**22-ID-05**

**Committee:** Infectious Disease

**Title:** Update to the Standardized Case Definition and National Notification for *Candida auris*

☒Check this box if this position statement is an update to an existing standardized surveillance case definition and include the most recent position statement number here: _18-ID-05___.

**Synopsis:** This position statement updates the *Candida auris* case definition by removing presumptive laboratory criteria and probable and suspect case classifications and by recommending *C. auris* screening cases be made nationally notifiable. Updates include new information on transmissibility and case counts.

## I. Statement of the Problem

*Candida auris* is an emerging multidrug-resistant yeast that can colonize the skin and cause invasive infections. It can spread readily between patients in healthcare facilities, causing numerous outbreaks that have been difficult to control. Containment of *C. auris* spread largely depends on timely detection and implementation of appropriate infection prevention and control measures (1).

Individuals colonized on their skin can be identified through screening tests; they can shed into the environment, thereby presenting similar transmission risks and requiring the same infection control precautions as individuals with *C. auris* identified in clinical specimens. Screening detects outbreaks earlier than relying solely on passive surveillance through clinical specimens; in several large outbreaks, a majority of incident cases were identified through screening tests (2, 3). Currently, however, only cases identified through clinical specimens are nationally notifiable. Incomplete reporting of cases could lead to delayed identification and outbreak response and prevent jurisdictions from understanding the full burden of *C. auris* needed to guide public health action.

Since 2018, laboratory capability to detect *C. auris* has greatly improved. Misidentification of *C. auris* (particularly as *C. haemulonii*) is much less common than it was previously, and confirmatory testing is now widely available; only three probable or suspect cases with unconfirmed laboratory evidence have been reported nationally since 2018, and none were reported in 2021. The presumptive laboratory evidence criteria (detection of *C. haemulonii* with a laboratory method unable to detect *C. auris*, without confirmatory testing), and related probable and suspect case classifications, are no longer useful and add unnecessary complexity to reporting.

A case definition, adopted in 2017 and updated in 2018, allowed for standardized tracking of *C. auris* cases (4). This position statement updates the case definition to reflect improved laboratory capability to identify *C. auris* and highlights the importance of reporting screening cases nationally.

## II. Background and Justification

*C. auris* was classified as an urgent threat in the 2019 Antibiotic Resistance Threats Report (5). Some strains are resistant to all three major classes of antifungals, severely limiting treatment options (6). It can cause invasive infections and is associated with 30-72% crude in-hospital mortality (7). *C. auris* can colonize patients' skin and other body sites for prolonged periods, and colonization poses a risk both for invasive infection and transmission. *C. auris* persists in the healthcare environment for weeks, and certain routinely-used disinfectants in healthcare settings are not effective against the organism (8, 9). *C. auris* can spread rapidly within healthcare facilities, especially in high-acuity long-term care settings, colonizing large proportions of patients (10). Outbreaks of *C. auris* have proven very difficult to control, requiring intensive public health and facility-level interventions (3, 11).

As of January 1, 2022, more than 3,200 cases have been identified through clinical specimens and more than 7,300 through screening specimens across 29 states. The extent of *C. auris* transmission is variable across the

United States, and there is greater opportunity to control spread in less affected areas and prevent widespread transmission across the country. Reporting of both clinical and screening cases is critical as public health and facility responses generally do not differ by case type. Further, colonization can lead to clinical infections; in one outbreak, 4% of patients colonized with *C. auris* developed bloodstream infections (12). Timely identification of colonization and subsequent response efforts can help prevent additional transmission and related morbidity and mortality among high-risk patients. This position statement makes screening cases nationally notifiable, which in turn would facilitate reporting changes at the state and local level. This would enable prompt detection, investigation, and response, including the coordination of transfers between facilities and jurisdictions, and other measures critical to containing the spread of *C. auris*.

*C. auris* cases identified through screening tests only indicate colonization; however, clinical cases (such as those indicated by urine and respiratory specimens) can represent colonization if no evidence of clinical infection exists. Because there is overlap between case types, this can cause unnecessary confusion during reporting. We propose changing the nomenclature to reflect how cases are identified (i.e., through clinical or screening specimens), rather than the differentiation between infection and colonization. Therefore, patients identified through screening tests (e.g., axilla/groin swab) would be classified as screening cases rather than colonization/screening cases.

*C. auris* has historically been misidentified by some laboratory methods, making detection and therefore control of *C. auris* challenging; however, clinical and public health laboratory capability to identify and confirm *C. auris* has expanded greatly. Therefore, the current presumptive laboratory evidence criteria, which includes the detection of *C. haemulonii* with a laboratory method unable to detect *C. auris,* is no longer as relevant. This case definition removes this criterion, as well as the probable clinical case, suspect clinical case, and probable screening case classifications that rely on presumptive laboratory evidence.

## III. Statement of the desired action(s) to be taken

CSTE recommends the following actions:

1. Implement a standardized surveillance case definition for *Candida auris*.
    A. Utilize standard sources (e.g., reporting*) for case ascertainment for *Candida auris*. Surveillance for *Candida auris* should use the recommended sources of data to the extent of coverage presented in Section V.

    B. Utilize standardized criteria for case ascertainment for *Candida auris* presented in Section VI and Table VI in Technical Supplement.

    C. Utilize standardized criteria for case classification for *Candida auris* presented in Section VII and Table VII in Technical Supplement.

2. Utilize standardized criteria for case ascertainment and classification (based on Sections VI and VII and Technical Supplement) for ***Candida auris*** and **update** *Candida auris* on the *Nationally Notifiable Condition List.*
    ☐ Immediately notifiable, extremely urgent (within 4 hours)
    ☐ Immediately notifiable, urgent (within 24 hours)
    ☒ Routinely notifiable, clinical and screening
    ☐ No longer notifiable

3. CSTE recommends that all States and Territories enact laws (statute or rule/regulation as appropriate) to make this disease or condition reportable in their jurisdiction. Jurisdictions (e.g., States and Territories) conducting surveillance (according to these methods) should submit case notifications** to CDC.

4. Expectations for Message Mapping Guide (MMG) development for a newly notifiable condition: the National Notifiable Diseases Surveillance System (NNDSS) is transitioning to HL7-based messages for case notifications; the specifications for these messages are presented in MMGs. When CSTE recommends a new condition be made nationally notifiable, CDC must obtain Office of Management and Budget Paperwork Reduction Act (OMB PRA) approval prior to accepting case notifications for the new condition. Under anticipated timelines, notification using the Generic V2 MMG would support transmission of the basic demographic and epidemiologic information common to all cases and could begin with the new *MMWR* year following the CSTE annual conference. Input from CDC programs and CSTE would prioritize development of a disease-specific MMG for the new condition among other conditions waiting for MMGs.

5. CDC should publish data on clinical and screening cases of *Candida auris* as appropriate (see Section IX). CSTE recommends the following case statuses be included in the CDC Print Criteria:
   - ☒Confirmed
   - ☐Probable
   - ☐Suspect
   - ☐Unknown

6. CSTE recommends that all jurisdictions (e.g., States, Localities, or Territories) with legal authority to conduct public health surveillance follow the recommended methods outlined in this recommendation and in the accompanying standardized surveillance position statement.

**Reporting: process of a healthcare provider or other entity submitting a report (case information) of a condition under public health surveillance to local, state, or territorial public health.*
***Notification: process of a local or state public health authority submitting a report (case information) of a condition on the* Nationally Notifiable Conditions List *to CDC.*

## IV. Goals of Surveillance

To assess the temporal, geographic, and demographic burden of *C. auris* in the United States to facilitate response, prevention, and containment.

## V. Methods for Surveillance: Surveillance for *Candida auris* should use the recommended sources of data and the extent of coverage listed in Table V.

The primary sources of data are microbiology laboratory results. State, territorial, local, and tribal (STLT) public health agencies may also utilize data obtained from clinician reporting or other entities to ascertain cases. Laboratories that identify an organism that might represent *C. auris* in a specimen or isolate using a test that could misidentify it should obtain confirmatory testing (13).

**Table V. Recommended sources of data and extent of coverage for ascertainment of cases of *Candida auris*.**

| Source of data for case ascertainment | Coverage | |
|---|---|---|
| | Population-wide | Sentinel sites |
| Clinician reporting | X | |
| Laboratory reporting | X | |
| Reporting by other entities, specify: acute care hospitals, long-term care facilities, and outpatient settings | X | |
| Death certificates | | |
| Hospital discharge or outpatient records | | |

| | | |
|---|---|---|
| Data from electronic medical records | X | |
| Telephone survey | | |
| School-based survey | | |
| Other, specify: N/A | | |

## VI. Criteria for case ascertainment

**A. Narrative: A description of suggested criteria for case ascertainment of a specific condition.**

**A1. Clinical Criteria for Reporting**
N/A

**A2. Laboratory Criteria for Reporting**
Report any patient or laboratory finding to public health authorities 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])

**A3. Epidemiologic Linkage Criteria for Reporting**
N/A

**B. Disease-specific data elements to be included in the initial report**

In addition to patient demographics, the following disease-specific data elements are expected to be included in all reports to public health agencies:

- Specimen source
- Indication for testing (i.e., clinical or screening)
- Collection date
- Results

## VII. Case Definition for Case Classification

**A. Narrative: Description of criteria to determine how a case should be classified.**

**A1. Clinical Criteria**
N/A

**A2. Laboratory Criteria**

*Confirmatory laboratory evidence:*

- Detection of *C. auris* in a specimen from a swab obtained for the purpose of colonization screening using either culture or validated culture-independent test (e.g., nucleic acid amplification test [NAAT]), OR
- Detection of *C. auris* in a clinical specimen obtained during the normal course of care for diagnostic or treatment purposes using either culture or a validated culture-independent test (e.g., NAAT)

*Presumptive laboratory evidence:*
N/A

*Supportive laboratory evidence:*
N/A

*Note: The categorical labels used here to stratify laboratory evidence are intended to support the standardization of case classifications for public health surveillance. The categorical labels should not be used to interpret the utility or validity of any laboratory test methodology.*

**A3. Epidemiologic Linkage**
N/A

**A4. Case Classifications**

*Confirmed:*

- *Candida auris* case, screening: Person with confirmatory laboratory evidence from a swab collected for the purpose of screening for *C. auris* colonization regardless of site swabbed.*
- *Candida auris* case, clinical: Person with confirmatory laboratory evidence from a clinical specimen collected for the purpose of diagnosing or treating disease in the normal course of care.**

*Probable:* N/A

*Suspect:* N/A

** Typical screening specimen sites are skin (e.g., axilla, groin), nares, rectum, or other external body sites. Swabs collected from wound or draining ear as part of clinical care are considered clinical specimens.‡*
*** This includes specimens from sites reflecting invasive infection (e.g., blood, cerebrospinal fluid) and specimens from non-invasive sites such as wounds, urine, and the respiratory tract, where presence of* C. auris *may simply represent colonization and not true infection. This does not include swabs collected for screening purposes (see* Candida auris *case, screening).*
*‡Because it can be difficult to differentiate screening specimens from clinical specimens based on microbiology records, any swabs except wound swabs or draining ear swabs can be assumed to be for screening unless specifically noted otherwise. Laboratories do not need to change their practice; public health wants to identify all* C. auris *whether from screening or clinical specimens.*

**B. Criteria to distinguish a new case of this disease or condition from reports or notifications which should not be enumerated as a new case for surveillance**

A patient who is colonized or infected with *C. auris* is considered colonized indefinitely. The following provides guidance for health departments to distinguish a new case for patients who test positive for *C. auris* in either a screening swab (i.e., screening case) or in a clinical specimen (i.e., clinical case).

- For screening cases, count patient only once as a screening case; do not count if patient has been previously identified as a clinical or screening case. A person with a screening case can be later categorized as a clinical case (e.g., patient with positive screening swab who later develops bloodstream infection would be counted in both categories).
- For clinical cases, count patient only once as a clinical case, even if the patient has already been counted separately as a screening case. A person with a clinical case should not be counted as a screening case thereafter because all clinical cases are considered to also be colonized with *C. auris* (e.g., patient with clinical *C. auris* specimen who later has positive screening swab is not counted as a screening case).

## VIII. Period of Surveillance

Ongoing

## IX. Data sharing/release and print criteria

CSTE recommends the following case statuses* be included in the 'case' count released outside of the public health agency:

☒Confirmed
☐Probable
☐Suspect
☐Unknown

* Which case statuses are included in the case counts constitute the "print criteria."

Jurisdictions (e.g., States and Territories) conducting surveillance under this case definition can voluntarily submit de-identified case information to CDC, if requested and in a mutually agreed upon format.

Production of national data summaries and national data re-release for non-NNCs:

- Prior to release of national data summaries CDC should follow the CDC/ATSDR Policy on Releasing & Sharing Data, issued on April 16, 2003 and referenced in 11-SI-01 and custodians of such data should consult the CDC-CSTE Intergovernmental Data Release Guidelines Working Group report (www.cste2.org/webpdfs/drgwgreport.pdf) which contains data release guidelines and procedures for CDC programs re-releasing state, local, or territorial-provided data.
- CDC programs have a responsibility, in collaboration with states, localities, and territories, to ensure that CDC program-specific data re-release procedures meet the needs of those responsible for protecting data in the states and territories.

## X. Revision History

| Previous PS ID | Section of Document | Revision Description |
|---|---|---|
| 18-ID-05 | VI. Criteria for case ascertainment | Removed detection of an organism that commonly represents a *C. auris* misidentification in a specimen by culture under laboratory criteria. Added disease-specific elements to criteria for case ascertainment. |
| 18-ID-05 | VII. Case Definition for Case Classification | Removed probable and suspect status for both clinical and screening cases. Removed associated definitions for presumptive laboratory evidence and epidemiologic linkages for the case classifications being removed. |
| 18-ID-05 | IX. Data Sharing | Removed recommendation that probable cases be included in the case count criteria. |
| 18-ID-05 | NNC Recommendation Statement | Recommended that confirmed screening cases be included in CDC print criteria by jurisdiction. |
| 18-ID-05 | Appendix I | Removed Appendix I pertinent to presumptive laboratory criteria for case classification. Included CDC website as citation in references. |
| 18-ID-05 | VII. Case classification | December 2018: Authors made non-substantive changes to add clarity for implementation. |
| 17-ID-03 | II. Background and Justification | Updated with new information about transmissibility of *C. auris* and case counts in the U.S. |
| 17-ID-03 | III. Statement of desired actions to be taken | Table III, removed the following sources of data: death certificates, hospital discharge or outpatient records, extracts from, electronic medical records. For coverage continue population-wide, removed sentinel sites. |

| | | |
|---|---|---|
| 17-ID-03 | VII. Case definition, laboratory criteria | Revised to reflect updates in laboratory test performance characteristics, include CIDT in addition to culture, refer to Appendix 1 instead of text within position statement for details of misidentifications.<br>Changed label from supportive to presumptive laboratory criteria.<br>Added under presumptive lab criteria that the isolate/specimen has not yet undergone further testing.<br>Added clarifying note: When additional test results are available, case re-classification may occur, including making this a non-case. |
| 17-ID-03 | VII. Case definition, epidemiologic linkage criteria | Added epidemiologic linkage to patients with presumptive laboratory evidence (in addition to confirmatory); clarify that no overlapping time- period is required, add time-frame (12 months) for epidemiological linkage, add overnight stay in healthcare facility overseas in previous one year in foreign country with documented *C. auris* transmission. |
| 17-ID-03 | VII. Case classification | Changed “screening” to “colonization/screening”<br>Added probable colonization/screening case classification.<br>Clarified that swabs from wounds or draining ears are considered clinical. |
| 17-ID-03 | IX. Data | Added CDC Print Criteria |
| 17-ID-03 | XI. References | Added/updated references |
| 17-ID-03 | NNC Recommendation Statement | Recommends adding *Candida auris* (clinical) to the Nationally Notifiable Condition List as routinely notifiable (only clinical).<br>Statement on message mapping guide: CSTE recommends that a working group be established that includes CSTE and CDC members. |
| 17-ID-03 | Appendix 1 | Added appendix 1 that describes *C. auris* identification methods including common misidentifications |
| N/A | 17-ID-03 | Creates a standardized case definition for *Candida auris* causing clinical infection and colonization. |

## XI. References

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# Council of State and Territorial Epidemiologists
Technical Supplement

## Table VI. Table of criteria to determine whether a case should be reported to public health authorities.

| Criterion | *Candida auris* |
|---|---|
| *Clinical Criteria for Reporting* | |
| N/A | |
| *Laboratory Criteria for Reporting* | |
| Detection of *C. auris* in a specimen using either culture or a validated culture-independent test (e.g., nucleic acid amplification test [NAAT]) | S |
| *Epidemiological Linkage Criteria for Reporting* | |
| N/A | |

Notes:
S = This criterion alone is SUFFICIENT to report a case.

## Table VII. Classification Table: Criteria for defining a case of *Candida auris*.

| Criterion | Confirmed – Screening Case | Confirmed – Clinical Case |
|---|---|---|
| *Clinical Evidence* | | |
| N/A | | |
| *Laboratory Evidence* | | |
| Detection of *C. auris* in a specimen from a swab obtained for the purpose of colonization screening using either culture or validated culture-independent test (e.g., nucleic acid amplification test [NAAT]). | S | |
| Detection of *C. auris* in a clinical specimen obtained during the normal course of care for diagnostic or treatment purposes using either culture or a validated culture-independent test (e.g., NAAT). | | S |
| *Epidemiologic Linkage Evidence* | | |
| N/A | | |
| | | |
| *Criteria to distinguish a new case:* | | |
| For screening cases, count patient only once as a screening case; do not count if patient has been previously identified as a clinical or screening case. | N | |
| For clinical cases, count patient only once as a clinical case, even if the patient has already been counted separately as a screening case. | | N |

Notes:
S = This criterion alone is SUFFICIENT to classify a case.
N = All “N” criteria in the same column are NECESSARY to classify a case.

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