



Novel & Targeted Multidrug-Resistant Organisms (MDROs): How to Detect and Prevent

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Los Angeles County Department of Public Health

*SNF Symposium
September 22nd, 2025*



Objectives

- Review novel & targeted multidrug-resistant organisms (MDROs)
- Describe the epidemiology and prevention of these MDROs
- Discuss the role of infection preventionists in detecting, reporting, and containing novel & targeted MDROs
- Share best practices for admitting and cohorting MDRO-positive residents

What are MDROs?

Antibiotic resistance—when germs (bacteria, fungi) develop the ability to defeat the antibiotics designed to kill them—is one of the greatest global health challenges of modern time.

New National Estimate*

Each year, antibiotic-resistant bacteria and fungi cause at least an estimated:



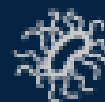
2,868,700
infections



35,900 deaths



*Clostridioides difficile*** is related to antibiotic use and antibiotic resistance:



223,900
cases



12,800 deaths

New Antibiotic Resistance Threats List

Updated urgent, serious, and concerning threats—totaling 18

5 urgent threats

2 new threats

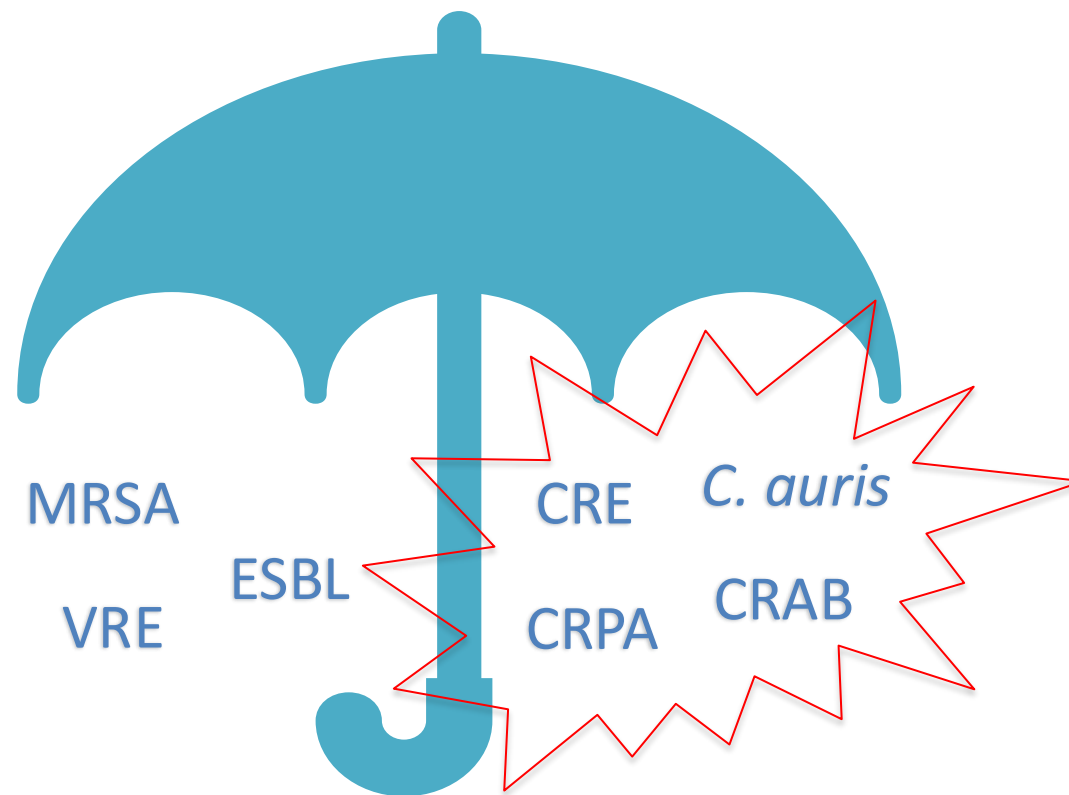
NEW:
Watch List with **3** threats

1. CDC 2019 AR Threats Report: <https://www.cdc.gov/drugresistance/biggest-threats.html>

2. COVID-19 Impact on AR: <https://www.cdc.gov/drugresistance/pdf/covid19-impact-report-508.pdf>

What “Novel” or “Targeted” MDROs Are

- Novel MDROs are:
 - Never/rarely detected in the US
 - Very difficult to treat
- Targeted MDROs are:
 - Pre-endemic
 - Difficult to treat
 - Easy to spread
- Varies by region/jurisdiction



LACDPH MDRO Tier Designation

Tier	Description	Pathogens Included
1	Pathogens/resistance mechanisms never or very rarely detected in Los Angeles County (novel MDROs)	- Novel organism and/or resistance mechanism - Pan-resistant gram-negative organism¹
2	Pathogens/resistance mechanisms not commonly detected in Los Angeles County (targeted MDROs)	- Concerning <i>C. auris</i>² - Uncommon carbapenemase-producing <i>Acinetobacter</i> spp.³ - Uncommon carbapenemase-producing Enterobacterales⁴
3	Pathogens/resistance mechanisms commonly detected in Los Angeles County but not endemic	- Carbapenemase-producing <i>Pseudomonas</i> spp.⁵ - NDM-producing Enterobacterales
4	Pathogens/resistance mechanisms endemic in Los Angeles County and/or less epidemiologically concerning	- KPC-producing Enterobacterales <i>C. auris</i> - OXA-23-like-producing <i>Acinetobacter</i> spp. - Vancomycin-resistant <i>Staphylococcus aureus</i> - Other MDROs not previously listed



Increasing
DPH
follow-up

1. Resistant (R) to all drugs tested at public health laboratories (including CDC)

2. Including echinocandin- or pan-resistant *C. auris*

3. Including NDM-, IMP-, VIM-, and KPC-producing *Acinetobacter* spp.

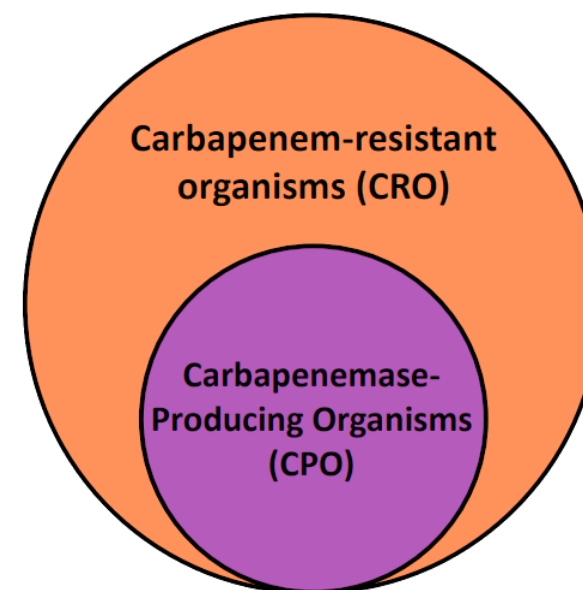
4. Including IMP-, VIM-, and OXA-like producing Enterobacterales

5. Including VIM-, IMP-, NDM-, KPC-, and OXA-like producing *Pseudomonas* spp.

CPO vs Carbapenem-resistant Organisms (CROs)

- **CRO= carbapenem-resistant organism**
 - Organism that is resistant (R) to carbapenem antibiotics
 - Meropenem, doripenem, ertapenem, imipenem
 - Includes carbapenem-resistant (CR)-
 - Enterobacterales (CRE)
 - *Acinetobacter baumannii* (CRAB)
 - *Pseudomonas aeruginosa* (CRPA)
 - Regardless of having a carbapenemase or not

- **CPO= carbapenemase-producing organism**
 - Organism that produces a carbapenemase enzyme
 - KPC, IMP, NDM, OXA, VIM
 - This is one way organisms become CR
 - *Examples: KPC-producing CRE, VIM-producing CRPA*



Candida auris

- Drug-resistant yeast
 - SoCal strain very treatable
- Can survive on surfaces for longer periods of time
 - Must use appropriate disinfectant
- Can cause outbreaks if basic IPC not met
 - Outbreaks in SNFs are rare

Los Angeles County Department of Public Health (LACDPH)

Candida auris for Skilled Nursing Facilities

C. auris is a drug-resistant yeast that has become endemic in Los Angeles County. Good compliance with basic infection control measures can prevent the spread of *C. auris*. All skilled nursing facilities should become familiar with the strategies outlined below to admit and manage *C. auris*-positive residents.

DO:

- Admit suspect or confirmed *C. auris* residents to the best of your abilities.
- Refer to the [CDC Enhanced Barrier Precautions \(EBP\)](#) guidance to determine which type of transmission-based precautions (TBP) to apply and how to [cohort with other residents](#).
 - In general, LACDPH recommends the following TBP for *C. auris*:
 - Contact Precautions (CP) if there is suspected or confirmed transmission of *C. auris* in the facility and/or if resident has other indications for CP (e.g., acute diarrhea, draining wound, [Tier 1 MDRO](#))
 - EBP for all other *C. auris*-positive residents.
- Ensure your facility staff adhere to basic infection control measures to prevent spread. Facility leadership should conduct regular [audit and feedback](#) to maintain good compliance. These include:
 - Practice hand hygiene (HH). Alcohol-based hand rub (ABHR) is effective against *C. auris*.
 - Use personal protective equipment (PPE) properly.
 - Thoroughly clean and disinfect the patient care environment and shared equipment with a disinfectant that is effective against *C. auris* ([EPA List P](#), or can use [EPA List K](#) and follow instructions for *C. difficile*).
- Screen non-positive residents transferred from [long-term acute care hospitals and subacute units](#) for *C. auris* colonization upon admission at your facility. Follow appropriate TBP as outlined above while pending results.
- Check for *C. auris* status upon admission, and [communicate](#) *C. auris* status upon discharge. Use an [inter-facility transfer form](#) and attach relevant labs. The [Patient Safety Information Exchange \(PSIE\)](#) is a resource.
- Flag medical records of *C. auris*-positive residents to place them on appropriate TBP upon future admissions.
- [Report](#) new colonizations and all clinical identifications of *C. auris* via the [LACDPH MDRO Reporting Portal](#).

DO NOT:

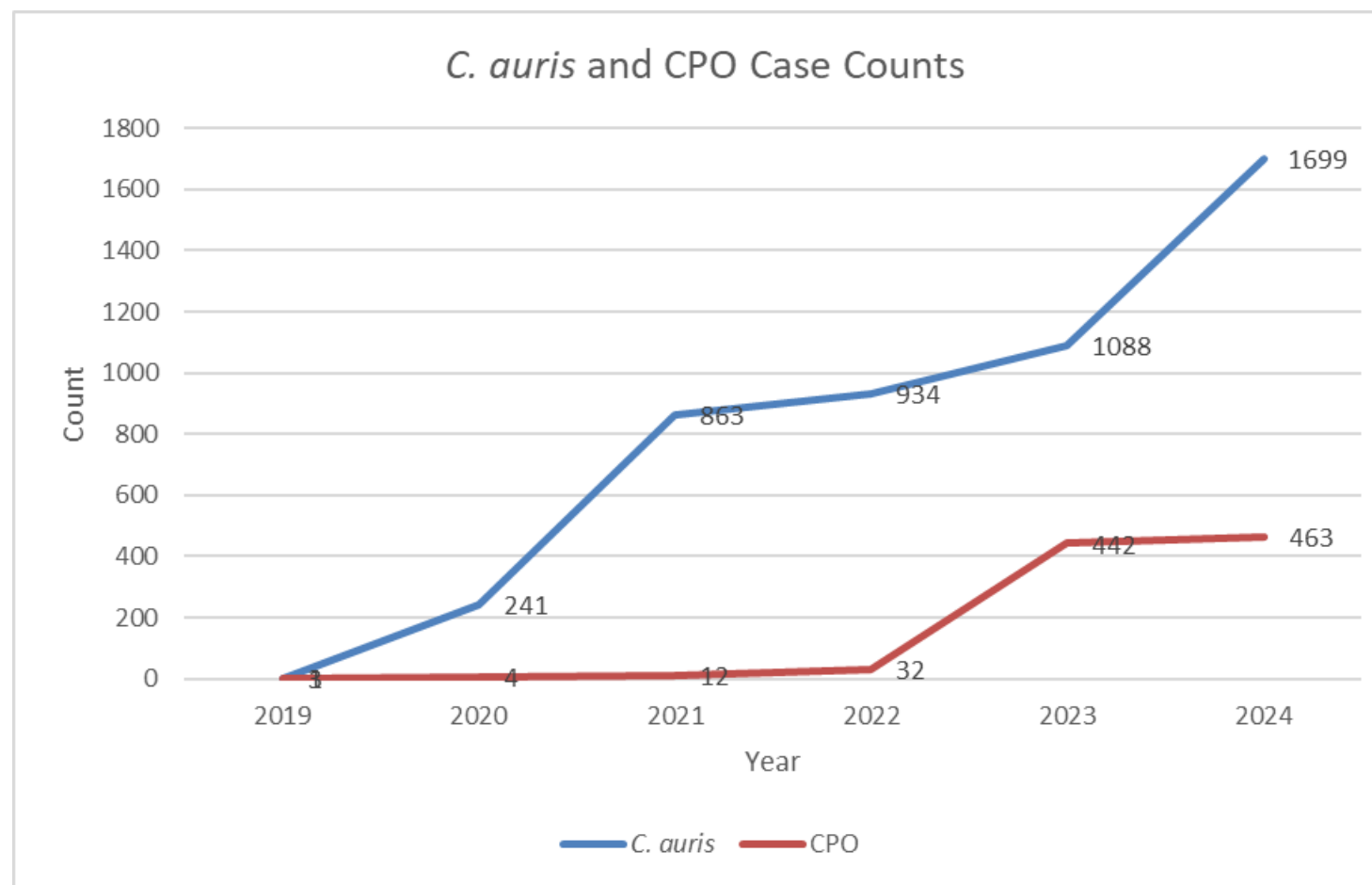
- Be scared. *C. auris* is just like any other multidrug-resistant organism (MDRO)– if your staff consistently implements basic infection control practices (see above), you have a strong chance at preventing spread.
- Refuse residents based purely on *C. auris* status. If your facility can provide the care needed, you should admit the resident and [cohort to the best of your abilities](#). Per CDPH [AFL 24-15](#), there is no basis to refuse admission based on MDRO status. Residents on EBP do not require placement in a single-person room, even when known to be infected or colonized with an MDRO.
- Re-screen residents with history of *C. auris* positive tests for clearance. *C. auris* can colonize residents for years and may test intermittently negative. Consider them as positive even if they had a recent negative screen result.
- Request facilities perform *C. auris* screening prior to discharge. Since results can take a few days, there is a chance they may acquire *C. auris* between when the swab was collected to when they are discharged.
- Report single cases to CDPH Licensing & Certification. *C. auris* is only reportable to LACDPH if it is identified from a specimen collected at your facility. Do not report *C. auris* if your facility did not collect the specimen.

ADDITIONAL RESOURCES

- LACDPH MDRO Guidance for SNFs: <http://publichealth.lacounty.gov/acd/mdro/index.htm>
- LACDPH MDRO website: <http://publichealth.lacounty.gov/acd/MDRO/index.htm>
- CDPH *C. auris* website: www.cdph.ca.gov/Programs/CHCO/HAI/Pages/Candida-auris.aspx
- CDC *C. auris* website: www.cdc.gov/fungal/candida-auris/c-auris-infection-control.html

More questions or concerns? Email the LACDPH Healthcare Outreach Unit at hqi@ph.lacounty.gov

MDROs in LA County, 2019-2024



How are MDROs transmitted?

- Person-to-person **contact** with infected or colonized people
 - contact with wounds or stool
- Contact can occur with contaminated surfaces, such as via
 - hands of healthcare staff who did not perform hand hygiene
 - medical equipment that have not been correctly cleaned
 - Some (CROs) via contaminated water sources or products
- Does not change by specimen source
 - E.g., patient with MDRO in sputum does not transmit via droplet



Who is at risk for acquiring MDROs?

- Patients/residents at highest risk, especially those with
 - One or more devices (e.g., ventilators, catheters)
 - Long courses of antibiotics
 - Weakened immune systems
 - History of healthcare received outside the United States
 - Frequent or long-term exposure to healthcare facilities

Figure 1D: High risk cases.

High-risk cases were defined as any of the following: assistance for activities of daily living, ventilator-dependent, incontinent, wounds with unmanageable drainage, or unable to maintain hygiene.

67%
of N-MDRO cases
were considered "High Risk" patients



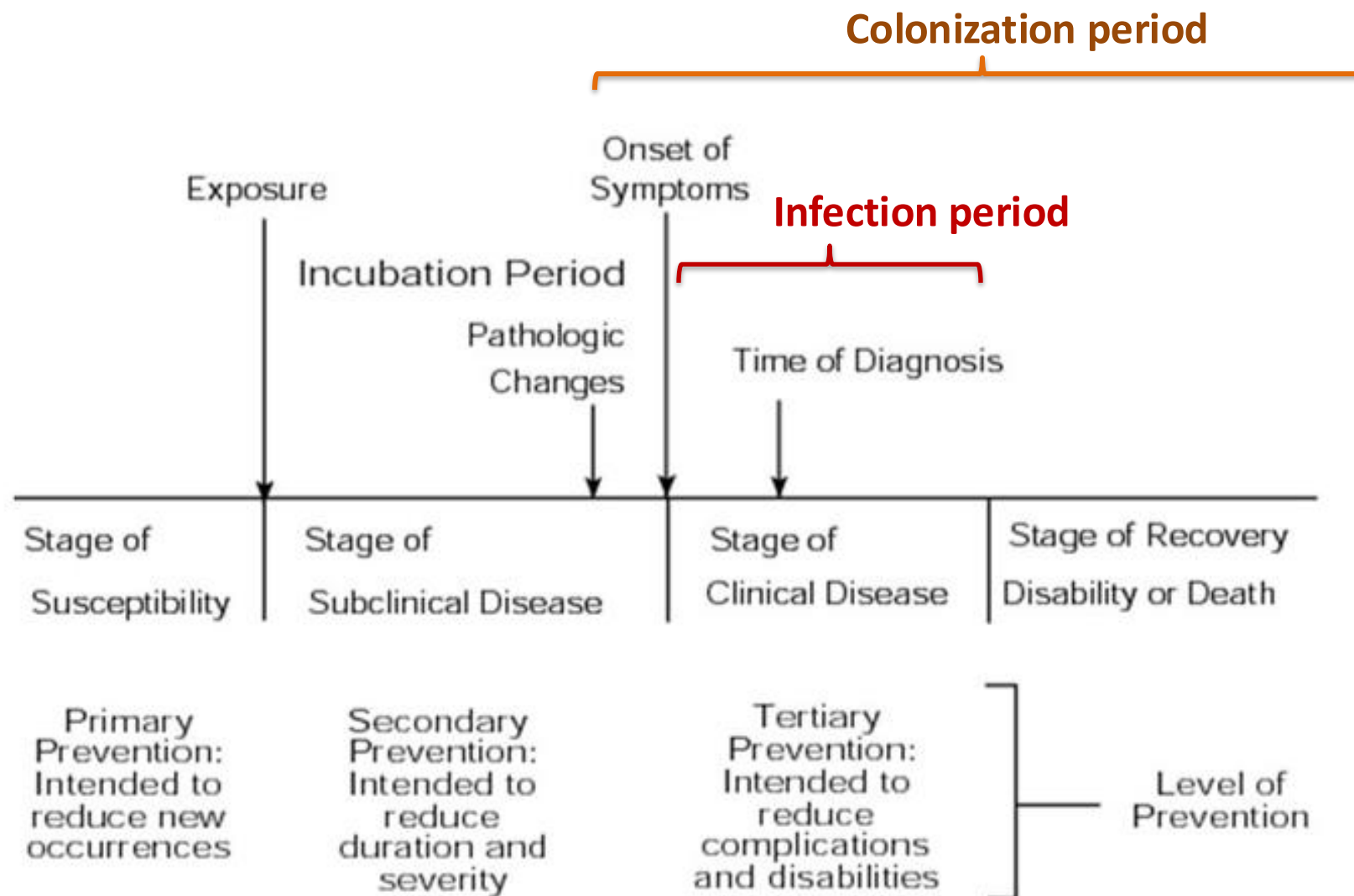
Figure 1E: High-risk setting.

High risk settings for N-MDRO transmission are SNFs or long-term acute care hospitals (LTACs). (6 months prior to culture collection date).

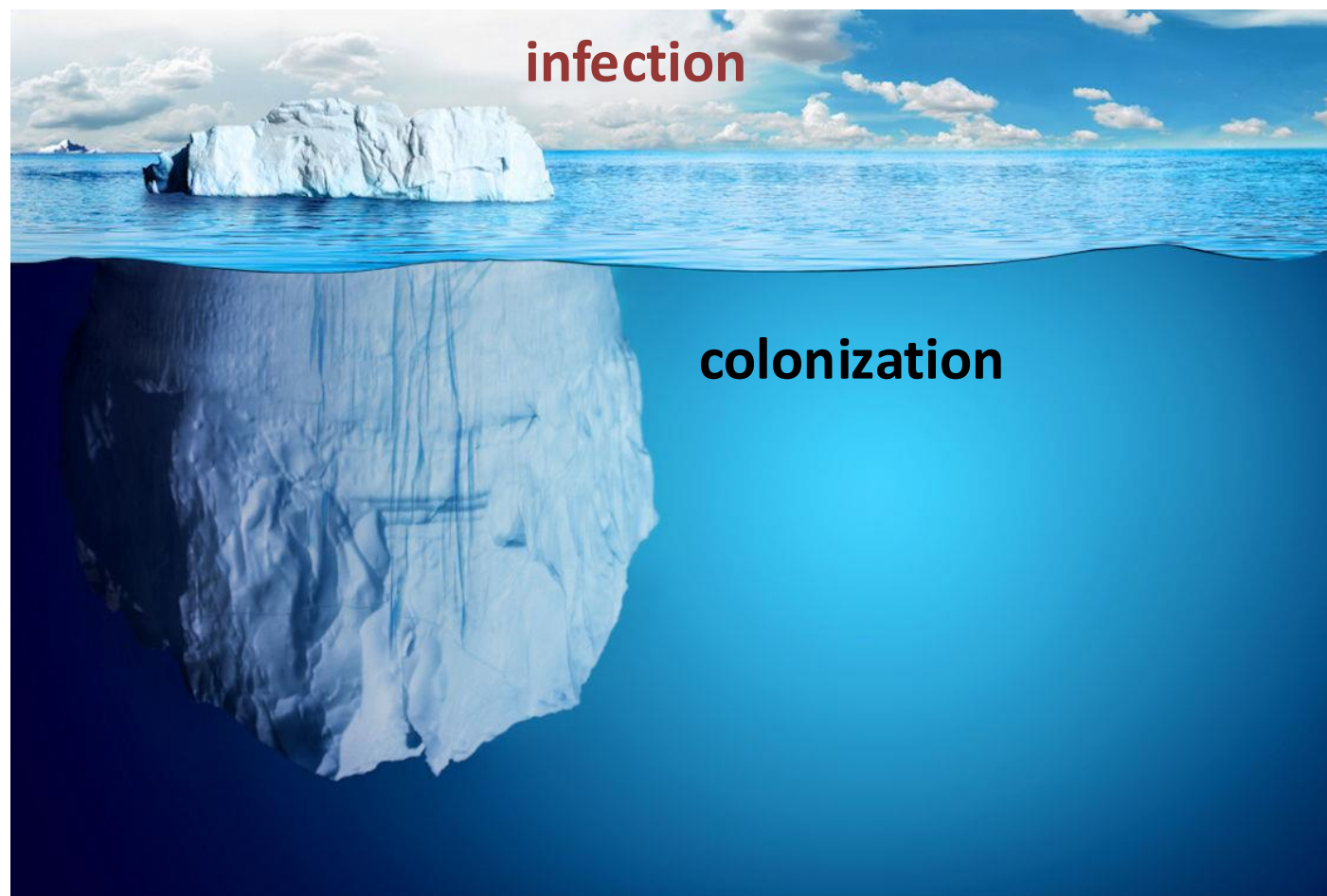
53%
of N-MDRO cases
have stayed in a high risk setting 6 months prior to
culture collection date



Timeline of disease progression for MDROs



Clinical cases are only the tip of the MDRO iceberg



If you only screen patients with signs/symptoms of an infection, you will miss additional cases

What's the difference?

Colonization

- Growth of microorganisms on host tissue but without tissue invasion or damage
- No symptoms
- May never resolve
- Other terms:
 - “asymptomatic carrier”
- Example:
 - MRSA in the nares
 - CRE in urine **without** signs or symptoms

Infection

- Growth of organisms in host tissue which do cause damage, may cause a disease
- Usually shows symptoms
- Eventually resolves (e.g., after treatment)
- Other terms:
 - “symptomatic infection”
- Examples
 - MRSA bloodstream infection
 - CRE in urine **with** signs or symptoms



HOW TO DETECT



CPO results can vary – get familiar with your lab!

Preliminary Report
Verified Date/Time: 7/13/2025 08:24 PDT
2+ Acinetobacter baumannii CRO (carbapenem-resistant organism) Carbapenemase producing gene(s) DETECTED NDM Carbapenemase Producing Gene Detected
Sent to LA County Lab for further testing.
Rare Normal upper respiratory flora isolated
Preliminary Report
Verified Date/Time: 7/13/2025 14:21 PDT

ORGANISM	ACINETOBACTER BAUMANNII	COMPL		06/18/25.1213.RTP.
CRE MOLECULAR	Positive	A	(NORMAL:Negative)	06/18/25.1213.RTP.
IMP	Negative		(NORMAL:Negative)	06/18/25.1213.RTP.
KPC	Negative		(NORMAL:Negative)	06/18/25.1213.RTP.
NDM	Positive	A	(NORMAL:Negative)	06/18/25.1213.RTP.
OXA-48-LIKE	Negative		(NORMAL:Negative)	06/18/25.1213.RTP.
VIM	Negative		(NORMAL:Negative)	06/18/25.1213.RTP.

		Specimen Collection Date: Aug 15, 2025@11:33		
Test name	Result	units	Ref. range	Site Code
Carba-r Resist Conf PCR	DETECTED		Ref: Not Detected	[691]
Carba-r Resist Imp Gene	Not Detected			[691]
Carba-r Resist Vim Gene	Not Detected			[691]
Carba-r Resist Ndm Gene	Not Detected			[691]
Carba-r Resist Kpc Gene	Not Detected			[691]
Carba-r Resist Oxa48 Gene	DETECTED			[691]

Reportable Tests: Blood Culture Gram Negative Pathogen Panel

See Values: **Klebsiella pneumoniae, DNA (A)**, **OXA (CRE resistance gene), DNA (A)**

Blood Culture GN Panel, PCR (Final result)

Test Analyte	Result Value
Escherichia coli, DNA	Not Detected
Pseudomonas aeruginosa, DNA	Not Detected
Klebsiella pneumoniae, DNA	Detected (A)
Klebsiella oxytoca, DNA	Not Detected
CTX-M (ESBL resistance gene), DNA	Not Detected
Enterobacter species, DNA	Not Detected
Proteus species, DNA	Not Detected
Acinetobacter species, DNA	Not Detected
Citrobacter species, DNA	Not Detected
OXA (CRE resistance gene), DNA	Detected (A)
IMP (CRE resistance gene), DNA	Not Detected
KPC (CRE resistance gene), DNA	Not Detected
VIM (CRE resistance gene), DNA	Not Detected
NDM (CRE resistance gene), DNA	Not Detected

Concerning *Candida auris*

Almost all *C. auris* in LA County is only resistant to fluconazole – but more resistant, or “concerning” strains, have been identified. This is an example of a concerning *C. auris* resistance profile →

<u>Identification</u>			Candida auris
<u>Analyte/Drug</u>	<u>Value</u>	<u>Units</u>	<u>Results/Interpretation</u>
Amphotericin B (E-Test)	0.5	µg/mL	No CLSI Interpretation
Anidulafungin	4	µg/mL	No CLSI Interpretation
Caspofungin	2	µg/mL	No CLSI Interpretation
Fluconazole	256	µg/mL	No CLSI Interpretation
Isavuconazole	0.12	µg/mL	No CLSI Interpretation
Itraconazole	0.5	µg/mL	No CLSI Interpretation
Micafungin	4	µg/mL	No CLSI Interpretation
Posaconazole	0.12	µg/mL	No CLSI Interpretation
Voriconazole	2	µg/mL	No CLSI Interpretation

Types of MDRO Surveillance Strategies

Active Surveillance

- **What:** Identify colonized individuals with risk factors and/or as part of investigation
- **How:** Screening swabs collected for surveillance testing
- Examples:
 - Screening individuals exposed to MDROs
 - Point prevalence surveys (PPS)
 - Admission screening for carbapenem-resistant Enterobacterales (CRE)

Passive Surveillance

- **What:** Identify/report individuals colonized or infected with important organisms
- **How:** Routine clinical specimens collected for diagnostic testing
- Examples:
 - *C. auris* detected from urine culture
 - CRE detected from blood culture

LACDPH *C. auris* & CPO Active Surveillance Recommendations

CPOs

- Admission screening* for patients:
 - With recent international healthcare exposure
 - Admitted from high-risk facilities¹
 - Admitted from facilities with outbreaks
- Screening epi-linked contacts of new cases²

C. auris

- Admission screening* for patients:
 - Admitted from high-risk facilities¹
 - Admitted from facilities with outbreaks
- Screening epi-linked contacts of new cases²

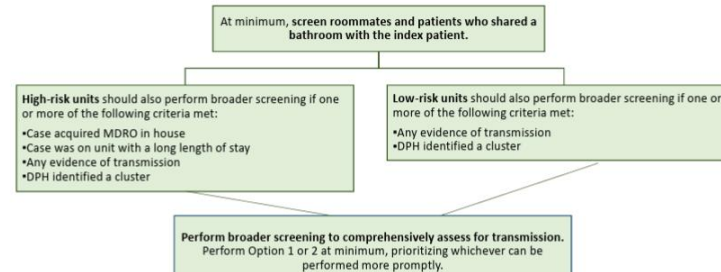
**Avoid requesting screening prior to discharge – patient may acquire before they leave!*

1. <http://publichealth.lacounty.gov/acd/LTACvSNF.htm>

2. <http://publichealth.lacounty.gov/acd/docs/NMDROTierScreeningInterpretation.pdf>

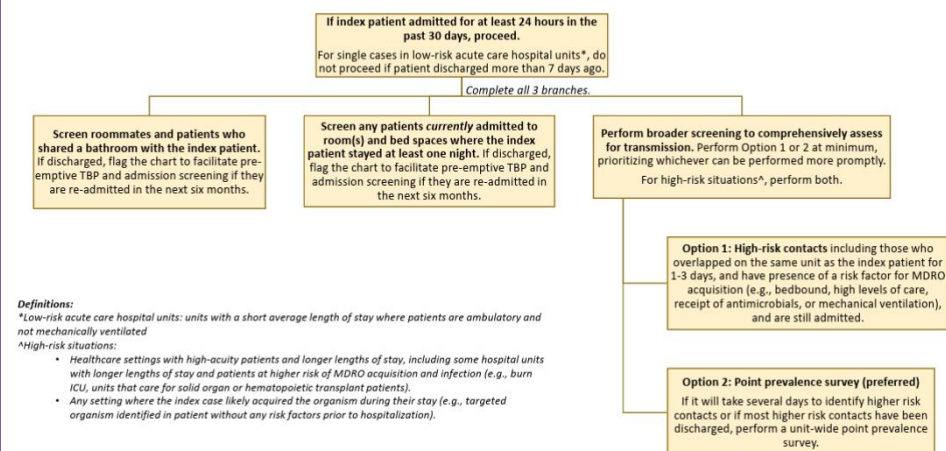
Use LACDPH MDRO Screening Algorithm to determine who to screen when new in-house cases identified

Screening Recommendations for Tier 3 MDROs



At minimum, screen roommates & those who share bathroom

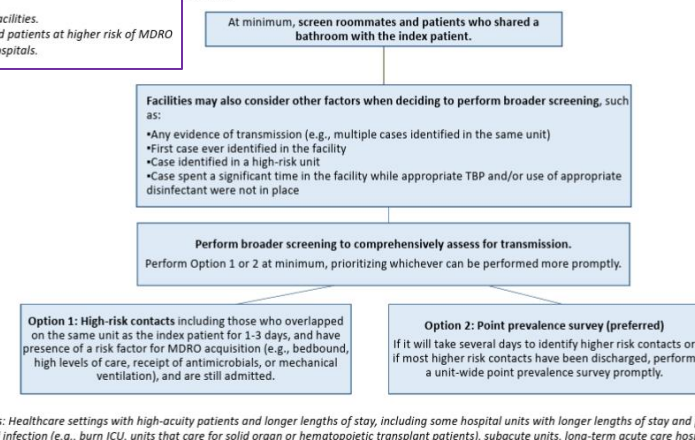
Screening Recommendations for Tier 2 MDROs



Patients are ambulatory and not mechanically ventilated or skilled nursing facilities. Includes some hospital units with longer lengths of stay and patients at higher risk of MDRO acquisition (e.g., burn ICU, units that care for solid organ or hematopoietic transplant patients), subacute units, long-term acute care hospitals.

Screening Recommendations for Tier 4 MDROs

County of Los Angeles County than other targeted MDROs, and it is expected that facilities will likely have patients that may have acquired the MDRO in the absence of genetic sequencing but identified cases among epidemiologically-linked facility.



C. auris & CPO Screening Resources

CPOs (& CROs)

- Recommended swab: rectal
- List of labs that detect CPO:
<http://publichealth.lacounty.gov/acd/docs/LaboratorieswithCPOScreening.pdf>

C. auris

- Recommended swab: axilla/groin
- List of labs:
http://publichealth.lacounty.gov/acd/docs/List_C.aurisLabs.pdf

For both:

- The goal is to identify **colonization** (not infection)
- Most major reference labs offer colonization screening services
- Ideally, perform screen upon admission (not prior to discharge)
- Turnaround time varies by method (PCR faster than culture)
 - Check with lab to confirm correct test and correct swab location

How to request a proactive PPS?

- Goal is to *prevent an outbreak*
- Complete a [PPS Request Form](#)
 - All swabs, shipping supplies, and testing are provided at no cost.
 - Results available within 1-3 weeks.
 - DPH IP support available
- Contact LACDPH HAI team hai@ph.lacounty.gov for consultation and guidance.
- This will meet criteria for the LACDPH SNF Honors Program (Category 4: Preventive Action).



2024-2025 LAC DPH SNF Honors Program

The Los Angeles County (LAC) Department of Public Health (DPH) would like to announce the opening of the 2024-2025 Skilled Nursing Facility (SNF) Honors Program.

The SNF Honors Program is designed to provide special recognition to facilities for outstanding performance in the following categories:

- Public Health Engagement
- Vaccination Coverage
- Infection Prevention Professional Development
- Preventive Action

Activities eligible for program recognition will begin in August 2024 and conclude in May 2025. More information is coming, including a description of program criteria, criteria for each category, the assessment process, and honoree awards. Awarded SNFs will receive certificates and publication on the SNF Honors Program Public Dashboard.

Visit the website: <http://publichealth.lacounty.gov/acd/SNHHonorsProgram/index.htm>

Contact Us: LACSNF@ph.lacounty.gov

Los Angeles County Department of Public Health
publichealth.lacounty.gov/acd/SNHHonorsProgram/index.htm
2024-2025 SNF Honors Program Flyer, Rev. 8-20-24



<http://publichealth.lacounty.gov/acd/SNHHonorsProgram/index.htm>

LACDPH *C. auris* & CPO Reporting Requirements

CPOs

- Laboratory reporting only

C. auris

- Provider & Laboratory reporting
 - Use MDRO Reporting Portal:
<https://dphredcap.ph.lacounty.gov/surveys/?s=CE3RHJD3DF>

For both:

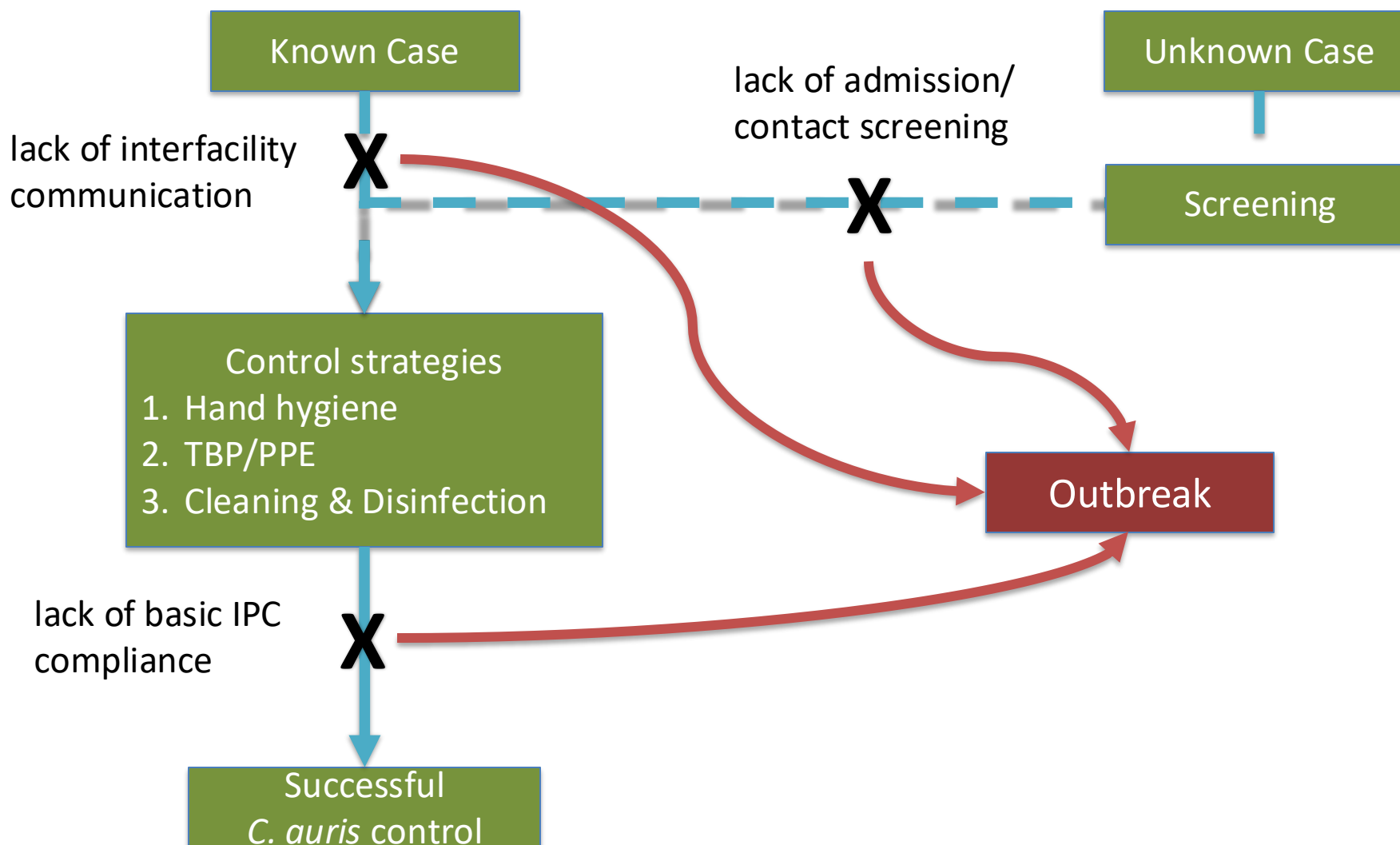
- Only report specimens collected at your facility
- IPs should report suspect clusters or outbreaks to ACDC within 1 working day



HOW TO PREVENT



Common causes of MDRO outbreaks in LA County healthcare facilities



Basics of MDRO Prevention

Hand Hygiene

- Use of alcohol-based hand rub (ABHR) preferred
- Audit/feedback
- Staff & visitors

Personal Protective Equipment

- Appropriate transmission-based precautions (TBP)
- Audit/feedback
- Staff & visitors

Environmental Cleaning & Disinfection

- Use of EPA- approved disinfectants
- Audit/feedback

Antimicrobial stewardship

- Ensuring judicious use of antimicrobials to prevent future resistance

Inter-facility Communication

- Use of transfer form
- Use of LACDPH PSIE

Surveillance

- Tracking MDRO cases to detect possible clusters
- Screening admissions and epi-linked contacts

Reducing CPO risk from water

1

- Maintain a water management program

2

- Conduct a Water Infection Control Risk Assessment ([WICRA](#))

3

- Reduce exposure from sinks and drains

4

- Select sinks that reduce risk

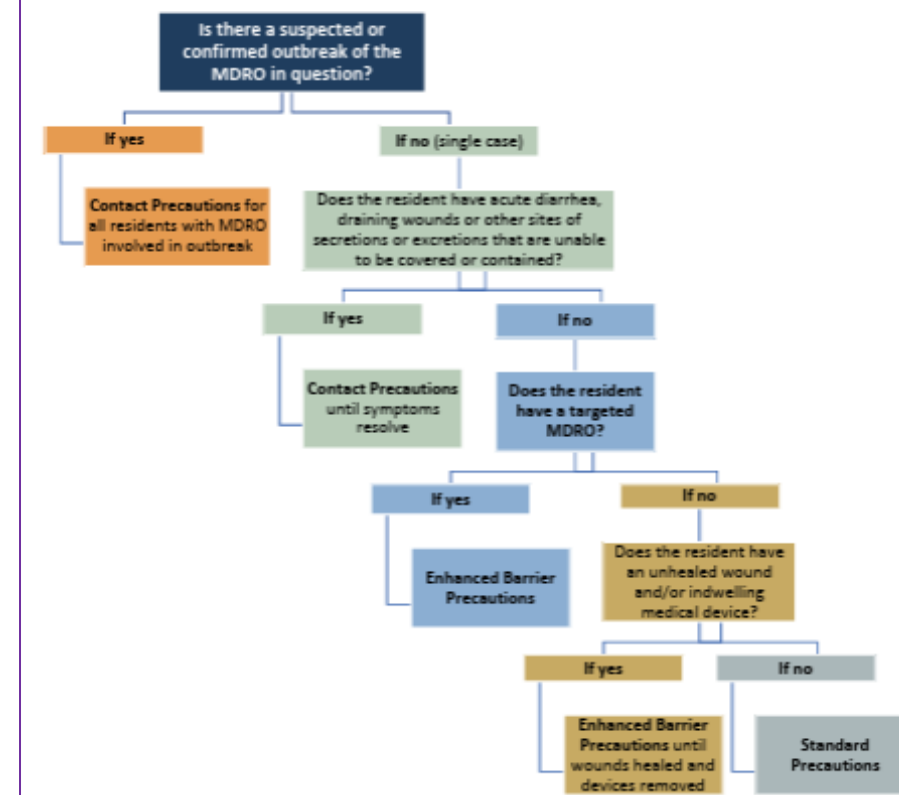


<https://www.cdc.gov/healthcare-associated-infections/php/toolkit/water-management.html>

Deciding what type of TBP to apply

- Ask yourself:
 - Is there transmission in the unit/facility?
 - What type of organism is it?
 - Does this patient have any risk factors?
- What should **not** be considered:
 - Current antibiotic use
 - Specimen source

Figure 1: MDRO Cohorting Flowchart



see pages 10-11 of SNF MDRO guidance

Contact Precautions (CP)

Criteria	Duration	PPE use	Can they leave the room?
Resident is positive for a novel MDRO (Tier 1 MDRO).	Residents may be moved to EBP if/when DPH states organism can be de-escalated.	Gloves and gown for any room entry. (Don before room entry, doff before room exit; change before caring for another resident) (Face protection may also be needed if performing activity with risk of splash or spray)	Yes, only if resident is clean, contained, and compliant. If resident has acute diarrhea, draining wounds or other sites of secretions or excretions that are unable to be covered or contained, they cannot leave the room except for medically necessary care.
Unit/facility is experiencing suspected or confirmed transmission of this organism.	Residents may be moved to EBP or SP, as appropriate, once transmission is controlled.		
Resident has acute diarrhea, draining wounds or other sites of secretions or excretions that cannot be covered or contained.	Acute diarrhea resolves; wounds no longer draining, or can be covered/contained.		
Residents with other infections requiring CP (e.g., <i>C. difficile</i> , norovirus).	No longer require spore or airborne precautions.		

Enhanced Barrier Precautions (EBP)

Criteria	Duration	PPE use	Can they leave the room?
Resident has one or more of the following high-risk characteristics AND criteria for CP do not apply: • Presence of indwelling devices (e.g., catheters or endotracheal tubes). • Wounds or unhealed pressure ulcers.	Resident may be moved to SP if they no longer have indwelling devices and/or open/unhealed wounds.	Gloves and gown prior to high-contact care activity. (Change PPE and perform HH before caring for another resident) (Face protection may also be needed if performing activity with risk of splash or spray)	Yes, only if resident is clean, contained, and compliant.
Resident is positive for a targeted MDRO (Tier 2, 3 or 4 MDRO).	Duration of admission.		

Examples of high-contact resident care activities requiring gown and glove use for EBP

- Dressing
- Bathing/showering
- Transferring
- Providing hygiene
- Changing linens
- Changing briefs or assisting with toileting
- Device care or use: central line, urinary catheter, feeding tube, tracheostomy/ventilator
- Wound care: any skin opening requiring a dressing

EBP should be followed specifically when **anticipating close physical contact** while assisting with transfers and mobility

<https://www.cdc.gov/long-term-care-facilities/hcp/prevent-mdro/PPE.html>

<https://www.cdc.gov/long-term-care-facilities/hcp/prevent-mdro/faqs.html>

https://www.cdph.ca.gov/Programs/CHCQ/HAI/CDPH%20Document%20Library/PFL_Module7BathingDressing_FAQ.pdf

Standard Precautions (SP)

Criteria	Duration	PPE Use	Can they leave the room?
Use only if resident does not meet criteria for EBP or CP, or Resides in a community care facility or other non-healthcare facility.	n/a	Depending on anticipated exposure: gloves, gown, or facemask or eye protection. (Change PPE and perform HH before caring for another resident) (Face protection may also be needed if performing activity with risk of splash or spray)	Yes

How colonization affects TBP

- **Key fact: patients who are colonized can still spread MDROs to other patients**
- Length of precautions
 - MRSA, VRE, ESBL **do** have decolonization methods¹
 - CROs, CPOs and *C. auris* **do not**
 - CDC and CDPH do not recommend re-testing for “clearance”
- Cohorting
 - You **do not** have to separate people who are “infected” versus “colonized”!

1. <https://www.naccho.org/uploads/downloadable-resources/Programs/Community-Health/NACCHO-Decolonization-Implementation-Webinar-March-2023.pdf>



Inter-facility Communication is VITAL

LOS ANGELES COUNTY
HEALTHCARE FACILITY TRANSFER FORM
Please use this form for ALL transfers to admitting facility.
This form is NOT meant to be used as criteria for admission.

Place patient label here.

Patient Name (Last, First): _____

Date of Birth: _____ MRN: _____ Transfer Date: _____

Receiving Facility Name: _____

Currently in Isolation Precautions? ☐ Yes
If Yes, check:
☐ Contact ☐ Droplet ☐ Airborne
Check all PPE (personal protective equipment) to be considered:
  
☐ ☐ ☐

☐ No isolation precautions

Does the patient have any MDROs (multi-drug resistant organisms) or other lab results for which the patient should be in isolation? Please include any infection, colonization, history, or "rule-out" communicable diseases.

Organisms

C. difficile	☐ Date: _____	☐ No known MDRO or communicable diseases
CRE (Carbapenem-resistant Enterobacteriaceae such as: <i>Klebsiella</i> , <i>Enterobacter</i> or <i>E. coli</i>)	☐ Date: _____	
MDR gram negatives (such as: <i>Acinetobacter</i> , <i>Pseudomonas</i> , etc.)	☐ Date: _____	
ESBL (extended-spectrum beta lactam resistant such as: <i>E. coli</i> , <i>Klebsiella</i>)	☐ Date: _____	
VRE (vancomycin-resistant <i>Enterococcus</i>)	☐ Date: _____	
MRSA (methicillin-resistant <i>Staphylococcus aureus</i>)	☐ Date: _____	
Other: _____ Such as: lice, scabies, disseminated shingles, norovirus, flu, TB, etc.	☐ Date: _____	

Please include lab results with antimicrobial susceptibilities, medication documentation with antibiotic therapy end dates, and any additional info.

CONTACT INFORMATION

Sending Facility Name: _____

Contact Name: _____ Contact Phone: _____

Contact Signature: _____ Date: _____

Available at <http://www.ph.lacounty.gov/ocd/HCPmaterials.htm>
Finalized and approved by the Los Angeles County Healthcare-Associated Infections and Antimicrobial Resistance Committee on 12-13-16.

<http://publichealth.lacounty.gov/acd/docs/FacilityTransferForm.pdf>

LOS ANGELES COUNTY DEPARTMENT OF PUBLIC HEALTH
Transferring Guidance for MDROs

Multi-drug resistant organisms (MDROs) can be transmitted from patient to patient in the absence of effective infection prevention practices. It is the responsibility of both the transferring facility to communicate the patient's MDRO status and the receiving facility to seek information on MDRO status – both ideally using the LA County (LAC) [inter-facility transfer form](#). Many regulatory and accrediting organizations have rules regarding discharge/transfer summaries, including the California Code of Regulations §70753 and §72519; Centers for Medicare Service rules §483.12(c)(2), §484.110, and §484.58(b); and the Joint Commission Standard IM.6.10, EP7. **All personnel involved in the patient transfer process play a vital role in ensuring MDRO status is clearly communicated.** This document provides guidance on how transferring and receiving facilities can work to achieve this goal.

There are many MDROs of public health concern, including but not limited to:

- Carbapenemase-producing organisms (CPO)
- Carbapenem-resistant *Pseudomonas aeruginosa* (CRPA)
- Carbapenem-resistant Enterobacteriaceae (CRE)
- *Candida auris*

When discharging patients:

- Clearly define all MDRO statuses (including pending or colonization).** See *Figure 1* for definitions.
- Specify what type of isolation and testing may be needed.** This is dependent on each facility's policies. Collaborate with your infection preventionist (IP). See *Figure 1* for isolation and testing guidance.
- Send an [inter-facility transfer form](#) for all patient transfers**, regardless of MDRO status. Attach all relevant lab reports, medication information, and other documentation needed to ensure quality continuum of care.
 - Communicate patient's MDRO status and required isolation to IP (or other clinical staff).
 - For NMDRO cases (positive and suspect), call the IP of the receiving facility to ensure they're aware. If the IP is unavailable, speak with nursing staff and request they convey the message.
 - Inform transportation services of patient's MDRO status and to use an effective disinfectant.

IMPORTANT NOTE: Facilities can be cited for failing to clearly communicate infectious organism status. Make sure your communication is clear and documented!

When accepting patients:

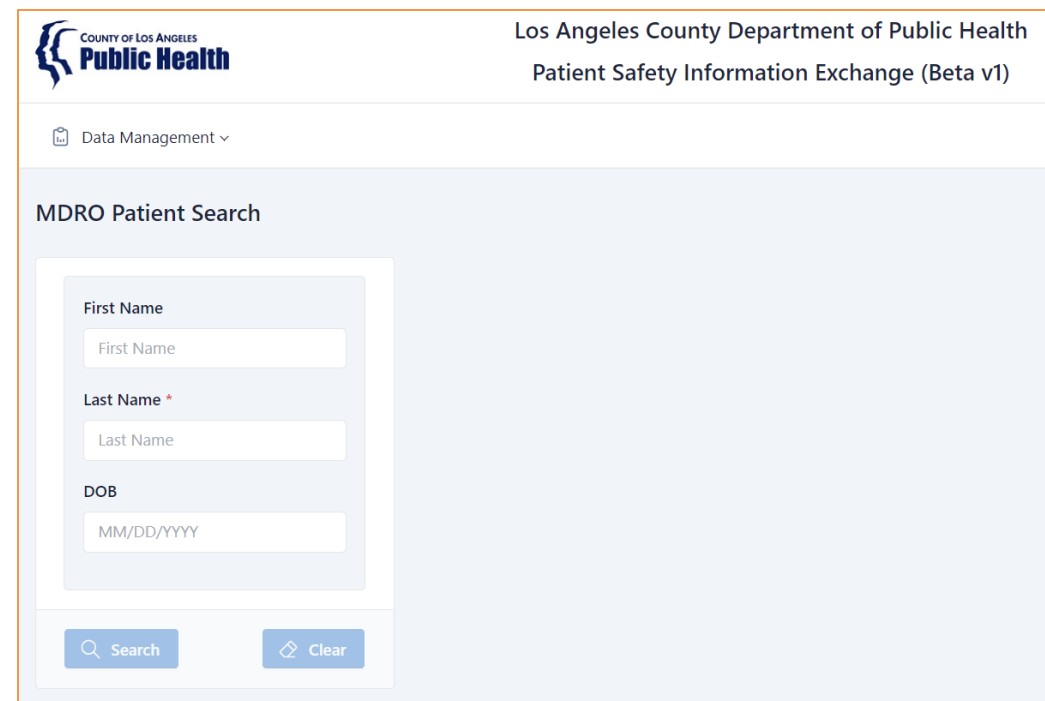
- Assess patient's current MDRO status and/or if patient is being admitted from a high-risk facility.**
 - Ask the transferring facility to provide the patient's MDRO status.
 - If positive, obtain copy of patient's MDRO lab report.
 - If the patient is not positive, determine if they're being admitted from a high-risk facility, defined as:
 - Facilities having an NMDRO outbreak: Check LACDPH's Weekly NMDRO Update for IPs, which is emailed to IPs in LAC on a weekly basis.
 - Facilities at high risk for MDRO transmission: All long-term acute care hospitals (LTACHs) or subacute unit of a skilled nursing facility (SNF). See [here](#) for a list of LAC facilities.
 - All non-positive patients from a high-risk facility are considered suspect for an N/MDRO and should be screened upon admission. Place patient on empiric [transmission-based precautions](#)* while awaiting results. Cohort appropriately!
 - Facilities having an NMDRO outbreak: Screen for specific NMDRO causing the outbreak.
 - Facilities at high risk for MDRO transmission: Screen for *C. auris* and CPOs.
- Confirm what type of isolation is needed and the duration.** Collaborate with your facility's IP to determine whether this type of isolation is possible. See *Figure 1* for isolation and testing guidance.
 - When admitted, ensure the IP and all staff caring for the patient are informed of the MDRO status.

IMPORTANT NOTE: Do not refuse a patient/resident simply because they are positive for an MDRO, like *C. auris*. Similarly, accepting facilities cannot require a negative MDRO test before transfer. Note that facilities can be cited for refusing patients/residents based on infectious organism status alone per [AFL 19-22](#).

http://publichealth.lacounty.gov/acd/docs/LACDPH_TransferringGuidanceforMDROs.pdf

Simplifying access to patient MDRO history – LAC Patient Safety Information Exchange (PSIE)

- Easy search for patient MDRO history
 - Includes all confirmed incidents reported to LA County DPH
 - *Candida auris*
 - CPOs
 - CRE
- Can access anytime, anywhere with secure web-based login
- To start registration for PSIE, email PSIE@ph.lacounty.gov for form links.



visit
[http://publichealth.lacounty.gov/acd/patientsafety
informationexchange](http://publichealth.lacounty.gov/acd/patientsafetyinformationexchange)
for more information!



HOW TO MANAGE



A new *C. auris* crisis...

- The problem: More *C. auris* cases, less available beds
- The results:
 - Patients stuck in hospitals
 - Families and patients stressed
 - Hospitals and patients overwhelmed

Example: patient hospitalized for 225 days while awaiting SNF placement (was ready at day 30).

Example: “My dad is so sad, he just wants to go back to his nursing home. We’re having to look and travel further just to find a SNF that’s willing to accept him.”

Example:
Patient care bill: \$3.9 million dollars
Amount paid by insurance: \$2.49 million
**Cost incurred by healthcare institution:
\$1.41 million**

Live survey

- Use a few words to describe your top concerns with C. auris in your facilities

Busting common *C. auris* myths

What we will do:

- Provide guidance, resources, sample policies & templates for facilities to incorporate into their own in-house policy
- Be available to answer any questions or concerns
- Investigate clusters of MDROs and reports of novel/targeted MDROs

What we will NOT do:

- Close facilities to admissions
- Conduct point prevalence surveys solely for the reason that you have *C. auris* patients admitted
- Open outbreaks without full investigation to know whether a cluster is above a facility's baseline level

CMS and CDPH Guidance

Center for Clinical Standards and Quality/Quality, Safety & Oversight Group

Ref: QSO-24-08-NH

DATE: March 20, 2024
TO: State Survey Agency Directors
FROM: Director, Quality, Safety & Oversight Group (QSOG)
SUBJECT: Enhanced Barrier Precautions in Nursing Homes

Memorandum Summary

- CMS is issuing new guidance for State Survey Agencies and long term care (LTC) facilities on the use of enhanced barrier precautions (EBP) to align with nationally accepted standards.
- EBP recommendations now include use of EBP for residents with chronic wounds or indwelling medical devices during high-contact resident care activities regardless of their multidrug-resistant organism status.
- The new guidance related to EBP is being incorporated into F880 Infection Prevention and Control.

June 13, 2024

AFL 24-15

TO: Skilled Nursing Facilities (SNF)
General Acute Care Hospitals (GACH) with a SNF Distinct Part (D/P)

SUBJECT: Enhanced Barrier Precautions (EBP)
(This AFL Supersedes AFL 22-21)

AUTHORITY: [Title 22 California Code of Regulations \(CCR\) sections 72523, 72321, and 72515](#)
[Title 42 Code of Federal Regulations \(CFR\) section 483.80](#)

All Facilities Letter (AFL) Summary

- This AFL announces that the California Department of Public Health (CDPH) is retiring its Enhanced Standard Precautions (ESP) guidance document and adopting the Centers for Disease Control and Prevention (CDC's) EBP guidance and terminology.
- CDPH has developed [Enhanced Barrier Precautions: Additional Considerations for California SNFs](#) (PDF) for additional guidance on EBP.

“All SNFs in compliance with the CMS's EBP requirement are able to admit and provide care for residents with MDROs.

Thus, there is no basis for a SNF to refuse admission of a resident based on their need for EBP or MDRO status.

Residents on EBP do not require placement in a single-person room, even when known to be infected or colonized with an MDRO.”

New SNF MDRO Cohorting Guidance



Skilled Nursing Facility (SNF) MDRO Guidance

Los Angeles County Department of Public Health (LAC DPH) Healthcare Outreach Unit



Figure 1: MDRO Cohorting Flowchart

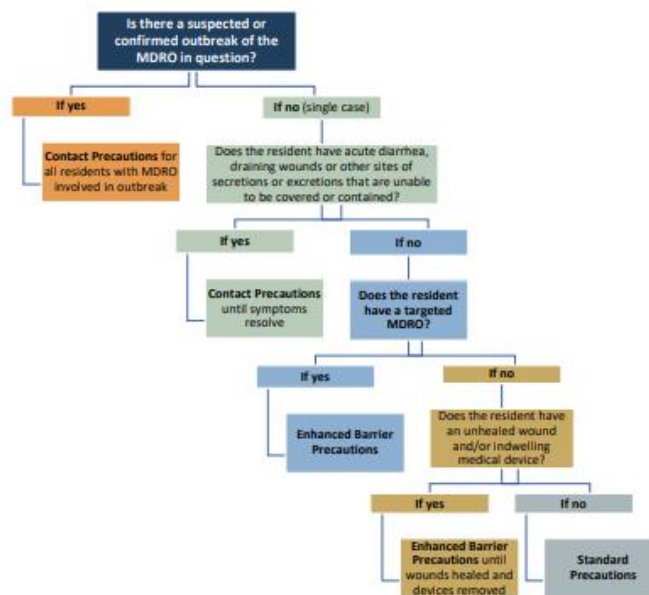


Table 4: TBP and Cohorting Recommendations by MDRO Type

Organism	TBP Type	How to cohort*
MRSA, VRE, ESBL	SP	Cohort with anyone [no need to cohort with another resident with the same organism], unless the facility is experiencing an outbreak for which cohorting needs to be prioritized. See LACDPH Rethinking Contact Precautions for MRSA and VRE for more guidance: http://publichealth.lacounty.gov/acd/RethinkingContactPrecautions/index.htm
CPOs	EBP	Cohort only with other residents with the same carbapenemase gene [KPC, IMP, NDM, OXA, VIM], unless there is an outbreak with a targeted MDRO for which cohorting needs to be prioritized. If a SNF is unable to admit or cohort a new MDRO-positive resident due to a lack of a compatible roommate*, the new resident can be placed in a room with a non-positive resident with the fewest risk factors for MDRO acquisition.*
CROs	EBP	Cohort only with other residents with the same organism, unless there is an outbreak with a targeted MDRO for which cohorting needs to be prioritized. If a SNF is unable to admit or cohort a new MDRO-positive resident due to a lack of a compatible roommate*, the new resident can be placed in a room with a non-positive resident with the fewest risk factors for MDRO acquisition.*
C. auris	EBP	Cohort only with other residents with the same organism unless there is an outbreak with a targeted MDRO for which cohorting needs to be prioritized. If a SNF is unable to admit or cohort a new MDRO-positive resident due to a lack of a compatible roommate*, the new resident can be placed in a room with a non-positive resident with the fewest risk factors for MDRO acquisition.*
VRSA	CP	Cohort only with other residents with the same organism.
Novel MDRO	CP	Cohort only with other residents with the same organism.

What to do with multiple organisms or outbreaks?

- For residents with more than one infection, or when a facility is experiencing multiple outbreaks, use the Prioritization Pyramid to the right to create cohorts. Consider other disease status such as COVID-19 and C. difficile when cohorting MDRO residents.

- Factors used to rank these organisms include endemicity in LAC, transmissibility, environmental hardiness, difficulty to treat, and restrictive guidance.

- See [LACDPH MDRO Containment Tiers](#) to get updated details.



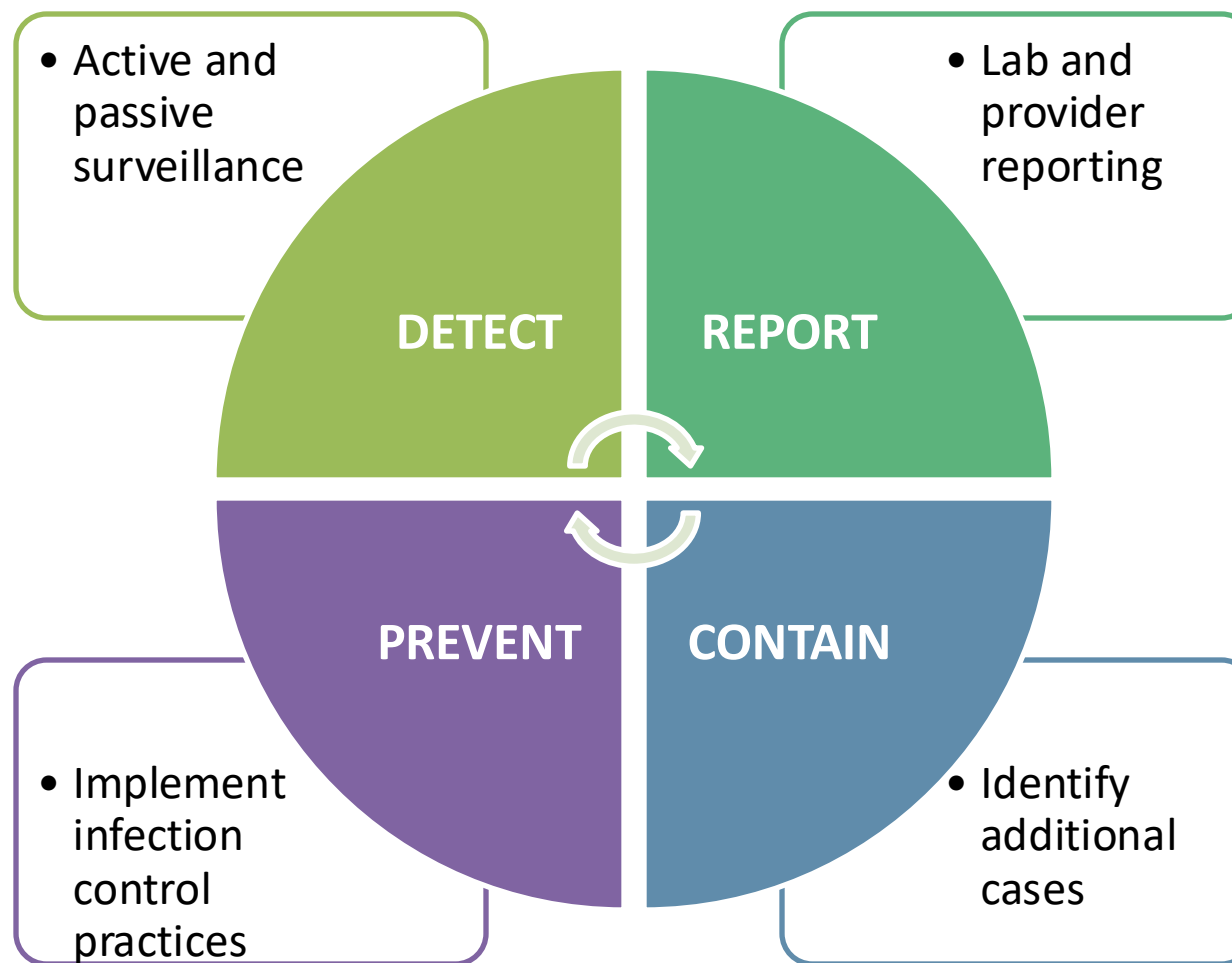
Cohorting

- **Ideally cohort “like with like”**
 - Consider other MDROs, COVID-19
 - Prioritize carbapenemase gene
 - *E.g., KPC-E. coli with KPC-E. coli or KPC-K. pneumoniae*
- If capacity doesn’t allow, find next best fit
 - **Ok to cohort in a room with a non-positive**
 - As long as steps to minimize transmission are taken
- **Treat each bed as a separate room**
 - Beds at least 3-6 feet apart
 - Staff change PPE and perform HH between residents
- **Avoid multiple room changes as much as possible**
 - Simplify cohorting policies



see page 12 of SNF MDRO guidance

MDRO CONTAINMENT AND PREVENTION





TABLETOP EXERCISE



Instructions

- Create 2-3 groups per table. Get to know each other.
- You will be provided a scenario (1 mins) and then an opportunity to discuss as a group (5 mins).
- Be ready to share your responses with everyone.
- This is an open, no-fault, low-stress learning exercise – use the provided information and your existing knowledge/capabilities to answer questions.
- This exercise scenario is generalized to conduct the activity. Some artificialities/assumptions are necessary to complete the exercise.

STEP 1: RECEIVING AN MDRO+ PATIENT REQUEST

- A hospital reaches out to request a patient transfer:
 - Mr. Homer Simpson
 - 72 years old
 - Hx of diabetes, hypertension
 - Has urinary catheter and wound
 - Positive for NDM-CRAB in urine



QUESTIONS

1. Is this a concerning MDRO? How do you know?

- Refer to LACDPH MDRO guidance
- NDM-CRAB is a targeted MDRO

2. What kind of information do you need from the hospital?

- Lab report
- If on any antibiotics that need to be continued

3. What resources are available to help you get the information you need, including MDRO history?

- Inter-facility transfer form
- PSIE
- IP, case manager, or Admission coordinator

Microbiology			
Procedure:	Respiratory Culture with Gram Stain	Accession:	25-190-4998
Source:	Sputum	Collected Date/Time:	7/10/2025 12:28 PDT
Body Site:		Received Date/Time:	7/10/2025 12:38 PDT
Free Text Source:		Start Date/Time:	7/10/2025 12:38 PDT
Preliminary Report Verified Date/Time: 7/13/2025 08:24 PDT 2+ Acinetobacter baumannii CRO (carbapenem-resistant organism) Carbapenemase producing gene(s) DETECTED NDM Carbapenemase Producing Gene Detected Sent to LA County Lab for further testing. Rare Normal upper respiratory flora isolated			
Preliminary Report Verified Date/Time: 7/12/2025 14:31 PDT 2+ Acinetobacter baumannii CRO (carbapenem-resistant organism) Carbapenemase producing gene(s) DETECTED NDM Carbapenemase Producing Gene Detected Rare Normal upper respiratory flora isolated			

see page 5 of SNF MDRO guidance

STEP 2: TRANSFERRING THE RESIDENT

- You are ready to transfer Mr. Simpson.
- There are no single beds available.



QUESTIONS

3. What kind of TBP would you implement?

Answer:

- Enhanced Barrier Precautions.
- Do not have to follow what hospital did.
- Doesn't matter if patient is on antibiotics.

4. How do you cohort them?

Answer:

- Ideally, cohort with another NDM-CRAB-patient.
- If single bed or compatible roommate not available, cohort with resident who has fewest risk factors for transmission **and** in a room that has enough space between beds.

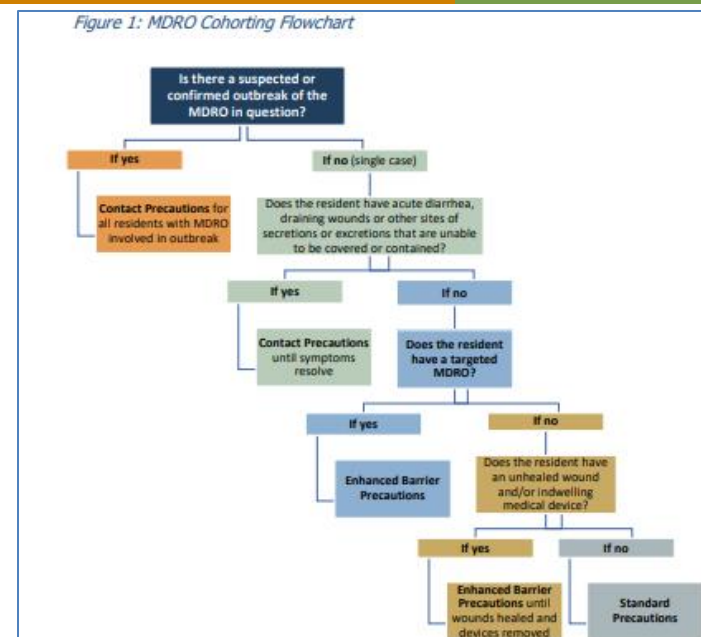


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STEP 3: PREVENTING TRANSMISSION

- You placed the resident in a room with another male, who is not positive for NDM-CRAB.
- The patient has been in your facility for 1 month now.



QUESTIONS

5. What actions can you take to assess and improve current IPC practices?

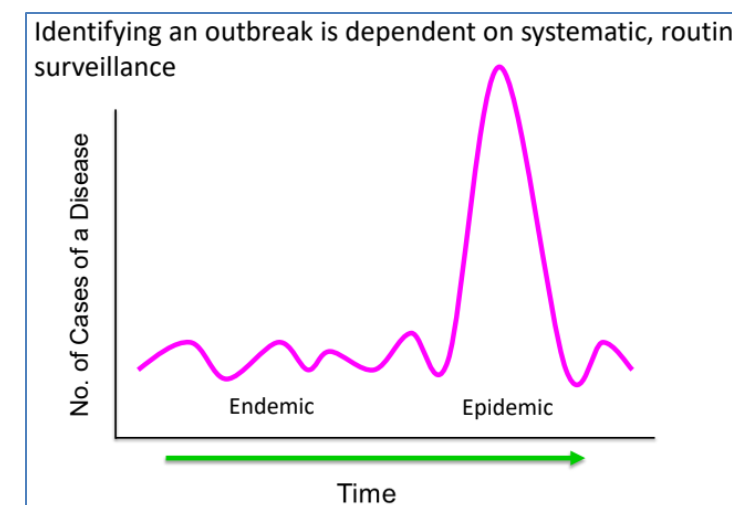
- Answer:
 - Ensure staff treat each bed as a separate space.
 - Increase audits, focusing on key practices like HH, cleaning & disinfection and PPE.

Healthcare-Associated Infections Program Adherence Monitoring Hand Hygiene		Assessment completed by: Date: Unit:	
Regular monitoring with feedback of results to staff can improve hand hygiene adherence. Use this tool to identify gaps and opportunities for improvement. Monitoring may be performed in any type of patient care location.			
Instructions: Observe at least 10 hand hygiene (HH) opportunities per unit. Observe a staff member and record his/her discipline. Check the type of hand hygiene opportunity you are observing. Indicate if HH was performed. Record the total number of successful HH opportunities and calculate adherence.			
HH Opportunity	Discipline	What type of HH opportunity was observed? (select/ ☒ 1 per line)	Was HH performed for opportunity observed? ☒ or ☐
Example	N	☐ before care/entering room* ☐ before task ☐ after body fluids ☐ after care* ☒ upon leaving room *Remember: Hand hygiene should be performed before <u>and</u> after glove use	☒
HH1.		☐ before care/entering room ☐ before task ☐ after body fluids ☐ after care ☐ upon leaving room	
HH2.		☐ before care/entering room ☐ before task ☐ after body fluids ☐ after care ☐ upon leaving room	
HH3.		☐ before care/entering room ☐ before task ☐ after body fluids ☐ after care ☐ upon leaving room	
HH4.		☐ before care/entering room ☐ before task ☐ after body fluids ☐ after care ☐ upon leaving room	
HH5.		☐ before care/entering room ☐ before task ☐ after body fluids ☐ after care ☐ upon leaving room	
HH6.		☐ before care/entering room ☐ before task ☐ after body fluids ☐ after care ☐ upon leaving room	
HH7.		☐ before care/entering room ☐ before task ☐ after body fluids ☐ after care ☐ upon leaving room	
HH8.		☐ before care/entering room ☐ before task ☐ after body fluids ☐ after care ☐ upon leaving room	
HH9.		☐ before care/entering room ☐ before task ☐ after body fluids ☐ after care ☐ upon leaving room	
HH10.		☐ before care/entering room ☐ before task ☐ after body fluids ☐ after care ☐ upon leaving room	
Disciplines:		P = Physician RT = Respiratory Therapist S = Student VIS = Visitor	VOL = Volunteer W = Social Worker OTH = Other, Specify U = Unknown
Opportunities:		☒ = Opportunity Successful ☐ = Opportunity Missed	
For HH1-HH10:		Adherence: _____ % (Total # HH Successful ÷ Total HH Opportunities Observed x 100)	
Total # HH Successful ("✓"): _____		Total # HH Opportunities Observed: _____	

see page 12 of SNF MDRO guidance

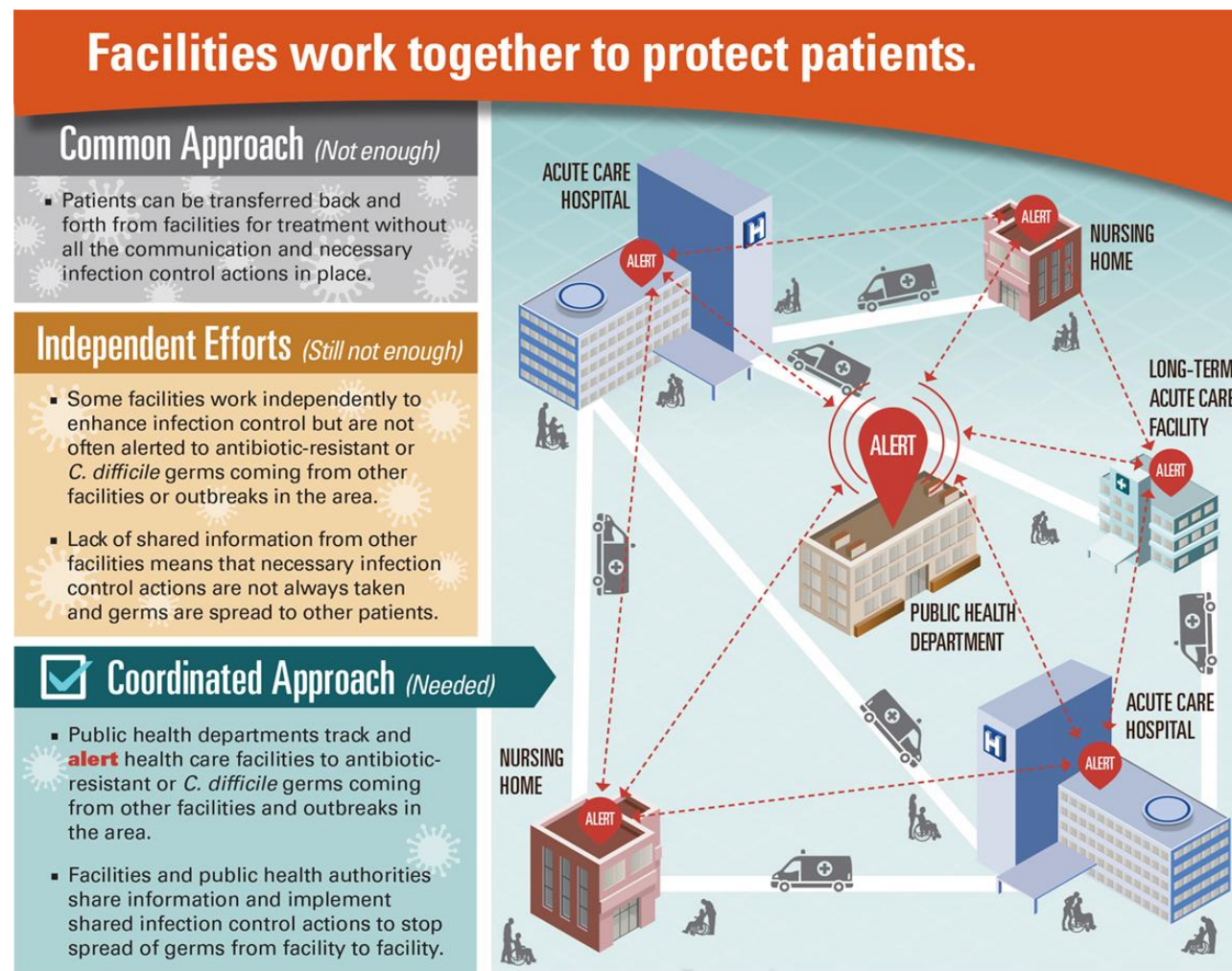
6. How can you determine if there's additional cases? What happens if additional cases found?

- Answer:
 - Test roommates when new cases identified (at min.)
 - Perform in-house surveillance.
 - Report clusters to DPH for further investigation.



	<i>C. difficile</i>	<i>C. auris</i>	CROs/CPOs	COVID-19
Good HH (ABHR preferred)	X (soap & water preferred, esp. during outbreaks)	X	X	X
Appropriate TBP	Contact Precautions	Enhanced Barrier Precautions	Enhanced Barrier Precautions	Contact Precautions + respirator + eye protection
Cohort appropriately	Single room, if possible	X	X	X
Environmental cleaning & disinfection	X (use List K agent)	X (use List P agent)	X	X (use List N agent)
Lab surveillance	X	X	X	X
Screen high-risk contacts	-	X	X	X
Antimicrobial stewardship	X	X	X	-
Interfacility communication	X	X	X	X

Need for a Coordinated Approach to Slow Spread



Remember...

- **When in doubt, always contact us!**
 - HOU Email: hai@ph.lacounty.gov
 - HOU website: publichealth.lacounty.gov/acd/HOU/index.htm
- **Additional Resources:**
 - LACDPH MDRO Website: <http://publichealth.lacounty.gov/acd/Diseases/MDRO.htm>
 - CDPH Antimicrobial Resistance Website:
<https://www.cdph.ca.gov/Programs/CHCQ/HAI/Pages/AntimicrobialResistanceLandingPage.aspx>
 - CDC *C. auris* Infection Control Website: <https://www.cdc.gov/fungal/candida-auris/c-auris-infection-control.html>
 - CDC CRE website: <https://www.cdc.gov/hai/organisms/cre/index.html>
 - CDC HAIs: Consideration for Reducing Risk: Water in Healthcare Facilities
<https://www.cdc.gov/healthcare-associated-infections/php/toolkit/water-management.html>



Questions?

