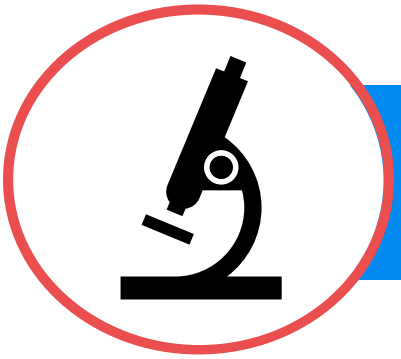

MONTHLY *C. AURIS* UPDATE #2

LOS ANGELES COUNTY DEPARTMENT OF PUBLIC HEALTH
2/10/21

CASE SUMMARY

Total cases in LAC: 319
(05/01/2020 to date)

Screening specimen*

HCF type	# cases (%)
General Acute Care Hospital	12 (4)
Long Term Acute Care Hospital	227 (83)
Skilled Nursing Facility	33 (12)
Other	1 (1)
Total	273

Clinical specimen

HCF type	# cases (%)
General Acute Care Hospital	11 (24)
Long Term Acute Care Hospital	31 (67)
Skilled Nursing Facility	4 (9)
Other	0
Total	46

Note that if a person is a clinical case, they are not included in screening counts. Cases are counted by facility location at time of collection.
** swab collected for the purpose of screening for C. auris colonization.*

KEY RESOURCES

- LACDPH *C. auris* website
- CDC *C. auris* website

HIGHTLIGHTED IN THIS ISSUE:

Antifungal susceptibility testing of *Candida auris (C. auris)*
MALDI-TOF Validation for *C. auris*

SITUATIONAL SUMMARY

Multiple healthcare facilities (HCFs) in Los Angeles County (LAC) are experiencing *Candida auris* activity. We are providing this brief monthly update to inform you of: 1) *C. auris* case counts and 2) tips to assist clinical laboratories in addressing *C. auris*.

Please note this information is meant for internal use only.

CURRENT GUIDANCE & RECOMMENDATIONS

Please click here to access the previous issue of this update. Many suggestions below related to clinical laboratory procedures were covered in detail in that issue.

As LAC continues to see transmission of *C. auris* across all types of HCFs, it is important for labs to have the following measures in place:

1. A reliable method to identify *C. auris*. Species identification can be problematic, especially with phenotypic methods.
2. A strategy for increased species identification of *Candida* from all or at minimum, high risk patients. A relationship with Infection Preventionists to identify high risk patients is essential. Note: Urine isolates may be of highest yield.
3. *C. auris* admission screening tests for high risk patients in-house or as a send-out.

Laboratories that serve high risk HCFs, such as long-term acute care hospitals (LTACHs) and subacute units of skilled nursing facilities (SNFs) should pay particular attention to these recommendations.

Requirements for clinical laboratory and provider reporting for presumptive or confirmed *C. auris* can be found here.

QUESTIONS? CONTACT THE LACDPH HEALTHCARE OUTREACH UNIT AT HAI@PH.LACOUNTY.GOV OR 213-240-7941

CANDIDA AURIS AND ANTIFUNGAL SUSCEPTIBILITY TESTING

Candida auris are frequently resistant to fluconazole and some isolates are resistant to more than one class of antifungal agents (polyenes, triazoles and/or echinocandins).[1] As noted here by CDC, approximately 90% of *C. auris* isolates from the United States were resistant to fluconazole, about 30% were resistant to amphotericin B, and less than 5% were resistant to echinocandins.

Because *C. auris* has an unpredictable susceptibility profile and can be highly resistant, routine antifungal susceptibility testing should be performed for isolates confirmed or suspected of causing infection. In addition, isolates can develop resistance during therapy and subsequent isolates from an infected patient may warrant susceptibility testing. Broth microdilution is generally used, but interpretation is complicated as there are currently no standard *C. auris* susceptibility breakpoints. CDC has provided guidance here for interpretation of MICs for *C. auris* based on breakpoints available for closely related *Candida* species. There are no breakpoints suggested for application to triazoles other than fluconazole. However, isolates that are resistant to fluconazole may occasionally respond to other triazoles (e.g., voriconazole, posaconazole) and must be evaluated on an individual basis.

All 38 *C. auris* clinical isolates from LAC tested to date have had the same susceptibility profile as listed below when interpreted by applying the CDC suggested breakpoints:

Amphotericin	S
Fluconazole	R
Anidulafungin	S
Caspofungin	S
Micafungin	S

CDC lists recommendations for treatment of *C. auris* infections here. An echinocandin (ie anidulafungin, caspofungin, micafungin) is typically prescribed for invasive *C. auris* infections. Arensman et al. reported treatment outcomes for several patients with a variety of different types of *C. auris* infections and most involved an echinocandin.[2] Antifungal therapy is generally not indicated for isolates from non-invasive sources when there is no evidence of infection. Regardless, strict infection control measures must be adhered to whenever *C. auris* is encountered in order to prevent spread of this highly transmissible pathogen among patients and the environment.

[1]Jeffrey-Smith, A. et al. 2018. *Candida auris*: a review of the literature. Clin Microbiol Rev. 31:e00029-17. https://doi.org/10.1128/CMR.00029-17.

[2]Arensman, K. et al. 2020. Clinical outcomes of patients treated for *Candida auris* infections in a multisite health system, Illinois, USA. Emerg Infect Dis. 26:876-880. https://dx.doi.org/10.3201/eid2605.191588.

RESOURCES FOR LABORATORIES VALIDATING MALDI-TOF FOR *CANDIDA AURIS* IDENTIFICATION

MALDI-TOF can reliably identify *Candida auris* while phenotypic tests cannot, as described here https://www.cdc.gov/fungal/candida-auris/identification.html. Below are some available resources and suggestions for validating *C. auris* identification (and potentially other yeast species) by MALDI-TOF.

Isolate panels available for MALDI-TOF validation:

1. A *C. auris* panel is available from the CDC & FDA Antibiotic Resistance (AR) Isolate-Bank and includes 19 *C. auris* and 11 additional yeast isolates. This panel may best serve laboratories that **have** already completed a yeast MALDI-TOF validation and wish to expand to include *C. auris*. Request here: https://wwwn.cdc.gov/ARIsolateBank/Panel/IsolateDetail?IsolateID=387.
2. CDC's Division of Scientific Resources can provide a yeast MALDI-TOF validation panel with sequenced-confirmed identifications for each isolate. There are 95 isolates, representing common and uncommon yeasts, including *C. auris*. This panel may best serve laboratories that **have not** completed a yeast MALDI-TOF validation given the diversity and number of isolates in the panel. Please contact CDC's Mycotic Diseases Branch for ordering instructions: candidaauris@cdc.gov.

Both panels described above include *C. auris* isolates from each of the major phylogenetic clades (I-IV), which are highly recommended for inclusion in a validation. At the discretion of the laboratory, additional *C. auris* and non-*C. auris* isolates from the laboratory's isolate collection can be included per institution-specific requirements. It is recommended to add species that masquerade as *C. auris* including: *Candida haemulonii, Candida duobushaemulonii, Rhodotorula glutinis* (characteristic red color not present)*, Candida intermedia, Candida guilliermondii, Candida lusitaniae, and Candida parapsilosis.*

MALDI Database: Prior to starting the validation, confirm that your MALDI-TOF contains the most recent software updates to available databases:

- Bruker MALDI Biotyper: FDA-approved MALDI Biotyper CA System library (Version claim 4) or "research use only" libraries (Versions 2014 [5627] and more recent).
- bioMérieux VITEK (MALDI-TOF) MS. The FDA-approved IVD v3.2 or "research use only" libraries (with Saramis Ver 4.14 database and Saccharomycetaceae update).
- Supplemental MALDI-TOF databases that include additional *C. auris* strains from all four phylogenetic clades may enable users to overcome identification challenges by providing consistently higher MALDI scores. MicrobeNet is a free online MALDI database of rare and unusual pathogens curated by CDC experts. MicrobeNet users have access to CDC *C. auris* MALDI spectral libraries as well as Bruker's most up-to-date database (https://www.cdc.gov/microbenet/about.html).
- Please consult with your MALDI-TOF Applications Specialist for more information regarding the addition of isolates to your internal database.

Extraction method: The CDC has a representative procedure for yeast identification using MALDI here. However, laboratories should perform proof of principle studies and evaluate direct plating, plate extraction, and tube extraction as needed and select that which best integrates into existing workflows and generates reliable MALDI scores. Additionally, it is imperative that laboratories follow manufacturer guidelines as pertains to their MALDI-TOF instrumentation.

Growth Media: Laboratories should subculture isolates for the MALDI-TOF validation to a solid medium as appropriate for their setting with Sabouraud dextrose and/or blood agar as reasonable options. Anecdotal information suggests that CHROMagars may be problematic for some species.

FREQUENTLY ASKED QUESTIONS

How can we test for *C. auris* colonization?
Patients are typically screened for *C. auris* colonization using a composite swab of the bilateral axilla and groin using a nylon-flocked or rayon tip swab. You can find more lab-related information regarding *C. auris* on our FAQs to Aid Clinical Laboratorians at the Bench or the CDC Guidance for Detection of Colonization of *C. auris*.

What if we need to do a rule-out test for *C. auris* (clinical isolate)?
If you identify a confirmed or presumptive *C. auris* organism, you may send the isolate to the LACDPH Public Health Lab for rule-out testing only. Please do not send isolates nor swabs to the DPH Lab without contacting the Healthcare Outreach unit first.

What can we do to prepare for *C. auris* in our facility?
LAC has found that early detection is key to stopping spread of *C. auris* – we highly recommend you work with your infection control department and facility leadership to set up *C. auris* colonization screening at your earliest convenience.

When should I suspect a patient may have *C. auris*?
There are several risk factors for *C. auris* colonization, including:

- Roommates of *C. auris*-positive patients/residents
- Persons discharged from LAC healthcare facilities experiencing *C. auris* transmission (Talk to your facility IP for an updated list)
- Patients/residents who have had an overnight stay in a healthcare facility in a country with transmission or multiple cases of *C. auris*
- Patients/residents who are colonized with rare carbapenemase-producing gram-negative organisms (e.g., NDM-producing isolates)
- Patients/residents on a mechanical ventilator or tracheostomy being admitted from a long-term acute care hospital (LTAC) or skilled nursing facility (SNF) with transmission of *C. auris*
- Patients/residents who have had an overnight stay in a healthcare facility in a state with widespread transmission in the past 12 months

Do colonized patients require treatment?
Colonized individuals do not require treatment. If a patient develops a clinical infection, more guidance can be found on the CDC website.

How often should patients be re-screened for *C. auris*?
There is no indication for repeat screening for *C auris* since there is no criteria for clearance at this time.

Can patients be cleared of *C. auris*?
Studies have shown that patients colonized with *C. auris* rarely clear the organism. Thus, until further guidance from the CDC is received, patients will be considered to be positive for the duration of their admission. Swabs to test for clearance should not be collected. If a patient is accidentally re-swabbed and the result is negative, please disregard the result.

What is LACDPH doing to prevent further transmission of *C. auris*?
Since *C. auris* is a rare, emerging organism in LA County, LACDPH is taking many steps to prevent transmission of *C. auris*, including pre-emptive point prevalence surveys (PPS) of high-risk facilities, education, and on-site infection control assessments. We are working closely with Orange County Healthcare Agency (OCHCA), the California Department of Public Health (CDPH) and Centers for Disease Control and Prevention (CDC) to protect our patients and residents.

QUESTIONS? CONTACT THE LACDPH HEALTHCARE OUTREACH UNIT AT HAI@PH.LACOUNTY.GOV OR 213-240-7941