



Indiana
Department
of
Health

MDROS CONTAINMENT AND RESPONSE

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OUR MISSION:

To promote, protect, and improve the health and safety of all Hoosiers.

OUR VISION:

Every Hoosier reaches optimal health regardless of where they live, learn, work, or play.



Overview

Reportable Multi-Drug Resistant Organisms (MDROs)

Reporting to IDOH

Organism Response Tiers

- Tier 1 Response
- Tier 2 Response
- Tier 3 Response

Outbreak Definition



Reporting



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Reportable MDROs

Candida auris: Detection of *C. auris* using either culture or validated culture-independent test

- **Screening**: A swab collected for the purpose of colonization screening regardless of site swabbed
- **Clinical**: A clinical specimen collected for the purpose of diagnosing or treating disease in the normal course of care

Carbapenemase Producing Organisms: Any organism with a positive phenotypic or genotypic test for carbapenemase production

- **Screening**: Organisms cultured specifically for screening from any body site
- **Clinical**: Organisms cultured during routine care from any body site

Vancomycin Resistant and Vancomycin Intermediate *Staphylococcus aureus*: Isolation of *S. aureus* from any body site with intermediate (MIC=4-8 µg/ml) or resistance (MIC≥16 µg/ml) to vancomycin

Pandrug Resistant Organisms: Any organism that shows intermediate or resistant to all antimicrobials tested

Reporting to IDOH – Within One Working Day

How to report:

- Option 1: Create morbidity report in NBS
 - Attach all document to morbidity report
- Option 2: Fax all documents to IDOH
 - Secure fax number: 317-234-2812

Documents to include when reporting:

- History and physical
- All relevant lab reports
- Antimicrobial susceptibility testing (AST) report
- Confidential report of communicable diseases (if faxing)
- Disease specific reporting form (Optional)



Response



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Timeline of Response



Tiered Organisms

Tier 1: Organisms or resistance mechanisms that have never or very rarely been identified in the United States

Tier 2: MDROs that are primarily associated with healthcare settings and are not commonly identified in the region or organisms for which no current treatment options exist and have the potential to spread more widely in a region

Tier 3: MDROs targeted by the facility or region for clinical significance and potential to spread rapidly. Identified more frequently than Tier 2 organisms but are not considered endemic

Tier 4: Considered endemic in the region

Organism by Tier

Organism	Tier 1	Tier 2	Tier 3	Tier 4
KPC Producing CP-CRE			X	
Non-KPC Producing CP-CRE		X		
CP-CRAB		X		
CP-CRPA		X		
<i>Candida auris</i>		X		
Pan-drug Resistant Organism		X		
Vancomycin Intermediate <i>S. aureus</i>		X		
Vancomycin Resistant <i>S. aureus</i>	X			

Tier 1 Response

IDOH Response

- Call reporting facility to gather additional patient information
- Review patient's healthcare exposures 30 days prior to culture collection
- Conduct screening of healthcare contacts and perform recurring response driven point prevalence surveys
- Review infection control and prevention practices at the facility

Facility Response

- Place patient in contact precautions and notify healthcare providers
- Conduct a retrospective lab surveillance of at least 6 months. Continue prospective lab surveillance for 3 months after last identified case
- Flag the patient's chart for future admissions and clearly communicate patient status with transferring facilities

Tier 2 Response

IDOH Response

- Call reporting facility to gather additional patient information
- Review patient's healthcare exposures 30 days prior to culture collection
- Conduct screening of healthcare contacts and perform recurring response driven point prevalence surveys
- Review infection control and prevention practices at the facility

Facility Response

- Place patient in contact precautions and notify healthcare providers
- Conduct a retrospective lab surveillance of at least 3 months. Continue prospective lab surveillance for 3 months after last identified case
- Flag the patient's chart for future admissions and clearly communicate patient status with transferring facilities

Organism Specifics

Candida auris

- List P Cleaner
- No official screening recommendations from IDOH

Pan-drug Resistant

- Screening limited

VISA

- Screening not recommended unless transmission is suspected or confirmed

Tier 3 Response

IDOH Response

- Assign case to local health department
- Review patient's healthcare exposures 30 days prior to culture collection

Facility Response

- Place patient in contact precautions and notify healthcare providers
- Continue prospective lab surveillance for 3 months after last identified case
- Flag the patient's chart for future admissions and clearly communicate patient status with transferring facilities

Elements	Tier 1	Tier 2	Tier 3	Tier 4
Review patient's healthcare exposure prior to and after the positive culture	ALWAYS	ALWAYS	ALWAYS	Prioritize prevention
Screening of healthcare contacts (patients and residents)	ALWAYS	ALWAYS	USUALLY	Prioritize prevention
Recurring response driven point prevalence surveys	ALWAYS	ALWAYS	RARELY	Prioritize prevention
Evaluate potential spread to healthcare facilities that share patients with the index facility	USUALLY	USUALLY	RARELY	Prioritize prevention
Retrospective lab surveillance	ALWAYS	ALWAYS	RARELY	Prioritize prevention
Prospective lab surveillance	ALWAYS	ALWAYS	ALWAYS	Prioritize prevention
Notify healthcare providers and place in appropriate transmission-based precautions	ALWAYS	ALWAYS	ALWAYS	Prioritize prevention
Infection control assessment and observation of practice	ALWAYS	ALWAYS	SOMETIMES	Prioritize prevention
Clear communication of patient status when transferring facilities	ALWAYS	ALWAYS	ALWAYS	Prioritize prevention

Screening

CPO

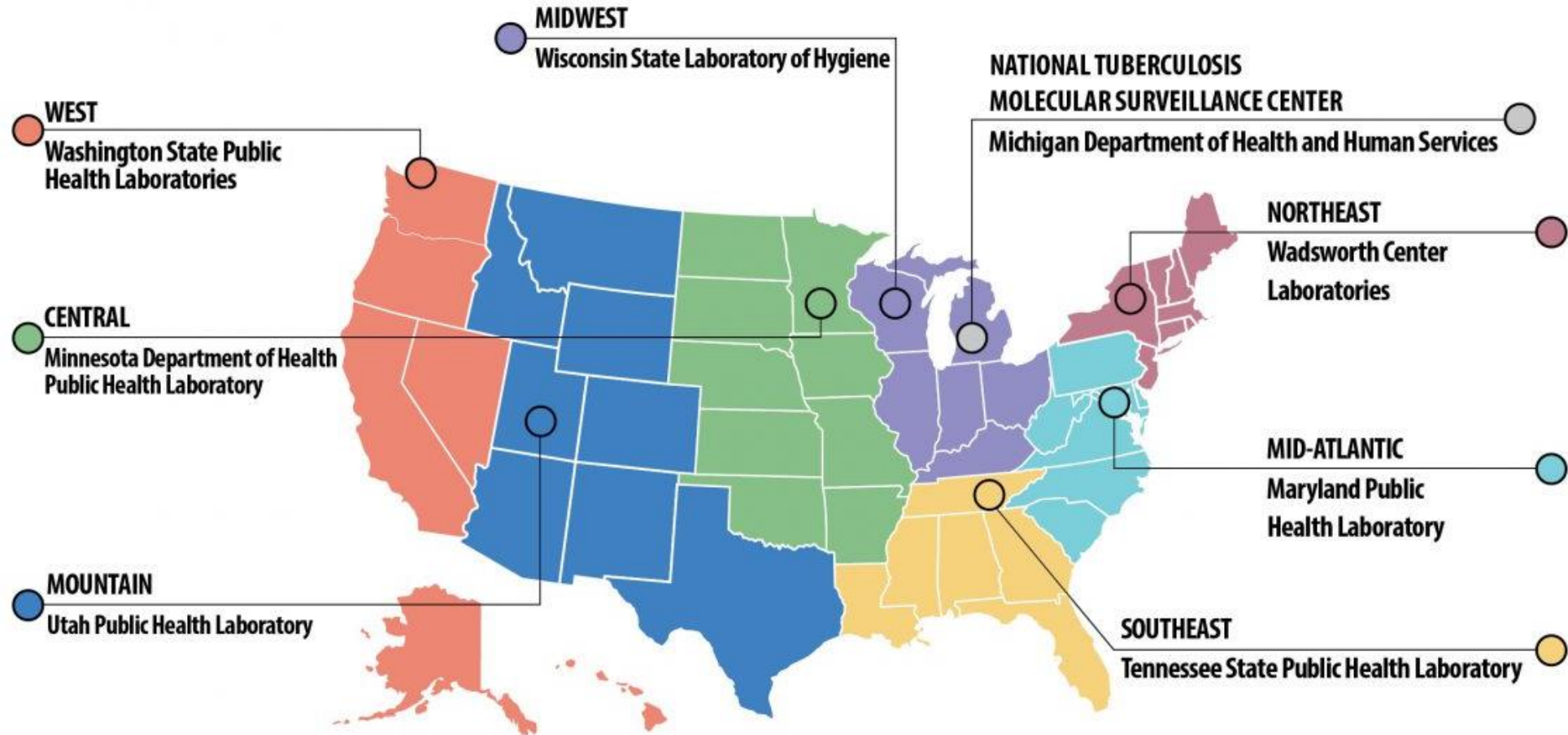
- Rectal swab
 - Axilla and groin for CRAB only
- PCR for carbapenemase gene detection
- Culture for organism identification

*Candida auris**

- Axilla and groin swab
- PCR detection of *C. auris* DNA

*IDOH does not have an official recommendation for *C. auris* colonization.

Antimicrobial Resistance Lab Network



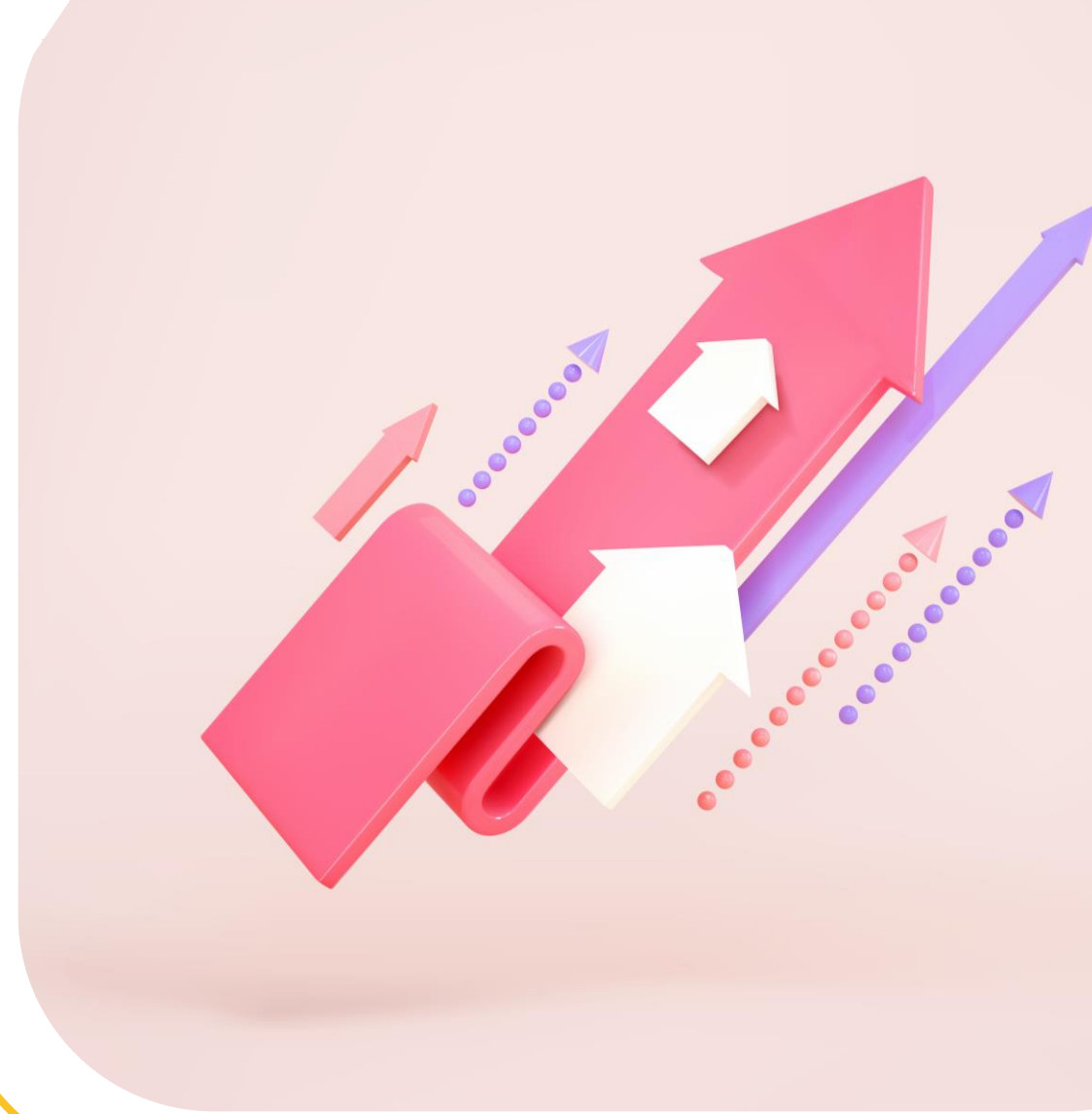


Outbreaks



Outbreak Detection

- Cluster detection through reporting and case investigations
- Cluster detection through whole genome sequencing
- Reported by facility



Outbreak Definitions



Outbreak: an increase of disease among a specific population in a geographic area during a specific period of time



Candida auris*: 2 or more cases of *Candida auris* including an epidemiologic link

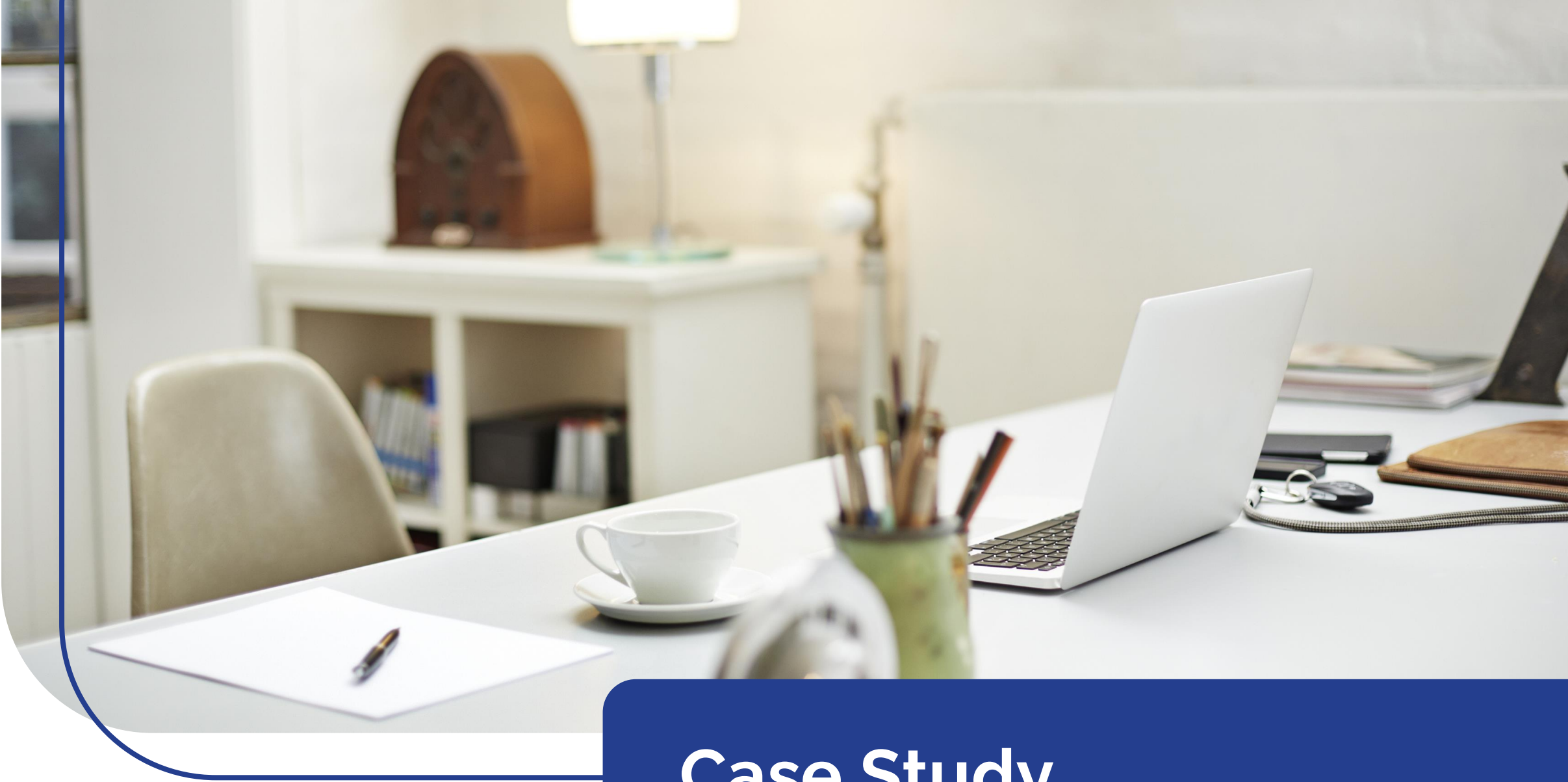


CPO*: 2 or more cases of the same organism and mechanism in a 4-week period who are epidemiologically linked or determined to be genetically related by laboratory testing

***Definition for the Council for Outbreak Response: Healthcare-Associated Infections and Antimicrobial-Resistant Pathogens (CORHA)**

Outbreak Response

- Screening
 - Roommates, close contacts, units
 - Monthly
- Infection Control Assessment and Response (ICAR) visit
 - On-site visit
 - Recommendations provided
- Prospective lab surveillance



Case Study

CPO Outbreak

Case 1

- ACH 1: 9/20-9/29/23
- Admitted to ACH 2 on 10/5/23
 - Blood culture collected 10/5/23
 - Positive for NDM CPO
- Invasive devices: Urinary catheter
- Comorbidities: HTN

Case 2

- Admitted to ACH 1 on 9/18/23
 - Blood culture collected 9/29/23
 - Positive for NDM CPO
- Invasive devices: PICC line
- Comorbidities: CKD, cancer, CVA

CPO Outbreak

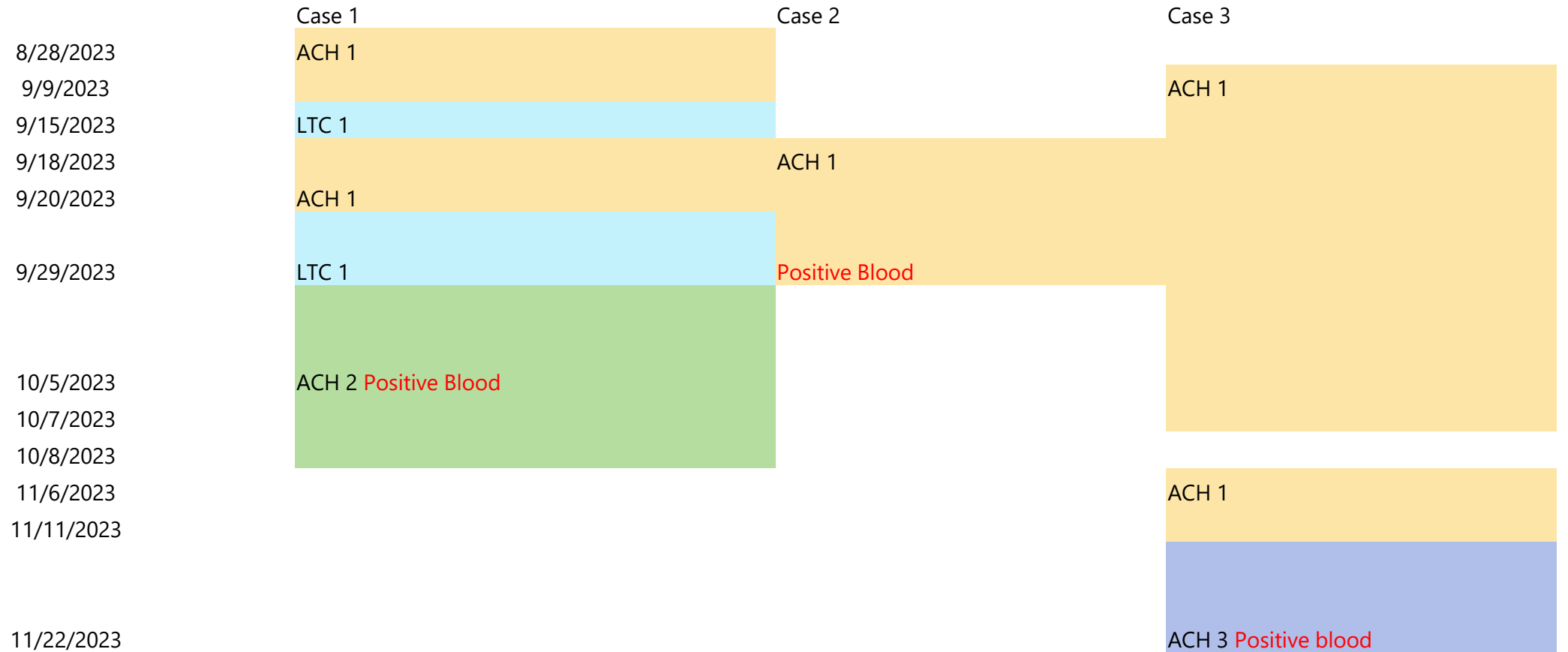
Case 3

- ACH 1: 9/9-10/7/23 and 11/6-11/11/23
- Admitted to ACH 3 on 11/22/23
 - Blood culture collected 11/22/23
 - Positive for NDM CPO
- Invasive devices: N/A
- Comorbidities: Cancer

Response:

- IDOH Epi Team reached out to all three ACH after confirmation of CPO
- After Case 1 was identified as also being at ACH 1, IDOH reached out to ACH 1 about locations during the September visits
- After Case 3 was identified as also being at ACH 1, IDOH reached out to ACH 1 again
- Screening performed at ACH 1 for all individuals in index patients' rooms
- Continued prospective surveillance for 90 days

CPO Outbreak



Questions?

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