



NC Department of Health and Human Services

Candida auris Outbreak Investigation

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Disclosures

The presenter has nothing to disclose/no conflicts of interest.

Background

What is C. auris?

- According to the CDC's *Antibiotic Resistance Threats in the United States, 2019* publication, C. auris is considered an *urgent* threat.
- C. auris is a type of yeast that can cause severe illness and is easily transmissible in the healthcare setting.
- First detected in Japan in 2009 in a patient's external ear canal.
- Most strains are resistant to at least 1 anti-fungal drug ; 33% are resistant to 2 anti fungal ; some strains are resistant to all 3 major anti-fungal classes.

Ahmad S, Alfouzan W. *Candida auris*: Epidemiology, Diagnosis, Pathogenesis, Antifungal Susceptibility, and Infection Control Measures to Combat the Spread of Infections in Healthcare Facilities. Microorganisms. 2021 Apr 11;9(4):807. doi: 10.3390/microorganisms9040807. PMID: 33920482; PMCID: PMC8069182.

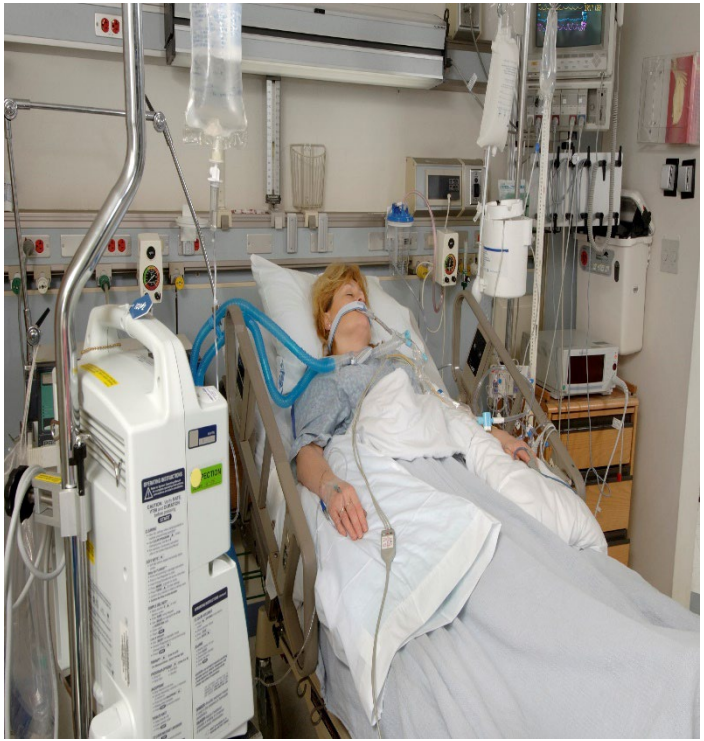
Public Health Significance

- Easily transmitted; can be carried on patient's skin allowing it to spread to others.
- Causes outbreaks in the healthcare setting.
- Some common healthcare disinfectants are less effective at eliminating it.
- First outbreak in NC was in 2019*. First case of transmission in NC was in 2023!

NC DHHS NC Electronic Disease Surveillance System, accessed 09/08/2024

Risk Factors

- Mechanical ventilation
- Indwelling devices
- Feeding tubes
- Wound care
- Dialysis
- Frequent or extensive inpatient admissions
- ICU stays
- Burns



Intensive-care-Respiratory-ventilator-G-200450645-.jpg (2000×1328) (pulmonologyadvisor.com)

About C. auris | Candida auris (C. auris) | CDC

Prevention

Lab Detection

- Recommend labs speciate *Candida* spp. especially if there is a noticeable increase of *Candida* infections on a unit.
- Send suspected isolates to NC SLPH for identification
- Healthcare facilities and labs should notify the HAI team immediately for further guidance
- Real-time PCR provides the fastest results.

Infection Prevention

- Hand hygiene!
- Environmental cleaning (List P)
- Place known cases on proper precautions. (Will discuss in-depth)
- Interfacility transfer notification

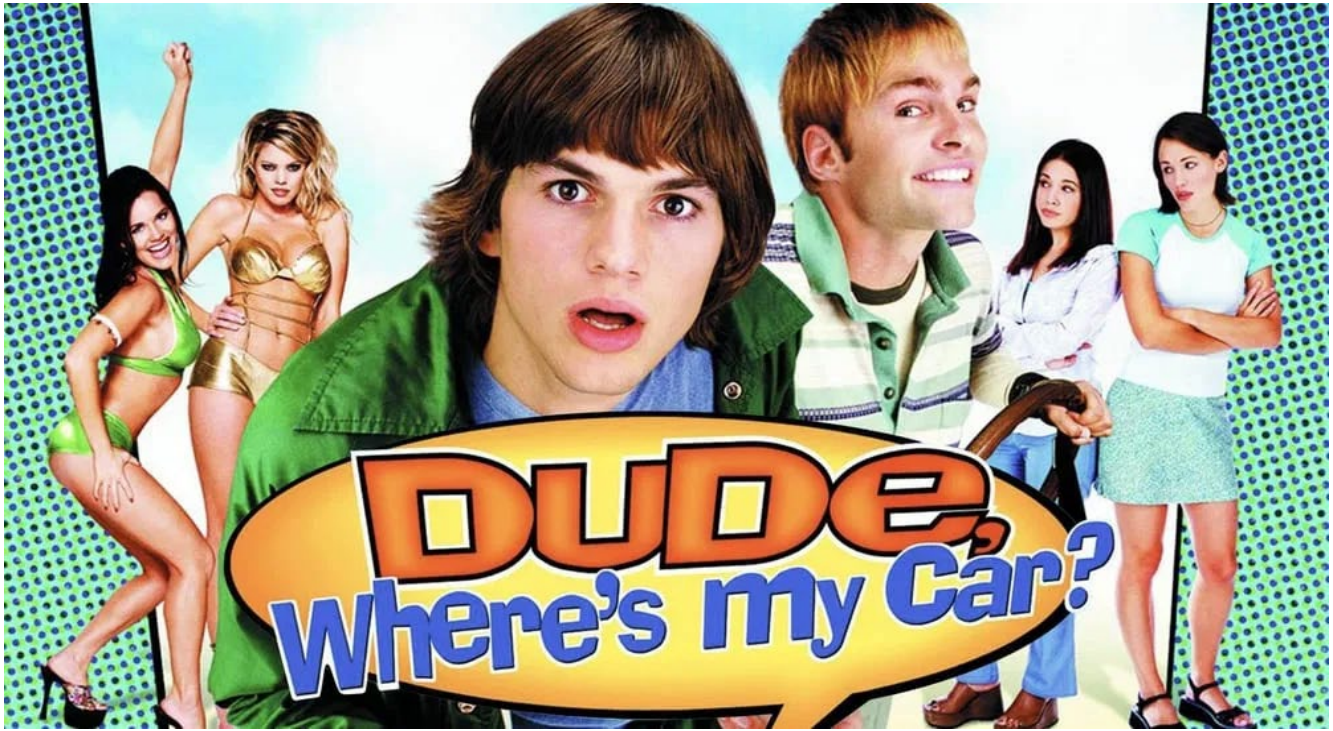
Infection Control Guidance: Candida auris | Candida auris (C. auris) | CDC

Outbreak Investigation and Response

Outbreak 101

- Confirm the lab!
- Outbreak plan
- Teamwork ☺

NC DHHS Outbreak Investigation



Immediate Actions

- Locate the patient
- Place in a single room
- Flag the patient's chart for proper precautions in case of re-admittance or future appointments

- Proper Precautions
  - Acute care setting: Contact Precautions
  - LTC setting: Contact precautions until evaluated by CDB

Important Information to Collect

- **Healthcare encounters 3 months prior to specimen collection date. Including:**
  - **a) Inpatient admissions (ACH and LTCF)**
  - **b) Home health**
  - **c) Wound care**
  - **d) Dialysis**
  - **e) International healthcare**

  - ❖ **Include dates and units**
  - ❖ **May have to rely on patient or family recollection**

CASE A

- **80 y/o male had a positive urine culture for *C. auris. The specimen was collected on 3/31/2023. The patient was admitted on 03/19/2023 to ACH Happy Town.***
- **Patient (80 y/o male) tells the facility that he was staying with his daughter prior to admission.**
- **Daughter states that Dad was discharged to her home on 03/17/2023. But he started developing a fever so she took him the hospital closest to her – ACH Happy Town.**

Timeline for CASE A

- SNF for rehab: 12/1/2022 – 1/02/2023
- Returned to his home 01/02/ 2023 – 3/3/2023
- Admitted to ACH Funky Town 03/03/2023 – 03/17/2023
- Discharged to Daughter's home: 03/17/2023
- Admitted to ACH Happy Town: 03/19/2023
- Urine specimen collected on 03/31/2023
  - C. auris detected on 04/03/2023
  - Reported to CDB 04/03/2023

  **What else do we need to know?

Timeline for CASE A

- SNF for rehab: 12/1/2022 – 1/02/2023 Remained on Unit A
- Returned to his home 01/02/ 2023 – 3/3/2023
- Admitted to ACH Funky Town 03/03/2023 – 03/17/2023 SICU
- Discharged to Daughter's home: 03/17/2023
- Admitted to ACH Happy Town: 03/19/2023 ICU
- Urine specimen collected on 03/31/2023
  - C. auris detected on 04/03/2023

CDC Containment Strategy

- **Consider screening high risk patients such as;**
  - **Epidemiologically-linked patients (i.e. Sharing room or unit)**
  - **Patients with previous healthcare encounters including high acuity facilities such as LTACHs and vSNFs.**
  - **Patients with risk factors for acquiring C. auris including MDRO infection/colonization, frequent or long-term healthcare stays, or indwelling devices.**

❑ **CDC prefers conducting a Point Prevalence Survey (PPS) because a targeted approach may cause you to miss patients.**

Screening Recommendations for Healthcare Facilities | Candida auris (C. auris) | CDC

Point Prevalence Survey

- **Broad screening approach**
- **PPS requires screening ALL patients or residents on a unit or facility at a particular time, regardless if the index case is still admitted or discharged.**
- **Depending on level exposure, epi-linked AND PPS can be used.**
- **PPS is also used for follow-up when a colonized patient is detected during a screening.**

Screening

- Screening is a tool used during outbreaks in order to gauge transmission among a population.
- Guides future infection prevention methods (precautions and environmental cleaning)
- Screening includes a swab used to collect specimens from the axilla/groin

Timeline for CASE A

- SNF for rehab: 12/1/2022 – 1/02/2023 Remained on Unit A
- Returned to his home 01/02/ 2023 – 3/3/2023
- Admitted to ACH Funky Town 03/03/2023 – 03/17/2023 SICU
- Discharged to Daughter's home: 03/17/2023
- Admitted to ACH Happy Town: 03/19/2023 ICU
- Urine specimen collected on 03/31/2023
  - C. auris detected on 04/03/2023

Selecting Screening Population

- **Current ACH: ACH Happy Town ICU**
- **Previous ACH: ACH Funky Town SICU**
- **Possibly the SNF**
- **May decide to expand screening if a case is detected.**

What's Next?

- HAI email confirming;
  - Selected unit
  - Contact information: Who is the point of contact?
  - How many beds are on the unit?
  - What day works best for the facility
- Email will also include;
  - Specimen collection and shipping guidance
  - Patient resources such as FAQS on C. auris

Maryland Antimicrobial Resistance Lab Network (ARLN)

- Regional partner
- Provides the supplies and conducts testing
- Provides guidance on specimen collection and shipping procedures
- Promptness of screening depends on their capacity
- Everything is provided at no expense to the facility!

Day of Screening

- **Facility will provide a list of consented patients' name and DOB (securely)**
- **HAI will email requestions and FedEx shipping label (overnight shipping)**
- **Prefer to collect and ship specimens on the same day to decrease chances of rejection**

Reporting the Results

- **Promptly reports results; Takes 5-7 business days**
- **Possibly expand screening if case is detected.**
- **Newly identified cases should be counseled by their provider.**

Preventing Transmission

- Ensure case remains on proper precautions – indefinitely.
- Ensure signage is posted.
- Patient chart is flagged
- Interfacility notification
- ICAR

Transmission-Based Precautions | Infection Control | CDC

Example of C. auris Outbreak Investigation in Dialysis Center

Case 1 Summary

- 74 y/o male had a positive urine culture for *C. auris* on 6/12/23 at hospital A
- Patient had just moved to NC from another state with a high *C. auris* prevalence
  - Patient had been previously diagnosed with *C. auris* in April 2023 during a hospitalization in that state, not in medical record
- Patient was discharged from hospital A to SNF B, and began receiving dialysis at clinic C

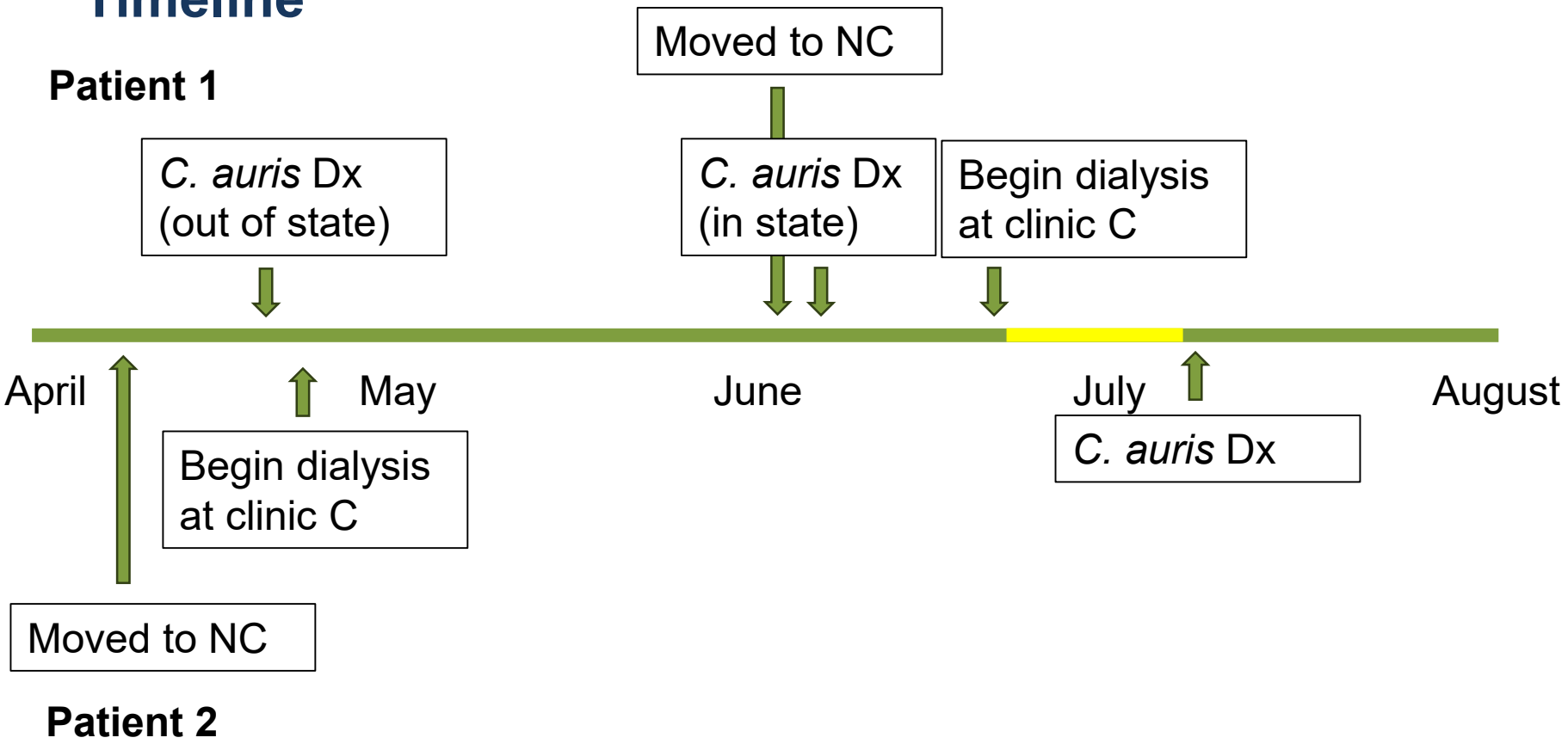
Case 2 Summary

- 80 y/o female had a positive wound culture for *C. auris* on 7/5/23 at clinic C
  - Permacath site was tested at dialysis clinic due to redness/drainage
- Patient had moved to NC from another state with high *C. auris* prevalence in April 2023
  - Began receiving dialysis at clinic C in April 2023
  - No previous *C. auris* diagnosis
  - Was immunocompromised and in several high-risk facilities

Epi Links

- Both cases had been receiving dialysis at clinic C for about 3 weeks at the time of Patient 2's diagnosis
- Only ~15 *C. auris* cases up to that point in NC
- The cases had never been in the clinic on the same day
- Dialysis clinic was aware of Patient 1's diagnosis and taking appropriate precautions
- One patient had a known history of *C. auris*, and the other had past high-risk exposures

Timeline


Patient 1
Moved to NC
C. auris Dx (out of state)
C. auris Dx (in state)
Begin dialysis at clinic C
April
May
June
July
August
Begin dialysis at clinic C
C. auris Dx
Moved to NC
Patient 2

ICAR results

- Facility had excellent IP program and practices
- Patients with MDROs were scheduled at the end of the day and placed in a separate area of the dialysis floor

- Potential concerns:
  - Contamination of shared computers (facility policy should prevent this, but errors could occur)
  - Some equipment (e.g., glucometers) was shared rather than dedicated, but was cleaned and disinfected appropriately after each use

Screening

- **Screening focused on Patient 2**
  - **Scenario A: patient was colonized prior to starting dialysis, their cohort is at the highest risk**
  - **Scenario B: patient was infected at the dialysis clinic, their cohort would have similar exposures**
  - **Patient 1 had been on precautions for *C. auris* for all visits**

Screening Criteria

- **Screen anyone who is a current patient of the dialysis clinic and meets one or more of the following criteria in the last month:**
  - **In the same pod and same shift as the most recent case**
  - **Used the same dialysis station (on any date) as the most recent case**
  - **Was cared for by the same staff (including technicians and nurses) as the most recent case during that appointment slot or the following one**

Screening Results

- 35/37 identified contacts screened
  - 2 were no longer receiving dialysis at clinic

- 0 positives ☺

Closing Thoughts

Outbreak investigation takes a lot of teamwork and coordination. Thank you for your partnership!

Thank you!

Questions? Contact us at nchai@dhhs.nc.gov

References

- Ahmad S, Alfouzan W. *Candida auris*: Epidemiology, Diagnosis, Pathogenesis, Antifungal Susceptibility, and Infection Control Measures to Combat the Spread of Infections in Healthcare Facilities. Microorganisms. 2021 Apr 11;9(4):807. doi: 10.3390/microorganisms9040807. PMID: 33920482; PMCID: PMC8069182.
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- CDC, (Last updated 04/24/2024) *About C. auris.* **About C. auris | Candida auris (C. auris) | CDC**
- CDC, (Last updated 04/24/2024) *Infection Control Guidance: Candida Auris* **Infection Control Guidance: Candida auris | Candida auris (C. auris) | CDC**
- CDC, (Last updated 04/24/2024) *Screening Recommendations for Healthcare Facilities* **Screening Recommendations for Healthcare Facilities | Candida auris (C. auris) | CDC**