



The rise of *Candida auris* in Texas during COVID-19

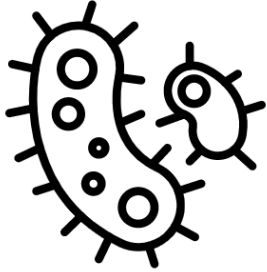
Katie Forsberg, MPH

CDC Mycotic Diseases Branch

Texas Annual Healthcare Safety Conference

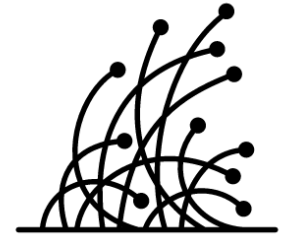
May 18, 2022

What are Multidrug-Resistant Organisms (MDROs)?



Bacteria

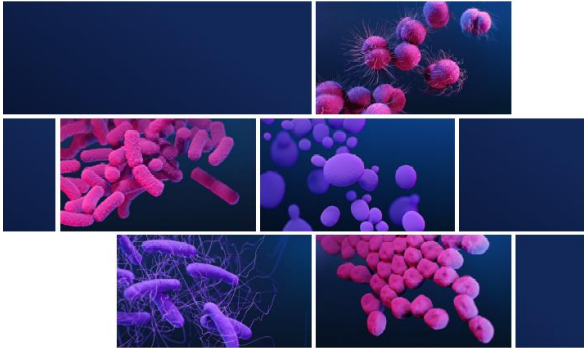
Resistant to all or most antimicrobials tested, making them hard to treat



Fungi

ANTIBIOTIC RESISTANCE THREATS
IN THE UNITED STATES

2019



Urgent Threats

These germs are public health threats that require urgent and aggressive action:



CARBAPENEM-RESISTANT
ACINETOBACTER



CANDIDA AURIS



CLOSTRIDIOIDES DIFFICILE



CARBAPENEM-RESISTANT
ENTEROBACTERIACEAE



DRUG-RESISTANT
NEISSERIA GONORRHOEAE

MDROs Often Affect the Sickest of the Sick

- **Multiple healthcare stays**
- **Prolonged healthcare stays**
- **Invasive devices (e.g., tracheostomies)**
- **Ventilator-dependent**
- **Recently received antibiotics and antifungals**



MDRO Infections

- **MDROs can cause many different types of infections**
 - **Bloodstream**
 - **Urinary tract**
 - **Respiratory system**

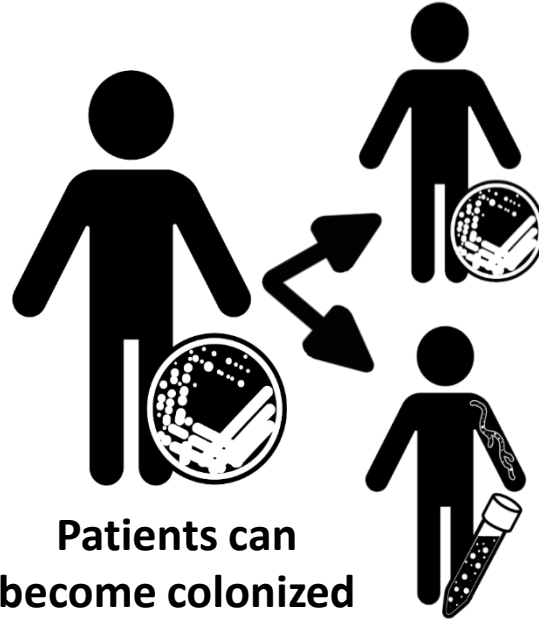
- **Infections with MDROs are associated with worse outcomes**
 - **Longer hospital stays**
 - **Higher mortality**

Candida auris (C. auris)

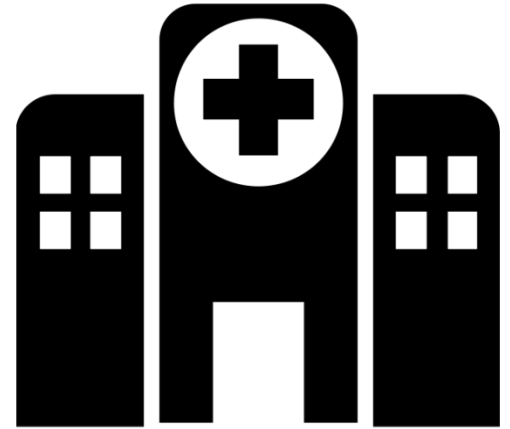
Why are we concerned about *Candida auris*?



Highly
drug-resistant



Patients can
become colonized
and develop
invasive infections



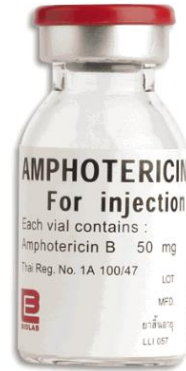
Spreads in healthcare
settings

C. auris Resistant Isolates in the USA



84%

Azoles



25%

Polyenes



2%

Echinocandins

First-line treatment

- 25% multidrug-resistant
- Multiple pan-resistant isolates since 2019

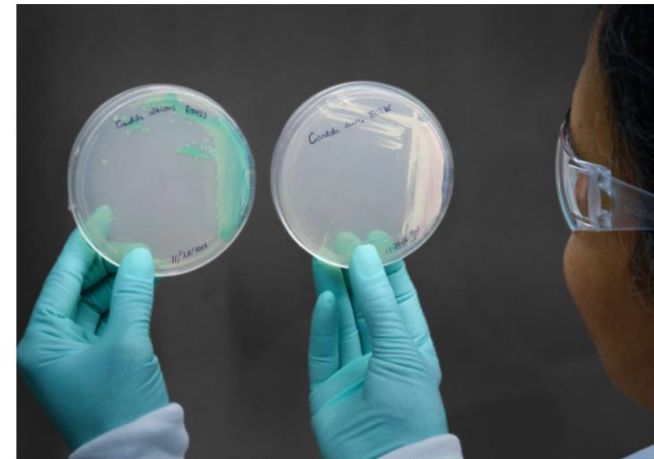
Increase in *C. auris* Resistance

- **2 independent clusters of pan- or echinocandin-resistant cases among patients with no prior echinocandin use**
 - 1 cluster was in Texas
- **First evidence of spread of pan- or echinocandin-resistant strains**
- **Contact your health department if you need of emergency use medication options**

The New York Times

Outbreaks of Untreatable, Drug-Resistant Fungus Spread in 2 Cities

For the first time, the C.D.C. identified several cases of *Candida auris* that were resistant to all drugs, in two health facilities in Texas and a long-term care center in Washington, D.C.



Cultured *Candida auris*, right, which was first discovered in 2009. Centers for Disease Control and Prevention

MDRO Colonization

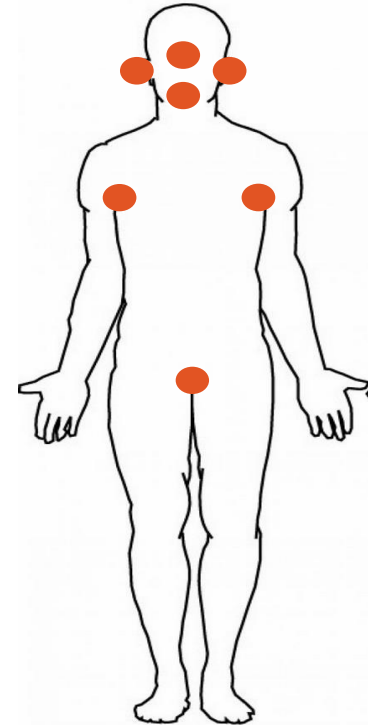
- Colonization means that a person is carrying a MDRO but does not have symptoms of an infection
- Colonized people play a large role in the spread of MDROs to other people in healthcare settings (require infection control action)



Colonization

C. auris Colonization Duration

- **Colonization can persist for many months**
- **Primarily on skin**
 - Nares and other body sites also can become colonized
 - Recommend screening by swabbing axilla/groin
- **Currently, no well-established decolonization strategies**



Can cause invasive infections and high mortality

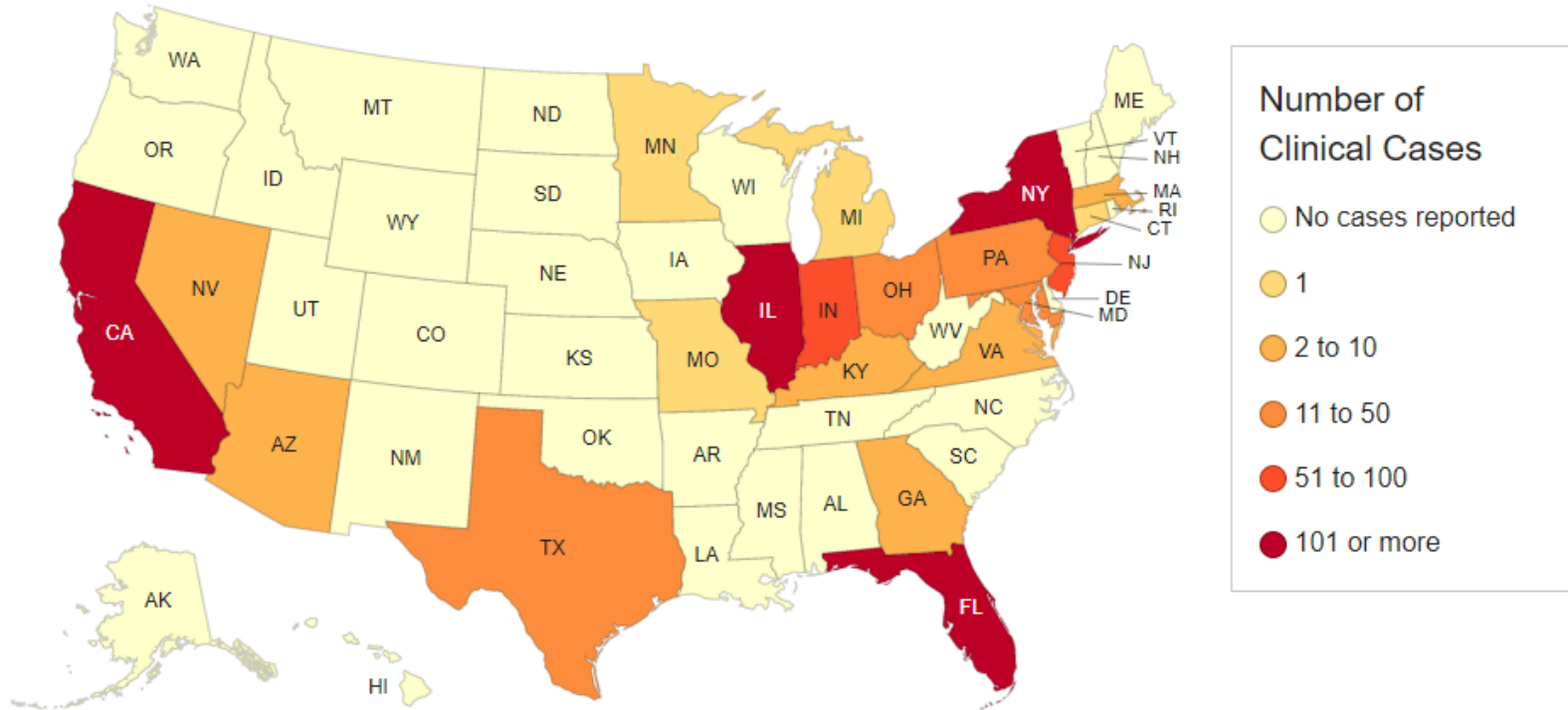
5-10% of colonized patients develop bloodstream infections



Mortality of invasive infections is

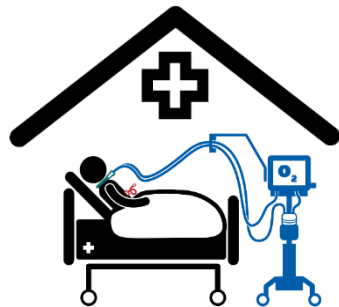
~40% *within the first 30 days*

Reported clinical cases of *C. auris*, 2021



vSNFs and LTACHs are disproportionately affected

C. auris prevalence



in vSNFs: 23-71%
in LTACHs: 23-36%

C. auris prevalence



in SNFs: 0-2%
In ACHs: 0-14%

Large Outbreak in a Hospital COVID-19 Unit

Morbidity and Mortality Weekly Report

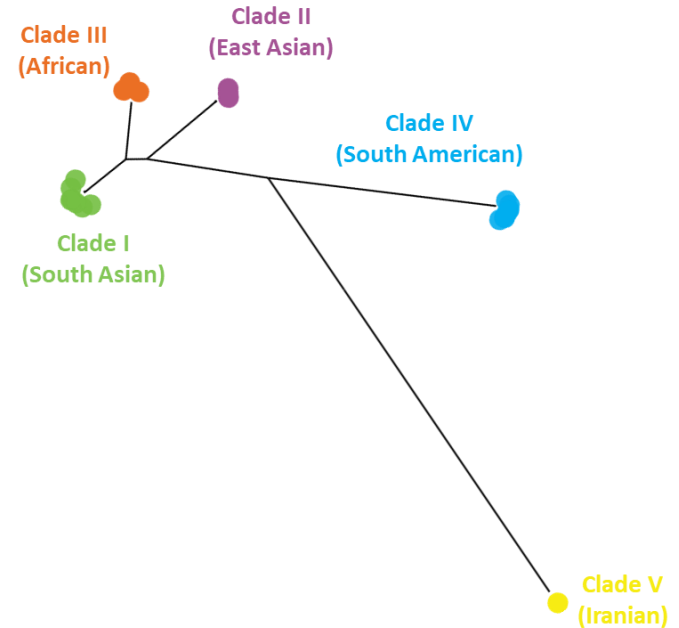
Candida auris Outbreak in a COVID-19 Specialty Care Unit — Florida, July–August 2020

Christopher Prestel, MD^{1,2}; Erica Anderson, MPH²; Kaitlin Forsberg, MPH³; Meghan Lyman, MD³; Marie A. de Perio, MD^{4,5}; David Kuhar, MD¹; Kendra Edwards⁶; Maria Rivera, MPH²; Alicia Shugart, MA¹; Maroya Walters, PhD¹; Nychie Q. Dotson, PhD²

- 35 (52%) patients screened for *C. auris* were positive for colonization
- Six (17%) colonized patients later had clinical cultures
- Healthcare personnel wearing multiple layers of gowns and gloves
 - Extended use of base layer for multiple patients
 - Many opportunities for contaminating base layer
 - Might be motivated by fear of becoming infected

Whole genome sequencing is being used in the public health response

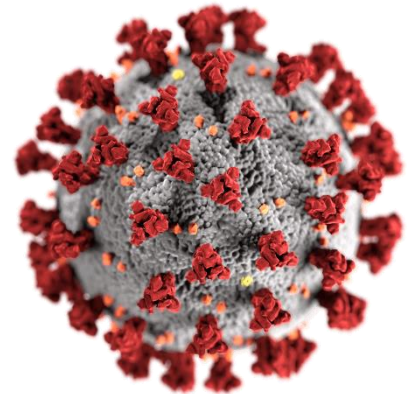
- 5 clades
 - 3 known to cause outbreaks of invasive infections
 - TX has had cases from at least 3 clades
- Highly clonal
 - Large SNP differences across clades, but isolates in a region are typically closely related
 - Generally, cannot distinguish intra-facility vs. regional transmission



***C. auris* during COVID-19**

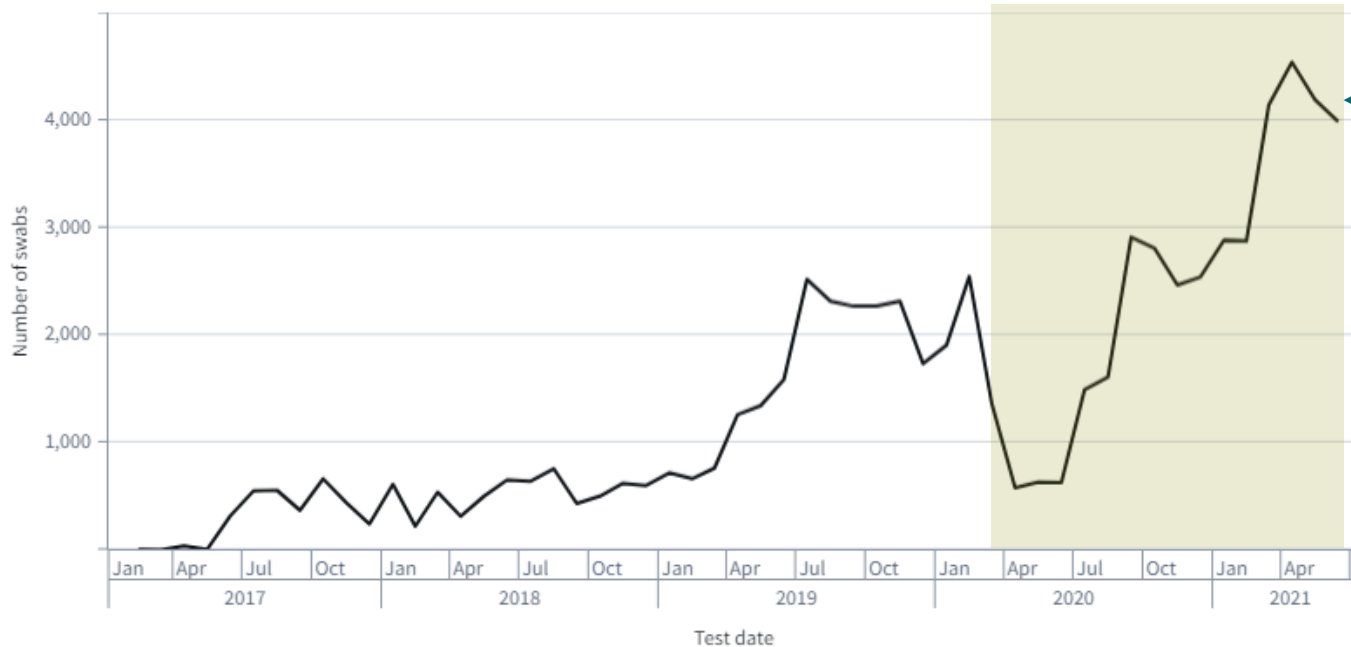
COVID-related challenges for *C. auris* surveillance and prevention

- Health department, facility, and laboratory staff are strained
- Shortages in personal protective equipment and laboratory supplies
- Fear and safety of healthcare personnel
- Reporting delays
- Changes in patient volume and movement patterns
- Widespread empiric antimicrobial use
- Decreased screening



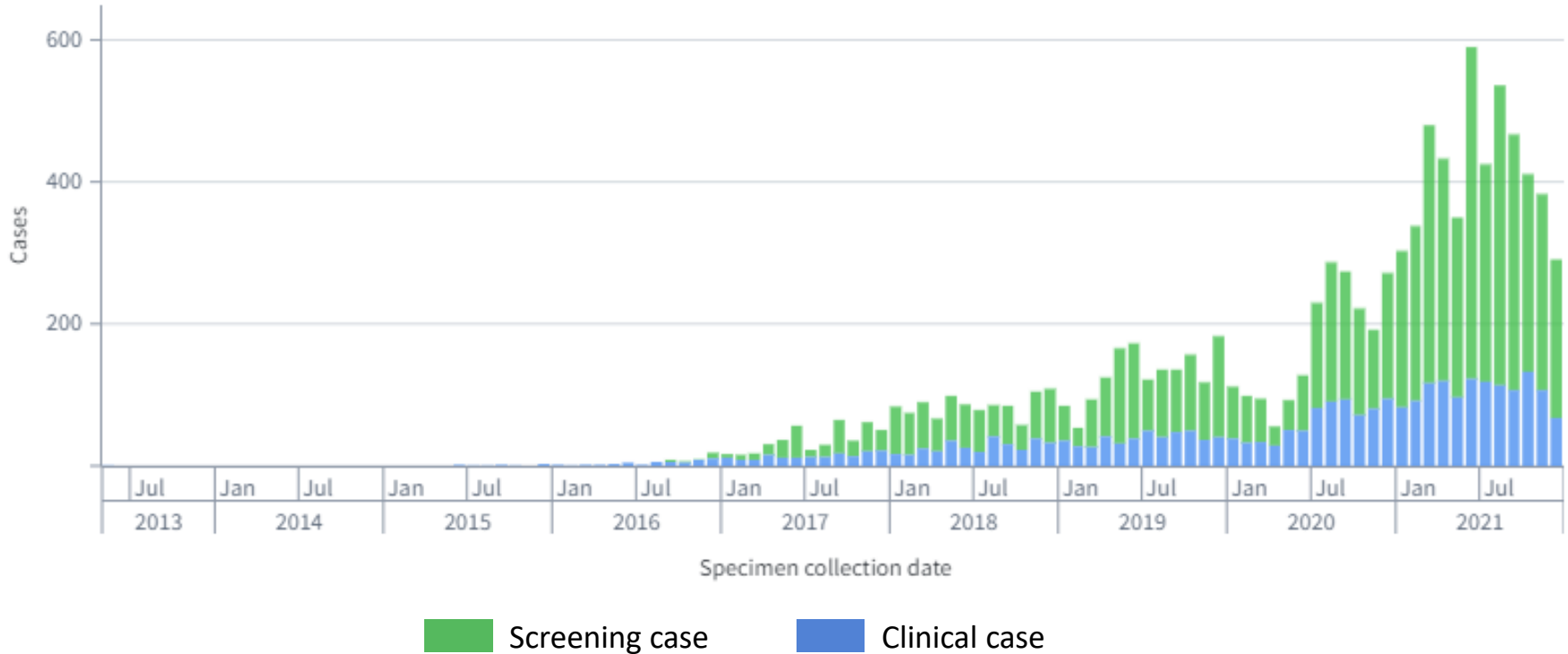
Decreasing surveillance of *C. auris* during COVID-19

C. auris colonization swabs tested through the AR Lab Network by month



Screening increasing after evidence of increasing *C. auris* spread

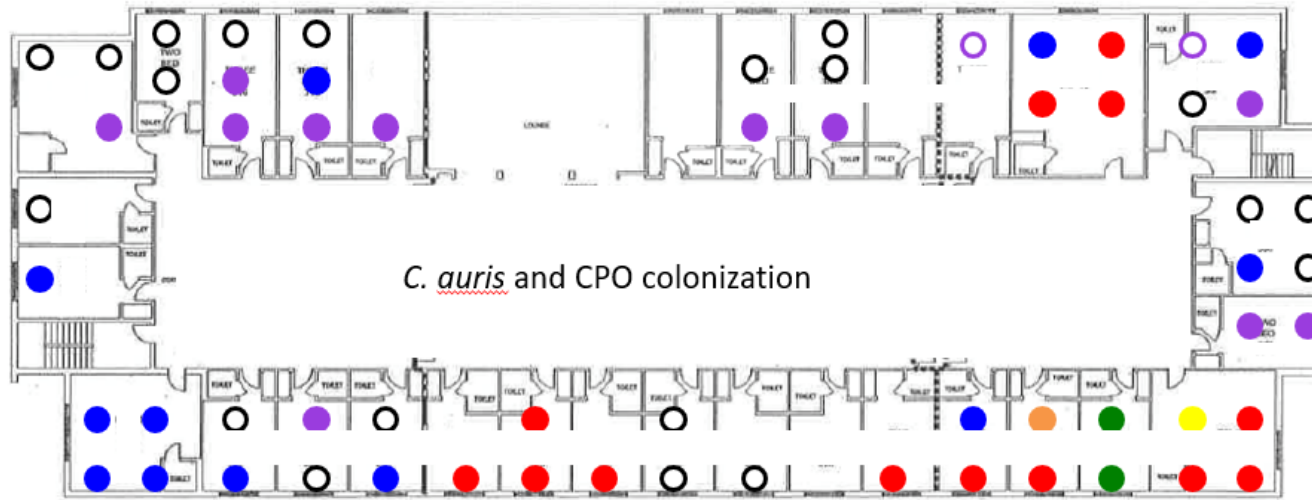
Increasing cases of *C. auris* during COVID-19



Preventing MDRO Spread

Including *C. auris*!

C. auris spreads throughout units & many patients have other MDROs too



- *C. auris*
- *C. auris* and KPC
- KPC or CRE with unknown mechanism of resistance
- *C. auris*, KPC, and NDM
- *C. auris*, VIM-CRPA, and KPC
- *C. auris* and KPC-CRPA
- Screened negative for *C. auris*, but not tested for CRE
- Screened negative for CRE and *C. auris*

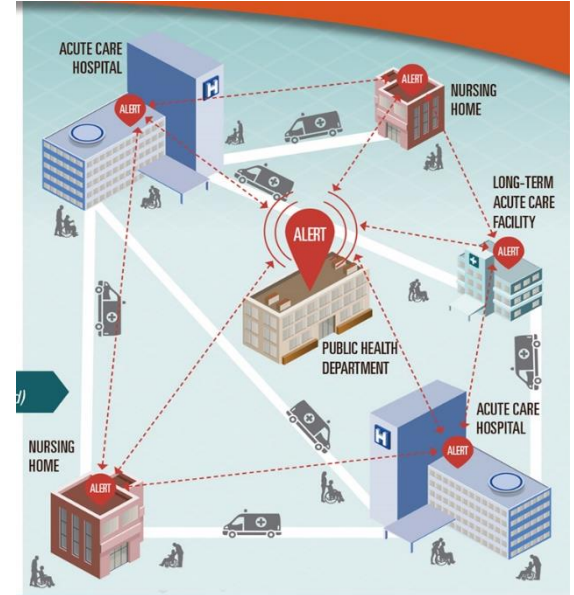
vSNF = skilled nursing facility with ventilator units

CPO = carbapenemase-producing organism; PPS = point-prevalence survey

Slide courtesy of Chicago Department of Public Health.

We are all Connected

- Healthcare facilities exist in intricate networks of patient sharing
- What one facility does or does not do can affect a whole region
- Limiting the spread of MDROs is everyone's responsibility!



Battling MDRO Spread

- 1. Identify as many people as possible who are infected or colonized with MDROs in a region**
- 2. Have good baseline infection control practices and use recommended infection control practices for people with MDROs in healthcare facilities**
- 1. Communicate at transfer to other facilities which people have MDRO(s)**

Step 1: Identify those with MDROs

Identify Individuals with MDROs from Clinical Cultures

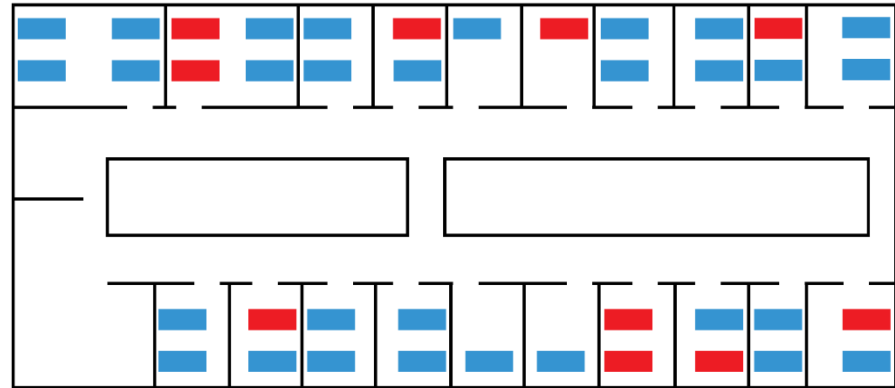
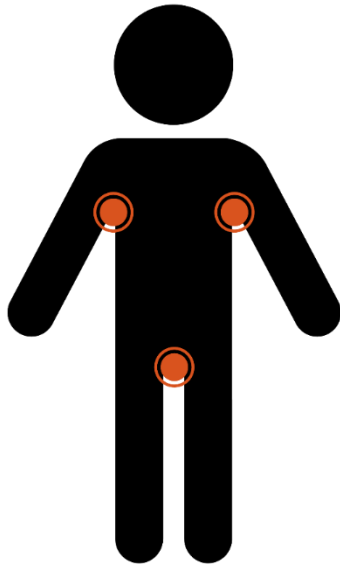
- Understand what your laboratory's ability is to detect these organisms
- Know and follow public health reporting rules and isolate submission (even if you're using a contracted laboratory)
- Consider using enhanced detection methods
 - Identify all *Candida* species isolated from all laboratory culture



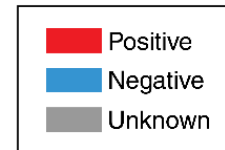
Identify Colonized Individuals

- **Colonization screening: Using a swab to sample different body sites to determine if that person has the MDRO of interest (i.e., colonized but not infected)**
 - Admission screening
 - Discharge screening
 - Point prevalence survey
- **Point prevalence survey (PPS): When colonization screening is performed on a group of people to determine how many of them are colonized**

C. auris colonization doesn't just get spread to roommates—all other patients on the unit are at risk



Case Status



Step 2: Utilize Recommended IPC Practices

Hand Hygiene

- **Alcohol-based hand sanitizers are the preferred method of hand hygiene in most clinical situations**
- **Hand hygiene observations and feedback are essential to improving adherence**



STOP CONTACT PRECAUTIONS STOP

EVERYONE MUST:

 Clean their hands, including before entering and when leaving the room.

PROVIDERS AND STAFF MUST ALSO:

 Put on gloves before room entry. Discard gloves before room exit.

 Put on gown before room entry. Discard gown before room exit.
Do not wear the same gown and gloves for the care of more than one person.

 Use dedicated or disposable equipment. Clean and disinfect reusable equipment before use on another person.

 U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

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Contact Precautions

- Private rooms are preferred (but not required) for patients requiring Contact Precautions
- If not possible,
 - Prioritize private rooms for individuals with uncontrollable secretions or excretions
 - Cohort individuals with like organisms
- Patients should be restricted to their room **except** for medically necessary movement


Enhanced Barrier Precautions (EBP)

- Utilized in nursing homes only
- Use of gown and gloves:
 - For high touch activities only
 - For residents with known MDROs
 - Or those who may be at increased risk (indwelling devices, wounds) if on the same unit as someone with a MDRO
- Please contact your health department before implementing for additional tips

STOP **ENHANCED BARRIER PRECAUTIONS** **STOP**
EVERYONE MUST:

 Clean their hands, including before entering and when leaving the room.

PROVIDERS AND STAFF MUST ALSO:

 Wear gloves and a gown for the following High-Contact Resident Care Activities.

 Dressing
Bathing/Showering
Transferring
Changing Linens
Providing Hygiene
Changing briefs or assisting with toileting
Device care or use:
central line, urinary catheter, feeding tube, tracheostomy
Wound Care: any skin opening requiring a dressing

Do not wear the same gown and gloves for the care of more than one person.

Y. HARRIS, CDC

 U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

Environmental Cleaning and Disinfection

- Focus on, at least, daily cleaning and disinfection of high touch surfaces
- Clean and disinfect non-disposable, shared equipment after each use, including:
 - Vital sign machines
 - Glucometers
 - Portable radiology equipment
- Conduct regular auditing



***C. auris* Specific Cleaning and Disinfection Products**

- **First choice:**
 - **List P: Antimicrobial Products Registered with EPA for Claims Against *Candida auris***
- **Second choice:**
 - **List K: EPA's Registered Antimicrobial Products Effective Against *C. diff* Spores**

**Strongly consider using disinfectants effective
against *C. auris***



IPC practices may have been disrupted during COVID

- **Have you returned to pre-COVID IPC practices?**
- **Does your staff need any reeducation?**

Step 3: Communicate

Life is Better with Effective Communication

- **To ensure safe patient care, we need effective communication at any transition**
 - Between units
 - Between facilities (interfacility)
 - This includes someone's MDRO status pending laboratory screening tests
- **Give what you wish to receive**



We Need You

- To assess how you communicate an individual's MDRO status within your facility and with other facilities/providers
 - How is this done? Verbally? On Paper?
 - What is communicated?
 - Who is responsible for the communication?
 - How do you ensure the receiver and communicator of the information understands?
 - Who do you receive and transfer to the most?



Next Steps

Next steps

- Identify where gaps in your IPC practices exist and work on them before you have a problem
- Be on the lookout for *C. auris* from clinical specimens
- Consider screening based on local epidemiology
- Assess your current communication practices
- Please pass on what you have learned to your staff, additional links at the end of this slide deck

IPC Educational Links

<https://www.cdc.gov/hai/containment/PPE-Nursing-Homes.html>

<https://www.cdc.gov/infectioncontrol/basics/transmission-based-precautions.html>

<https://www.cdc.gov/handhygiene/index.html>

<https://www.who.int/teams/integrated-health-services/infection-prevention-control/hand-hygiene/tools-and-resources>

<https://www.cdc.gov/infectioncontrol/projectfirstline/index.html>



Fungal Diseases

CDC > Fungal Diseases



[Fungal Diseases](#)

[About Fungal Diseases](#)

[Types of Fungal Diseases](#) +

[Who Gets Fungal Infections?](#) +

[Outbreaks](#) +

Fungal Diseases and COVID-19

Overview

Symptoms of some fungal diseases can be similar to those of [COVID-19](#), including fever, cough, and shortness of breath.¹ Laboratory testing is necessary to determine if a person has a fungal infection or COVID-19. Some patients can have COVID-19 and a fungal infection at the same time.

People with severe COVID-19, such as those in an intensive care unit (ICU), are particularly vulnerable to bacterial and fungal

On This Page

[Overview](#)

[COVID-19-associated pulmonary aspergillosis](#)

[Increased spread of *Candida auris* during COVID-19 pandemic](#)

<https://www.cdc.gov/fungal/covid-fungal.html>

Thank you!

For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.cdc.gov

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.





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Health and Human
Services

**Texas Department of State
Health Services**

Candida auris in Texas

Healthcare Safety Conference 2022

Thi Dang, MPH, CHES, CIC, FAPIC

Healthcare Safety Investigations Group

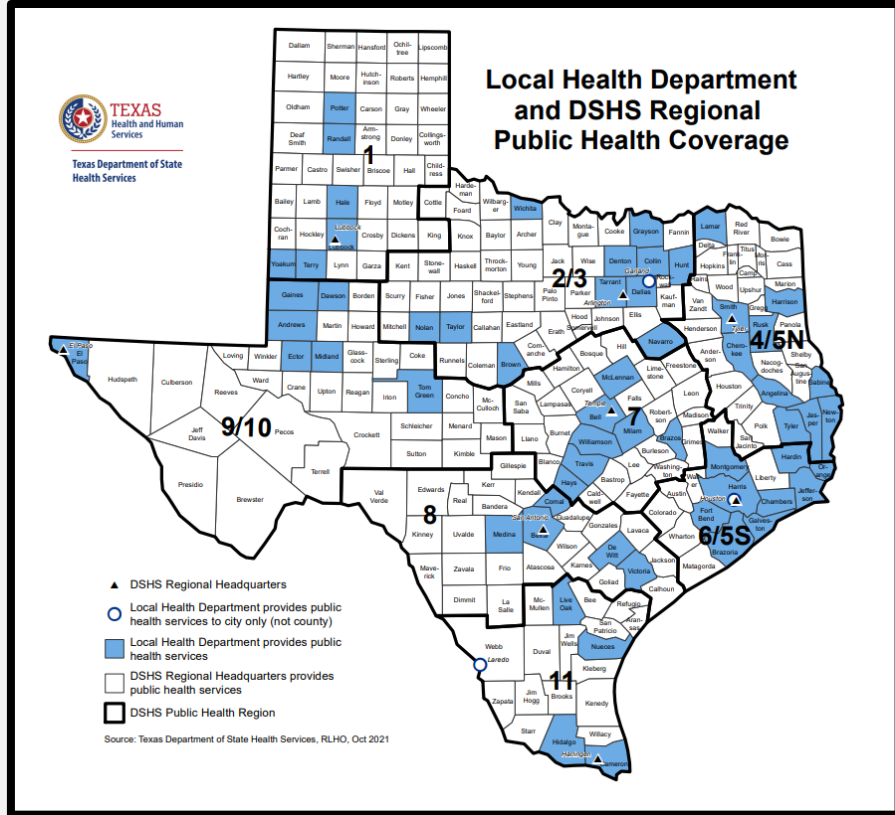
Texas Department of State Health Services



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Health Services

Texas Public Health



Texas includes:

- 254 counties
- 8 public health regions
- Over 50 local health departments

Texas *Candida auris* Case Counts by Specimen Collection Date

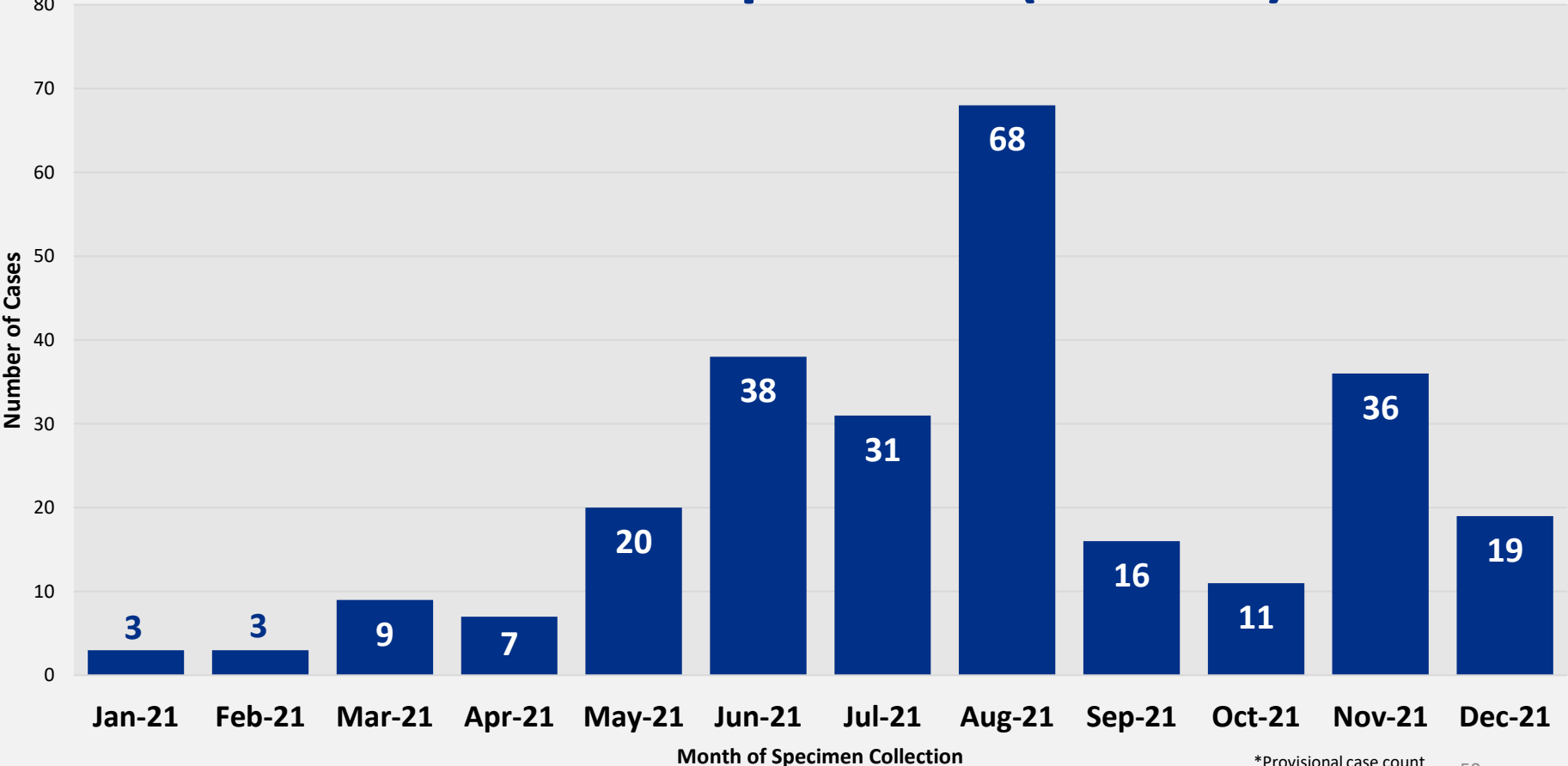
2017	2018	2019	2020 ⁺	2021 [*]
1	1	7	2	261

⁺ One specimen collected in 2020, reported in 2021

^{*}Provisional case count

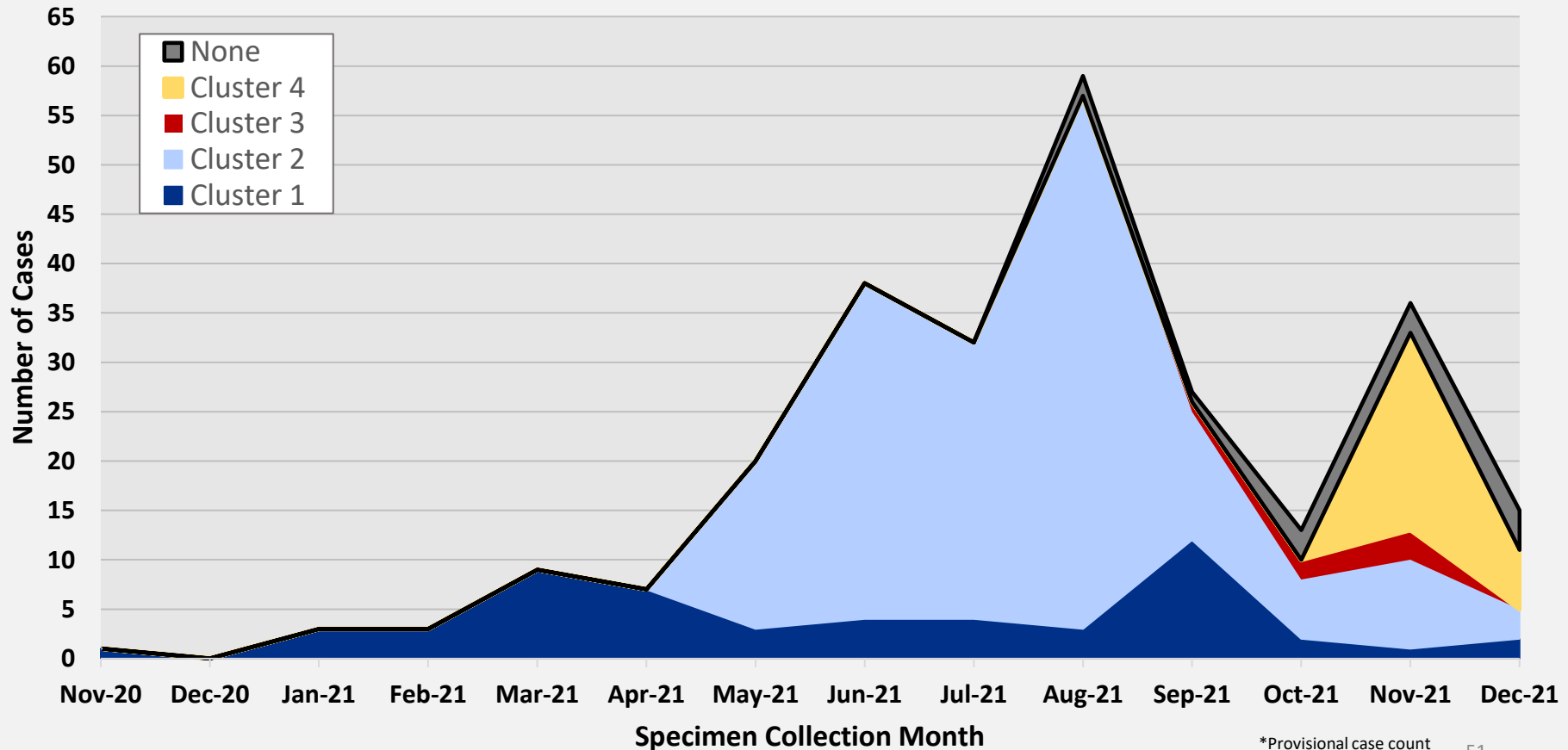


2021 *C. auris* Epi Curve (N=261*)



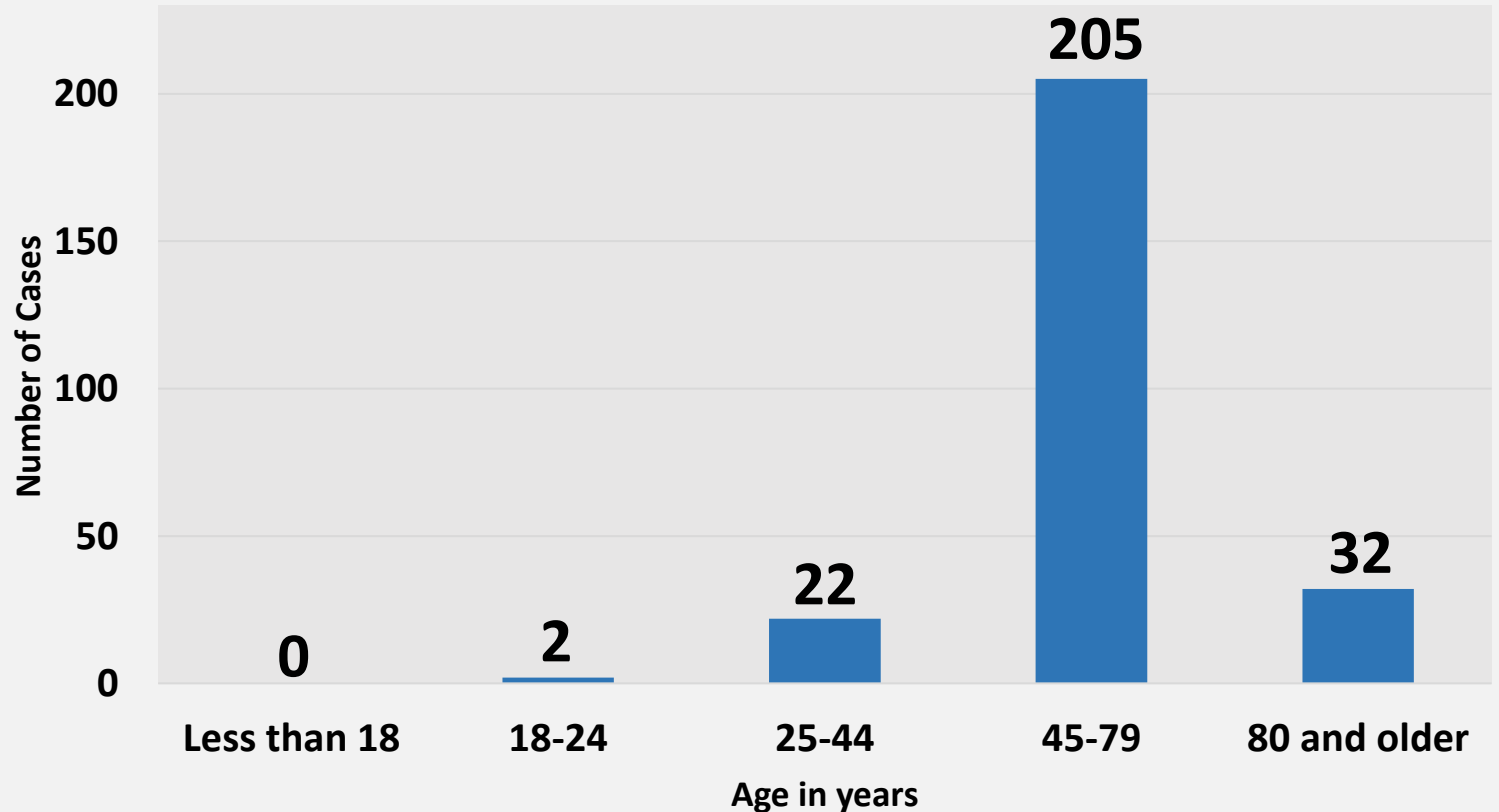
*Provisional case count

2021 *C. auris* Cases by Cluster (N=261*)

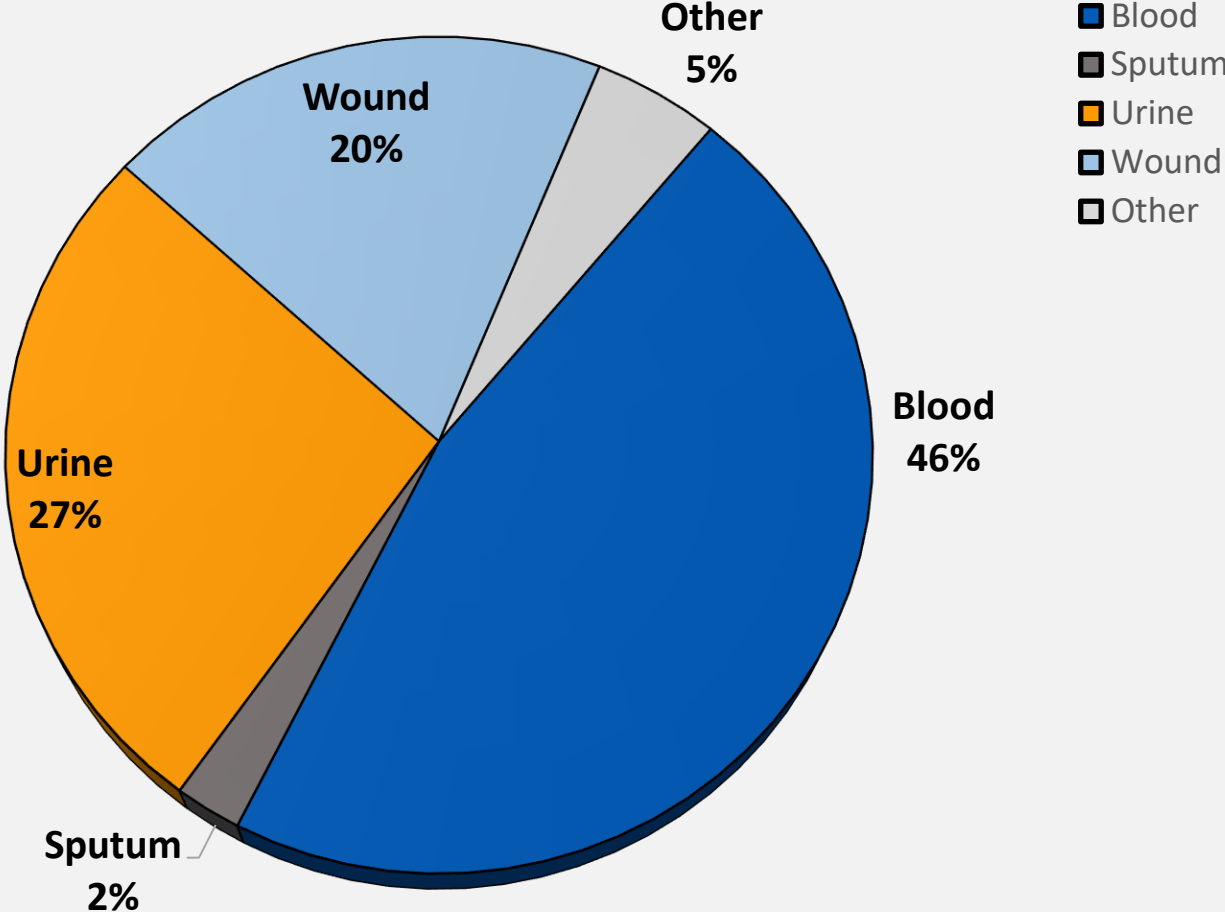


*Provisional case count

Case Demographics – Age in years (N=261)



Specimen Sources

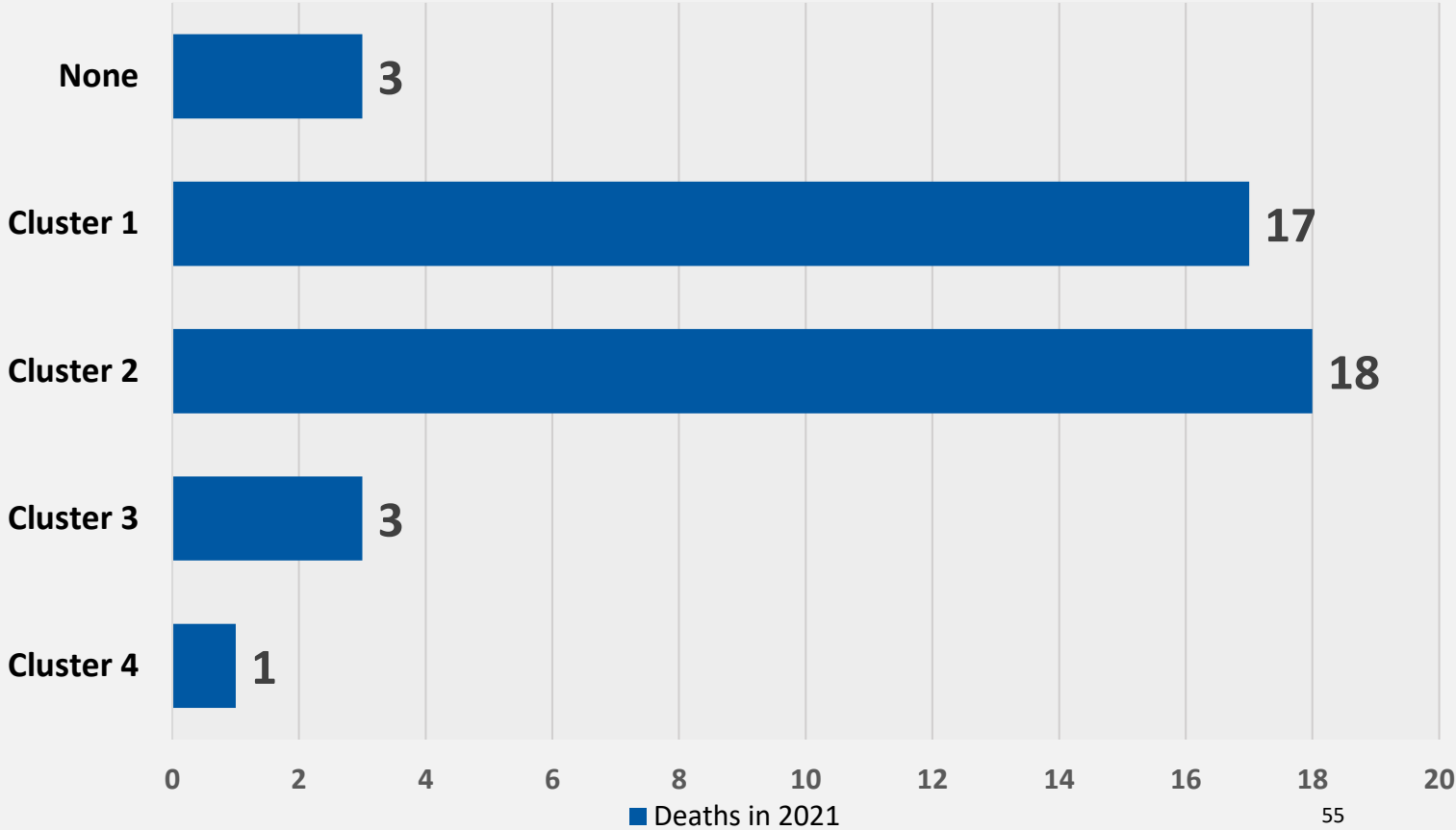


Antifungal Resistance Cases

- DSHS Lab forwarded *C. auris* isolates to the Mountain Region AR Lab for antifungal susceptibility testing (AST)
- AST identified
 - 2 Pan-resistant *C. auris*
 - 8 Echinocandin-resistant *C. auris*
- AST results not known for all *C. auris* cases



Mortality Data by Cluster (N=41)



Colonization Screenings

- DSHS Laboratory provided testing support for *C. auris* colonization screenings
- DSHS Laboratory and HAI epidemiologists provided:
 - Colonization screening swabs
 - Shipping containers
 - Specimen submission forms
 - Guidance for specimen collection and shipping
- Over 3860 swabs were tested for *C. auris* colonization in 2021



Infection Control Assessment and Response (ICARs)

- Remote and onsite ICARs were conducted by the local health department epidemiologists and DSHS HAI epidemiologists
- Environmental assessments conducted by DSHS included:
 - Review of the patient care environment
 - Observation of staff practices
 - Monitoring effectiveness of cleaning and disinfection practices using fluorescent markers



Infection Control Gaps Identified



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Infection Control Observations

Transmission-Based Precautions

- Contact precautions
 - Compliance not always monitored; findings not communicated to unit staff
 - Re-use of PPE was an observed risk
- Enhanced barrier precautions
 - New concept, unfamiliarity
 - Facility hesitancy to implement
 - Feedback from facilities indicated happier patients and family



Infection Control Observations

Cleaning and Disinfection

- Lack of products effective against *C. auris*
- Multiple product options available to staff
- Staff unfamiliarity with manufacturer's instructions and internal policies
- Incorrect education on contact times for fungi
- Lack of auditing by infection prevention



Infection Control Observations

Hand Hygiene

- Staff observed not performing hand hygiene at the correct moment
- Poor hand hygiene technique observed
- Many facilities used “secret shoppers” for hand hygiene observations
- Audits were not being done during night and weekend shifts



Infection Control Observations

Interfacility Transfer Communications

- Infection/colonization history not communicated
- Isolation status not communicated
- Pending results not communicated



Acknowledgements:

- DSHS Laboratory and Infectious Diseases Section
- Texas Local Health Department epidemiologists
- Facility Infection Prevention teams and Administrators
- Submitting Laboratories
- DSHS Laboratory Receiving, Mycology, and Molecular teams
- Utah AR Laboratory
- Centers for Disease Control and Prevention Division for Healthcare Quality and Promotion
- HAI Epidemiologists from other state health departments



Questions?



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Thank you!



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