcare facilities appears to be increasing
- Implementation and reinforcement of basic infection control practices can:
  - Improve patient AND healthcare personnel health and safety
  - Reduce transmission of MDRO AND SARS-CoV-2
- Public health resources are available to support MDRO testing and containment

# Resources

- [CAHAN: Regional Outbreak of Highly Drug-resistant Carbapenemase-producing \*Acinetobacter baumannii\*, May 2021](#) (PDF)
  - [CAHAN: Active Surveillance for \*Candida auris\* in Healthcare Facilities, March 2021](#) (PDF)
  - [CAHAN: Resurgence of \*Candida auris\* in Healthcare Facilities in the Setting of COVID-19, August 2020](#) (PDF)
  - [CDPH \*C. auris\* Prevention Resources](#)  
(<https://www.cdph.ca.gov/Programs/CHCQ/HAI/Pages/Candida-auris.aspx>)
  - [CDPH Carbapenem-resistant and Carbapenemase-producing Organism Prevention Resources](#)  
([https://www.cdph.ca.gov/Programs/CHCQ/HAI/Pages/CRE\\_InfectionPreventionStrategies.aspx](https://www.cdph.ca.gov/Programs/CHCQ/HAI/Pages/CRE_InfectionPreventionStrategies.aspx))
  - [CDPH Antimicrobial Resistance and Stewardship Resources](#)  
([www.cdph.ca.gov/Programs/CHCQ/HAI/Pages/AntimicrobialResistanceLandingPage.aspx](http://www.cdph.ca.gov/Programs/CHCQ/HAI/Pages/AntimicrobialResistanceLandingPage.aspx))
  - [CDPH Enhanced Standard Precautions](#) (PDF)  
([www.cdph.ca.gov/Programs/CHCQ/LCP/CDPH%20Document%20Library/Enhanced-Standard-Precautions.pdf](http://www.cdph.ca.gov/Programs/CHCQ/LCP/CDPH%20Document%20Library/Enhanced-Standard-Precautions.pdf))
  - [CDPH Adherence Monitoring Tools](#)  
([www.cdph.ca.gov/Programs/CHCQ/HAI/Pages/MonitoringAdherenceToHCPracticesThatPreventInfection.aspx](http://www.cdph.ca.gov/Programs/CHCQ/HAI/Pages/MonitoringAdherenceToHCPracticesThatPreventInfection.aspx))
  - [CDPH/CDC Prevention of MDRO in Long-term Care Facilities, December 2020 Webinar Slides](#) (PDF)  
([https://www.cdph.ca.gov/Programs/CHCQ/HAI/CDPH%20Document%20Library/C\\_auris\\_AHR\\_CDC\\_CDPHshareWebinarCombined\\_ADA\\_121020.pdf](https://www.cdph.ca.gov/Programs/CHCQ/HAI/CDPH%20Document%20Library/C_auris_AHR_CDC_CDPHshareWebinarCombined_ADA_121020.pdf))
  - [AR Lab Network Testing Resources](#)  
([www.cdc.gov/drugresistance/laboratories/AR-lab-network-testing-details.html](http://www.cdc.gov/drugresistance/laboratories/AR-lab-network-testing-details.html))
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**Thank you!**

**Questions?**

For more information,  
contact

[HAIProgram@cdph.ca.gov](mailto:HAIProgram@cdph.ca.gov)