

Candida auris - Calm not Chaos

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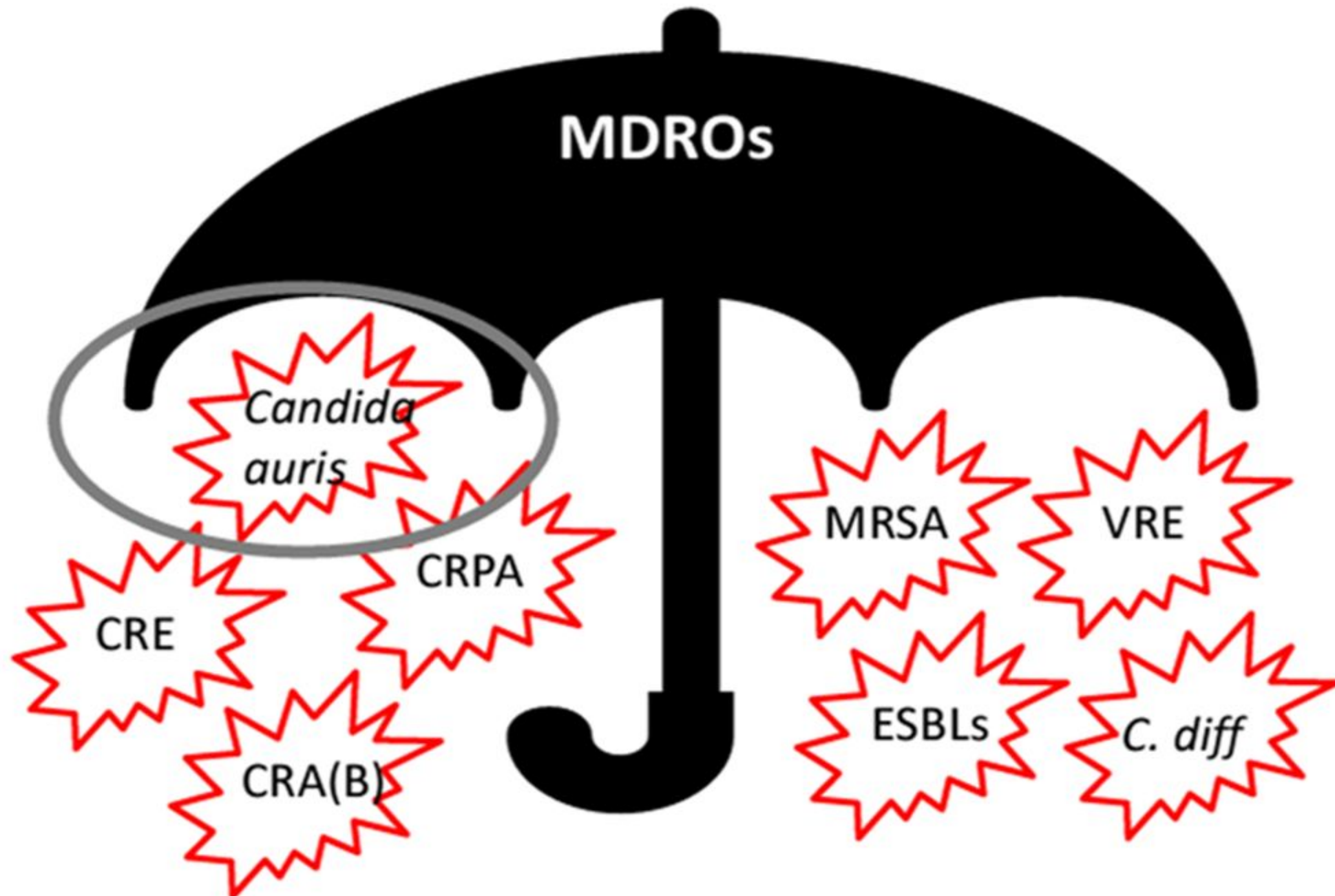
April 2024
Webinar



Objectives

- Review *Candida auris* (*C. auris*) definition and background.
- Review infection prevention and control guidance.
- Describe the screening process.
- Review containment roles and responsibilities following identification of a positive laboratory report as described in the *C. auris* protocol.
- Describe documentation needed in the West Virginia Electronic Disease Surveillance System (WVEDSS).
- Discuss frequently asked questions.
- Practice new knowledge through case studies.

Cloudy With a Chance of Multidrug-Resistance Organisms (MDROs)



C. auris Background

- *C. auris* is an emerging multi-drug resistant yeast (fungus) that can colonize the skin and cause invasive infections. It can spread readily between patients in healthcare facilities, causing numerous outbreaks that are difficult, if not impossible to control.
- Containment of *C. auris* spread largely depends on timely detection and implementation of appropriate infection prevention and control measures.



C. auris Background (cont'd)

Why is *C. auris* a problem?

- It causes serious infections.
 - *C. auris* can cause bloodstream and other types of invasive infections, particularly in patients in hospitals and nursing homes who have many medical problems.
- More than one in three patients die within a month of being diagnosed with an invasive *C. auris* infection.
- It is often multidrug-resistant.
 - Antifungal medications commonly used to treat other *Candida* infections often don't work for *C. auris*.
 - Some *C. auris* isolates are resistant to all three major classes of antifungal medications including: fluconazole (Diflucan), amphotericin B, and micafungin (Mycamine).
- It is becoming more common.
 - Although *C. auris* was just discovered in 2009, the number of cases has grown quickly.

C. auris Background (cont'd)

- *C. auris* is difficult to identify.
- It can be misidentified as other types of fungus unless specialized laboratory methods are used.
- It can spread and cause outbreaks in healthcare facilities. *C. auris* can colonize patients for many months, persist in the environment, and withstand some commonly used healthcare facility disinfectants.
- The Centers for Disease Control and Prevention (CDC) added *C. auris* to the 2019 “Urgent Threats” list.
 - 318% increase in reported cases during 2018.



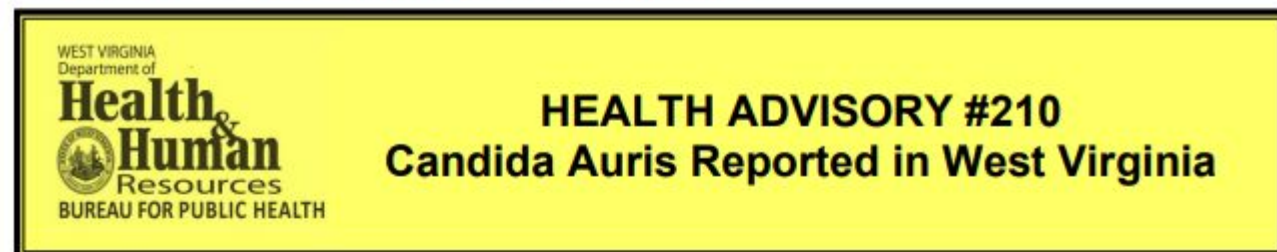
C. auris West Virginia Cases

- The first *C. auris* case was identified February 23, 2023 in the northeastern surveillance region. No colonized patients were identified during screening.
- Two additional clinical cases were identified March 23rd (in the western region) and December 6 (in the northeastern region) later in the year.
- Three colonized patients were discovered in January and February 2024 related to the December case.
- The longest running investigation to date began January 8, 2024 involving long-term acute care patients from the southern, western, and central surveillance regions.
- Six colonized patients were identified related to that index patient, one of which converted to active infection.
- The sixth index patient was identified February 23, 2024, followed by the seventh (formerly screened as colonized) March 3, 2024.

C. auris West Virginia Cases (cont'd)



THIS IS AN OFFICIAL WEST VIRGINIA HEALTH ADVISORY NUMBER 210-03-16-2023.
Distributed via the WV Health Alert Network – **March 16, 2023**



TO: West Virginia Healthcare Providers, Hospitals and Other Healthcare Facilities
FROM: Matthew Christiansen, MD, MPH, Commissioner and State Health Officer
West Virginia Department of Health and Human Resources, Bureau for Public Health
DATE: March 16, 2023

LOCAL HEALTH DEPARTMENTS: Please distribute to community health providers, hospital-based physicians, infection control preventionists, laboratory directors, and other applicable partners.

OTHER RECIPIENTS: Please distribute to association members, staff, etc.

In 2018, *Candida auris* (*C. auris*) was made a nationally notifiable condition. In West Virginia, *C. auris* is a Category II emerging infectious disease and is reportable to the local health department within 24 hours.

The West Virginia Department of Health and Human Resources (DHHR), Bureau for Public Health (BPH) is investigating the first confirmed case of *C. auris* emerging from West Virginia. Controlling the spread of multi-drug resistant organisms is a public health priority. This Health Advisory is intended to provide recommendations regarding laboratory identification, treatment options, and infection control to mitigate *C. auris* transmission. Healthcare providers should maintain vigilance for clinical illness that could be consistent with *C. auris* and maintain awareness to contain the spread.

Background

C. auris is an emerging fungus that can colonize the skin and cause invasive infections. It has been associated with 30% - 72% crude in-hospital mortality. In 2022, there were 2,377 clinical cases and 5,754 screening cases across 29 states. *C. auris* can spread rapidly within healthcare facilities, especially in high-acuity long-term care settings, colonizing large proportion of patients. The Centers for Disease Control and Prevention (CDC) and BPH are concerned about *C. auris* for three reasons:

1. This yeast often does not respond to commonly used antifungal drugs, making infections difficult to treat.
2. It is difficult to identify with standard laboratory methods, and it can be misidentified in labs without specific technology which could lead to inappropriate management.
3. It has caused healthcare setting outbreaks in the U.S. Outbreaks of *C. auris* have proven very difficult to control, requiring intensive public health and facility-level intervention. For this reason, it is important to quickly identify *C. auris* in a hospitalized patient so healthcare facilities can take special precautions to stop its spread.

This message was directly distributed by the West Virginia Bureau for Public Health to local health departments and professional associations. Receiving entities are responsible for further disseminating the information as appropriate to the target audience.

Categories of Health Alert messages:

Health Alert: Conveys the highest level of importance. Warrants immediate action or attention.

Health Advisory: Provides important information for a specific incident or situation. May not require immediate action.

Health Update: Provides updated information regarding an incident or situation. Unlikely to require immediate action.

Risk Factors

Persons who have recently spent time in hospitals and nursing homes and have invasive devices (e.g., mechanical ventilation or tracheostomy, feeding tubes and central venous catheters) appear to be at highest risk for infection. Other risk factors include recent surgery, diabetes, broad-spectrum antibiotic and antifungal use. Infections have been found in patients of all ages.

Transmission

C. auris can spread in healthcare settings through contact with contaminated environmental surfaces or equipment from person to person. *C. auris* can persist on surfaces in healthcare environments such as high-touch surfaces including bedside tables and bed rails. *C. auris* has also been identified on mobile and reusable equipment shared between patients such as glucometers, temperature probes, blood pressure cuffs, nursing carts, etc. Transmission is not thought to occur via persistent colonization of healthcare workers.

Diagnosis

Some phenotypic methods for yeast identification can misidentify *C. auris* as a number of different organisms. The use of Matrix-Assisted Laser Desorption/Ionization Time of Flight (MALDI-TOF) is the most reliable way to detect *C. auris*. Molecular methods based on DNA sequencing can also identify *C. auris*. For more information regarding testing visit: www.cdc.gov/fungal/candida-auris/health-professionals.html.

Treatment

CDC does not recommend treatment of *C. auris* identified from non-invasive sites (such as respiratory tract, urine, and skin colonization) and treatment is generally only indicated if clinical disease is present. To date, an echinocandin drug is the recommended initial therapy for treatment of *C. auris* infections. For detailed information on dosing, see the CDC recommendations for treatment of *C. auris* infections: <https://www.cdc.gov/fungal/candida-auris/c-auris-treatment.html#treatment>.

Infection control measures should be used for all patients with *C. auris*, whether infected or colonized, and regardless of the source of specimen. Transmission-based precautions should not be discontinued when treatment for an infection ends but should be continued for the duration of the patient's stay in a healthcare facility and implemented for any future healthcare stays.

Infection Control

1. Report any suspect or confirmed *C. auris* test results to the local health department within 24 hours. A single case of *C. auris* (infection or colonization) requires a robust public health investigation.
2. Place patients who are infected or colonized with *C. auris* on [Contact Precautions](#) and whenever possible, in a single room. For nursing home residents, Enhanced Barrier Precautions should be used.
3. Work with BPH to screen individuals who have had contact with a patient with *C. auris* infection or colonization. Testing for *C. auris* colonization is available through the Antimicrobial Resistance Laboratory Network. This testing is free of charge in coordination with BPH. For detailed information about screening, see the CDC recommendations for *C. auris* colonization: <https://www.cdc.gov/fungal/candida-auris/c-auris-screening.html>.
4. Reinforce hand hygiene practices. Increase audits for hand hygiene, personal protective equipment (PPE) and environmental cleaning on units where patients with *C. auris* are located. Consider re-educating healthcare personnel through an in-service or retraining, especially if audits demonstrate low adherence, on infection prevention and control practices.
5. Ensure the patient care environment is cleaned using a disinfectant with an U.S. Environmental Protection Agency (EPA) claim for *C. auris* (see EPA's [list P](#)). If not available, for *Clostridioides difficile* (see EPA's [list K](#)).
6. When a patient is transferred (e.g., to a nursing home or other hospital), clearly communicate the patient's history of *C. auris* to receiving healthcare providers.

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C. auris West Virginia Cases (cont'd)

Additional Information

- CDC: <https://www.cdc.gov/fungal/candida-auris/index.html>
- BPH: https://oeps.wv.gov/c_auris/Pages/default.aspx

For questions about this health advisory, contact the Office of Epidemiology and Prevention Services, Division of Infectious Disease Epidemiology (DIDE) at (304) 558-5358 ext. 2.

Transmission

- Generally, *C. auris* is not a threat to healthy people.
- It spreads in healthcare facilities through contact with environmental surfaces or contact with a person who has *C. auris*.

**Case scenario later in this presentation.

- *C. auris* can cause infections in different parts of the body such as in the bloodstream, open wounds, and ears.
- Symptoms depend on the location and severity of infection and may be like symptoms of an infection caused by bacteria.
 - Fever, chills, sweats, and low blood pressure are the most common symptoms.
- Infections have been found in patients of all ages, from preterm infants to the elderly.
- Asymptomatic people, or those without signs and symptoms of active infection, who are colonized with *C. auris* can still transmit it onto surfaces or objects that they contact, which can then spread it to others.

- Typically affects the sickest of the sick including:
 - Patients with severe underlying medical conditions and requiring complex medical care.
 - Patients with invasive devices like breathing tubes, feeding tubes, catheters in a vein, or urinary catheters.
- People who are colonized or infected with other MDROs.
- Anyone who has received antibiotics and antifungals.
- History of care within ventilator-equipped Skilled Nursing Facilities (vSNF) or Long-Term Acute Care Hospitals (LTACHs), especially located in areas known to have reported *C. auris* outbreaks.

Cleaning and Disinfecting

- Surfaces should be cleaned before they are disinfected. Any impurities like dirt or germs make it harder for chemicals to get to and kill germs.
- Use an Environmental Protection Agency (EPA) – registered hospital-grade disinfectants that are effective against *C. auris* found on “List P”.
- Ensure surface disinfectants are applied for the correct contact time.
- Use of “No-touch” devices such as germicidal UV irradiation and vaporized hydrogen peroxide should only be used as a supplement to standard cleaning and disinfection methods.
- Perform thorough routine (at least daily) and terminal cleaning and disinfection to include:
 - Patients’ rooms and other areas where patients receive care.
 - Shared or reusable equipment after each use.

Transmission-based Precautions and Patient or Resident Placement

- Frequent and thorough hand hygiene is required.
- Healthcare Personnel (HCP) should use contact precautions to manage patients with *C. auris* in acute care hospitals and LTACHS.
- Residents in nursing homes or skilled nursing facilities should use either contact precautions or enhanced barrier precautions (EBP).

Patient or Resident Placement

- Single-patient rooms are recommended whenever possible.
- When single-patient rooms are limited, prioritize them for people at higher risk of pathogen transmission:
 - Uncontained secretions or excretions.
 - Acute diarrhea.
 - Draining wounds.
- Cohorting patients with *C. auris* together is an option.
- Practices to reduce transmission in all shared rooms include:
 - Maintain separation of at least three feet between beds.
 - Use privacy curtains to limit direct contact.
 - Clean and disinfect as if each bed area were a different room.
 - Clean and disinfect surfaces more frequently.

Duration of Precautions and Decolonization

- Contact or EBP are recommended for the entire duration of all inpatient healthcare stays, including those in long-term healthcare setting.
- There are no specific interventions known to reduce or eliminate *C. auris* at this time.

Lab Criteria for Reporting *C. auris*

In West Virginia, *C. auris* is a category I emerging infectious disease and is reportable to the local health department (LHD) within 24 hours.

- Report any patient or laboratory report that meets the following criterion:
 - Detection of *C. auris* in a specimen using either culture or a validated culture-independent test (e.g., nucleic acid amplification test [NAAT]).
 - Confirmatory laboratory evidence: Detection of *C. auris* from any body site using either culture or a culture independent diagnostic test (CIDT) (e.g., Polymerase Chain Reaction [PCR]).
 - Presumptive laboratory evidence: Detection of *C. haemulonii* from any body site using a yeast identification method that is not able to detect *C. auris* **AND** either the isolate/specimen is not available for further testing, or the isolate/specimen has not yet undergone further testing.
- The most reliable way to identify it is Matrix-Assisted Laser Desorption/Ionization Time-of-Flight Mass Spectrometry (MALDI-TOF MS).

Screening is routine testing of patients without symptoms, but who may have had close contact with patients newly identified as having *C. auris* infection or colonization.

- Roommates and patients/residents who shared a bathroom with the index patient.
- Patients/residents who are currently admitted to the rooms where the index patient stayed at least one night.
- Screen the patient/resident currently admitted to the room(s) and bed space(s) where the index patient/resident stayed at least one night in healthcare facilities.
- Perform Point Prevalence Survey (PPS) to comprehensively assess for transmission.

Communication

- Review facts about *C. auris* so that you may confidently address patient or family concerns.
- Use plain language.
- Frame screening as painless and beneficial.
- Consider healthcare staff comfort in discussing axilla/groin swabs.
- Use scripts when speaking with patients and their families.
- CDC has script templates you can adapt for your own use.

Screening (cont'd)

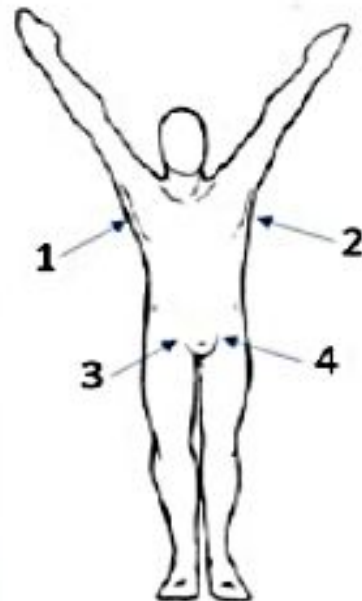
What's in a colonization screening kit?

- Biohazard bag.
- Sterile swab.
- Parafilm square.
- Absorbent paper.
- Specimen collection instructions.

**Insert patient requisition form in the front pocket of the biohazard bag.



Maryland Department of Health • Laboratories Administration • ARLN Regional Laboratory
Instructions for patient swab collection for *Candida auris* colonization screening



Remove the screw cap from the tube



Insert the swab all the way to the bottom of the tube



Break the applicator shaft at the colored breakpoint line



Screw the cap on tightly to prevent leakage



1. Use BD ESwab™ Collection and Transport System for collection. Open the package by grasping the plastic at the opposite end from the soft tip. Remove the tube from the packaging. Pull the swab from its package.

2. Rub the soft end of the collection swab across the indicated site 3 to 5 times. Rub both sides of the swab tip over the left axilla skin surface and then the right targeting the crease. With the same swab, rub both sides of the swab tip over the left groin skin surface and then the right targeting the crease.

3. Remove the cap from the swab collection tube, then place the soft end of the collection swab into the tube. **DO NOT** pour the liquid out of the tube. Snap off the end of the swab at the marked line. Screw on the tube cap and Parafilm.

4. Write specimen information on the tube label. Place tube into the biohazard bag with absorbent paper. Place test request form in the outer pocket of the bag.

5. Seal the bag and ship immediately to Maryland Regional Lab as a Biological Substance, Category B. Swabs can be stored for no more than 4 days after collection.

Screening (cont'd)

- Specimens collected from axilla/groin sites.
- All swabs must be labeled with the following:
 - Patient name.
 - Date of birth.
 - Collection date.
- Unlabeled tubes are automatically rejected, regardless of whether they are accompanied by a lab requisition.
- Patient identifiers **MUST** match the accompanying requisition.
- **DO NOT** place the requisition in the main compartment with the swab.
- Any specimen that leaks during transit will be rejected.
- Colonization screening requires generation of requisitions which should include:
 - Ordering providers name, title, and email address.
 - Patient race and ethnicity.
 - Requisitions are generated by the state MDRO team.

Screening (cont'd)

- Specimens should be shipped at room temperature.
- Must be tested within five days of collection.
- Must be shipped in compliance with Category B (Cat-B) Biohazard Shipping regulations.
 - Ensure the primary container (specimen tube) is tightly closed and wrapped with parafilm.
 - Sealed secondary container with absorbent material: A closed biohazard bag with the specimen tube and absorbent paper.
 - Rigid outer container with UN3373 label. The label will be provided by the state MDRO team.

Provider

- Immediately notify the LHD of positive *C. auris* result.
- Ensure laboratory reporting directly to provider.
 - Office staff should notify physician immediately of positive *C. auris* result.
- Follow CDC recommendations once notified of *C. auris*.
 - Notify the Infection Preventionist (IP) at the facility where the patient is hospitalized; and/or
 - Provide MDRO/*C. auris* status before a patient is admitted or transferred.
 - *Ideally the provider will have informed the patient of their lab results prior to the start of an investigation.*

Roles and Responsibilities (cont'd)

Laboratory

- Report *C. auris* immediately to healthcare facilities.
- Report all positive results to the LHD within **24 hours** of result.
- Follow current guidelines from the CDC/Clinical and Laboratory Standards Institute (CLSI) for testing.
- Retain *C. auris* positive isolates for shipment to the regional lab in Maryland for further testing (i.e., Whole Genome Sequencing).

Roles and Responsibilities (cont'd)

LHD

- Enter lab results and complete information into the WVEDSS. ***Quick action to start an investigation reduces the risk that MDROs will spread.***
 - Information should be obtained by contacting by phone the provider and/or facility listed on the lab report, and by speaking directly to the patient and/or family as needed.
 - DO NOT wait for medical records to be forwarded from the healthcare facility.
 - Specific information needed includes:
 - Is the patient in a private room in contact precautions?
 - If not, do they have a roommate?
 - What type of unit is the patient in?
 - Did the patient have any indwelling devices within two days of diagnosis?
 - Has the patient received healthcare (at least one overnight stay) in the last 30 days?
 - If so, get the names and addresses of all facilities in which the patient received care.

LHD

- When a case is identified in a long-term care facility (LTCF), assess the facility's knowledge using the "Initial Assessment for Healthcare Facility with Reported Case of *Candida auris* (*C. auris*)".
 - Provide additional education/resources to the facility as needed.
- When a case of *C. auris* is identified in an outpatient setting, or the case's LTCF residential status is "No" or "Unknown":
 - Contact the patient and/or their family to verify LTCF residential status and provide education/resources including".
 - HAI *C. auris* patient information sheet.
 - Link to or provide copies of information from the CDC patient information page.

State Health Department

- Once an investigation is completed by the LHD, regional epidemiologists have seven days to verify that the LHDs investigation is complete and submit to the State for closure.
- The State Epidemiologists then have seven days to verify and close the case.
- Maintain updated facility, patient, and healthcare worker education materials on the OEPS HAI website.
- Maintain awareness of new developments in the medical literature and through ongoing surveillance.
- Provide technical expertise and consultation regarding reporting, investigation, or control of cases or outbreaks of *C. auris*, including direct support of outbreak investigation if needed.
- Summarize surveillance data for new cases of *C. auris* on at least an annual basis.
- Serve as liaison between clinical laboratories, LHDs, and Office of Laboratory Services (OLS) for shipping of isolates to OLS and/or CDC for further characterization.

Frequently Asked Questions (FAQs)

Why don't we screen HCP?

- HCP only rarely become infected with *C. auris*. Some HCP can become colonized but should not transmit to patients if they follow recommended infection control practices including hand hygiene and the use of gowns and gloves.
- Colonized HCP in LTCF should comply with recommended EBP.
- HCP in other healthcare settings should comply with contact precautions.

Should we screen patients to document clearance of *C. auris*?

- No. It is generally not recommended to re-screen for clearance.
- Many patients remain colonized with *C. auris* over months or years, especially if patients' medical status remain the same.
- Screening resources are limited – highest priority should be considered.
- Colonization can be intermittent. One negative screen does not indicate clearance.

Do we need to place someone on contact precautions or EBP while awaiting admission screening results?

- If someone is transferring from a facility with a known exposure, try to place that person in a private room on contact precaution or EBP depending on facility type.

Are there false positives or false negatives with these tests?

- All tests have some degree of false positives and false negatives, but facilities and labs work together to help keep these to a minimum.
- Facilities can help avoid false negatives by making sure there's enough material on the colonization swab and that all collecting instructions are followed as instructed.
- Facilities can avoid false positive results by using sterile swabbing technique during specimen collection.

Case Study #1

Background

- Patient is an 81-year-old man.
- Resident on a ventilator unit in a LTACH for three months.
- Urine culture confirms *C. auris* and carbapenem-resistant *Klebsiella pneumoniae* that is positive for New Delhi Metallo- β -lactamase (NDM) carbapenemase enzyme production.
- This is the first *C. auris* detected in this facility and is uncommon in the region.
- He had not been on contact precautions or EBP but is now in a private room on EBP.
- Had three roommates prior to moving rooms.
- Twenty additional residents are located on the unit.

Case Study #1 (cont'd)

Question #1

1. What type of colonization screening will the health department most likely recommend initially?
 - a. Response-based PPS for *C. auris* but limited to only roommates and people in rooms adjacent to the index patient (targeted screening).
 - b. Response-based PPS for *C. auris* with screening all residents on the unit.
 - c. Proactive Point Prevalence Survey.
 - d. Discharge screening.

Case Study #1 (cont'd)

Question #1 Answer

1. What type of colonization screening will the health department most likely recommend initially?
 - a. Response-based PPS for *C. auris* but limited to only roommates and people in rooms adjacent to the index patient (targeted screening).
 - b. Response-based PPS for *C. auris* with screening all residents on the unit.
 - c. Proactive Point Prevalence Survey.
 - d. Discharge screening.

Case Study #1 (cont'd)

- The long-term acute care hospital (LTACH) conducted a response-based PPS of the whole unit and identified five residents colonized with *C. auris*.
- *C. auris* outbreak has been identified at a neighboring facility which frequently transfers residents to them.

Case Study #1 (cont'd)

Question #2

2. Which of the following recommendations would the health department likely make next?
- a. Allow the health department to assist with an infection control assessment.
 - b. Conduct another response-based PPS in several weeks.
 - c. Look for *C. auris* at a future PPS.
 - d. All the above.

Case Study #1 (cont'd)

Question #2

2. Which of the following recommendations would the health department likely make next?
- a. Allow the health department to assist with an infection control assessment.
 - b. Conduct another response-based PPS in several weeks.
 - c. Look for *C. auris* at a future PPS.
 - d. **All the above.**

Case Study #1 (cont'd)

- Another response-based PPS to identify *C. auris* is conducted on the ventilator unit two weeks later after improvements in hand hygiene performance are made.
- PPS identified two new residents colonized with *C. auris*.

Case Study #1 (cont'd)

Question #3

3. What should the facility do next?
 - a. Give up. They just can't control this MDRO.
 - b. Ghost the health department.
 - c. Continue to evaluate and correct the infection control gaps.
 - d. Blame the facility up the street; the MDRO must be coming from them.

Case Study #1 (cont'd)

Question #3

3. What should the facility do next?
 - a. Give up. They just can't control this MDRO.
 - b. Ghost the health department.
 - c. Continue to evaluate and correct the infection control gaps.
 - d. Blame the facility up the street; the MDRO must be coming from them.

Background

- The IP at a LTCAH was reading a health department alert about the sudden increase of *C. auris* in the area. The IP has already begun assessing and improving their current infection control practices, but she wants to do more.

Question #1

1. Which of the following colonization screening activities could she suggest to her administrator?
 - a. A proactive PPS.
 - b. Discharge screening.
 - c. Admission screening.
 - d. A and C.
 - e. All the above.

Question #1 Answer

1. Which of the following colonization screening activities could she suggest to her administrator?
 - a. A proactive PPS.
 - b. Discharge screening.
 - c. Admission screening.
 - d. **A and C.**
 - e. All the above.

Background

- A medical intensive care unit in an acute care hospital is experiencing a *C. auris* outbreak (four patients).
- Three rounds of response-based PPSs continue to find patients with the MDRO.
- Critical gaps in their infection control practices have been identified.
 - Hand hygiene rates at 50%.
 - Staff not routinely using gowns.
 - Shared patient equipment not routinely cleaned and disinfected.

Case Study #3 (cont'd)

Question #1

1. What steps can this facility take to limit transmission to other healthcare facilities at transfer?
 - a. Discharge screening.
 - b. Verbally communicate with any facility accepting patients with the MDRO in transfer.
 - c. Continue to work on improving infection control gaps.
 - d. All the above.

Case Study #3 (cont'd)

Question #1 Answer

1. What steps can this facility take to limit transmission to other healthcare facilities at transfer?
 - a. Discharge screening.
 - b. Verbally communicate with any facility accepting patients with the MDRO in transfer.
 - c. Continue to work on improving infection control gaps.
 - d. **All the above.**

Questions?



Contact Information



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