

Infection Prevention and Control Roundtable with Acute Care Facilities

Wednesday, May 21, 2025





- Welcome
- Updates from CDPH
 - Alerts and New Resources
 - Antimicrobial Stewardship ICAR
- Special Topics
 - Candida auris Quarterly Update
 - Candida auris Whole Genome Sequencing and Genomic Epidemiology in Chicago
- Discussion and Q&A

🖈 Alerts and New Resources

• Siren Alert – Please report to us if cases present.

- Paraburkholderia fungorum-contaminated non-sterile ulatrasound gel MediChoice® (lots: 240302; 240306) and ClearImage® (lots: 230221, 230256, 240227, 240230), both manufactured by NEXT Medical Products Company.
- Linked to positive blood cultures following percutaneous procedures.
- Use only single-use ultrasound gel products labeled as "sterile" for ultrasonography in preparation for or during percutaneous procedures (e.g., placement of central and peripheral intravenous lines, amniocentesis, paracentesis, tissue biopsy, and surgical procedures).
- <u>https://www.cdc.gov/healthcare-associated-infections/bulletins/outbreak-ultrasound-gel.html</u>
- New CDC Be Ready for Measles Toolkit Available: <u>https://www.cdc.gov/measles/php/toolkit/index.html</u>
- Please put any new or helpful alerts or resources in the chat. We will include them in the follow up email.



Antimicrobial Stewardship Infection Control Assessment and Response (ICAR)

Antimicrobial Stewardship Team





This AS ICAR is intended to aid an ICAR facilitator in the review of a healthcare facility's antimicrobial stewardship policies and activities.



This review should be conducted with antimicrobial stewardship lead(s) if possible.



It helps to identify your facility's capacity to detect, report and address healthcare acquired infections and/or outbreaks





Leadership Commitment, Accountability and Stewardship Expertise to Improve Antibiotic Use



Actions and Activities to Improve Antibiotic Use



Tracking and Reporting Antibiotic Use and Outcomes



Education of Healthcare Professionals, Patients, and their Families



Infection Control Assessment and Response (ICAR) Tool for General Infection Prevention and Control (IPC) Across Settings

Module 10. Antibiotic Stewardship Facilitator Guide

Antibiotic Stewardship: This form is intended to aid an ICAR facilitator in the review of a healthcare facility's antibiotic stewardship policies and activities. This interview should be conducted with antibiotic stewardship lead(s) if possible.

Leadership Commitment, Accountability and Stewardship Expertise to Improve Antibiotic Use

- Which of the following individuals are responsible for the management and outcomes of antibiotic stewardship activities at your healthcare facility: (Select all that apply)
 - Physician
 - Co-lead
 - Lead
 - Designated physician support
 - Pharmacist
 - Co-lead
 - Lead
 - Designated pharmacist support
 - Other (e.g., RN, PA, NP, IP, other), specify:
 - Co-lead
 - Lead
 - Designated support
 - Unknown
 - None, the healthcare facility does not have individuals responsible for antibiotic stewardship activities management and outcomes
 - Not Assessed

Identifying an antibiotic stewardship lead or co-lead who is/are accountable for program management and outcomes is critical for the successful implementation of antibiotic stewardship policies and activities. Most hospitals have found a physician and pharmacist co-leadership model to be effective.

If a non-physician is identified as a lead for stewardship activities, it is important to designate a physician (or medical director) who can serve as a point of contact and support for the non-physician lead. Regular "stewardship rounds" for the co-leaders, or the non-physician lead and the supporting physician can strengthen program leadership.

The core elements of antibiotic stewardship for hospital, outpatient, nursing home, and small and critical access hospitals can be found here: Core Elements of Antibiotic Stewardship.

For strategies to improve antibiotic prescribing in outpatient dialysis settings refer to: Improving Antibiotic Use in Outpatient Hemodialysis Facilities

- Which of the following describes the individual responsible for the management and outcomes of antibiotic stewardship activities? (Select all that apply, repeat for <u>each</u> individual)
 - Has dedicated time to manage the program and conduct daily stewardship interventions
 - □ Specify percent time in the job description or in an average week dedicated to stewardship activities at the facility: ○ 0-25% ○ 26%-50% ○ 51-75% ○ 76-99% ○ 100%

Has antibiotic stewardship responsibilities specified in the employment contract, job description or performance review
Is on-site at the healthcare facility

- O Full-time
- Provides remote stewardship expertise (tele-stewardship)
- Completed infectious diseases training (residency or fellowship)
- Completed antibiotic stewardship training (certificate program, conference, online training)
- Unknown
- None, the healthcare facility does not have individuals responsible for antibiotic stewardship activities management and outcomes
 Not Assessed

A priority example of leadership commitment includes giving stewardship program lead(s) time and resources to manage the program and conduct daily stewardship interventions. That includes having stewardship as part of the job description to ensure that lead(s) have dedicated time to spend on developing and maintaining stewardship activities.

Core Elements of Antibiotic Stewardship

For healthcare facilities without pharmacy staff on-site, placing stewardship requirements into the contractual responsibilities of pharmacy services can help support stewardship implementation. This can include a requirement for supporting antibiotic use tracking and formal stewardship training. Healthcare facilities with limited stewardship expertise can consider funding remote consultation or tele-stewardship. Even when remote expertise is used, it is important to have a stewardship lead on staff at the facility. Healthcare facilities can also seek additional expertise by joining multi-facility stewardship collaboratives or engaging with public health organizations.

Training in infectious diseases and/or antibiotic stewardship benefits stewardship program lead(s). An example of an online stewardship training can be found here: CDC Training on Antibiotic Stewardship.

Notes

- 3. Healthcare facility leadership has demonstrated commitment to antibiotic stewardship efforts by: (Select all that apply)
 - Having an antibiotic stewardship policy that requires an antibiotic stewardship program or requires the implementation of antibiotic stewardship activities
 - Allocating resources to support education and training for stewardship team and healthcare professionals
 - Ensuring support for stewardship activities from key departments and groups such as information technology or microbiology
 - Having a senior executive who serves as a point of contact or "champion" and ensures availability of resources and key support to implement stewardship activities
 - Having regularly scheduled meetings with facility leadership and/or the hospital board to report and discuss stewardship activities, resources, and outcomes
 - Communicating to healthcare facility staff about antibiotic use, resistance, and stewardship activities via email, newsletters, events, or other avenues
 - Unknown
 - None, the healthcare facility does not demonstrate commitment to antibiotic stewardship efforts
 - Not Assessed
 - Other (specify):

Dedicating necessary human, financial and information technology resources is critical for the success of stewardship activities. <u>Core Elements of Antibiotic Stewardship</u>

Regularly scheduled meetings can be done quarterly, biyearly or yearly depending on the facility size and activities planned. Refer to leadership commitment and accountability sections in:

Antibiotic Stewardship Implementation Resources for Hospitals;

Antibiotic Stewardship Implementation Resources for Outpatient Facilities; and

Particular Second ship implementation resources for outputerier dentites, and

Antibiotic Stewardship Implementation Resources for Nursing Homes.

\star How will your facility benefit from this assessment?

- Allows for a fresh perspective on your existing AS program
- Prepare facility for regulatory surveys
- Helps with Infection Control Risk Assessment priorities and planning activities
- Provides a summary report of opportunities and strengths for each facility's antimicrobial stewardship program, as well as resources and education if needed.



Send	Analyze	Establish	Site Visit
ICAR Redcap Survey will be sent to Antimicrobial Stewardship leads at facility	ICAR responses are analyzed by CDPH Antimicrobial Stewardship lead and Antimicrobial Stewardship Epi	Provide customized feedback and identify areas of opportunity	Provide written recommendations to facility based on results via site visit in person or virtually



Candida auris Quarterly Update

Clarissa Najera, MBA, MPH Epidemiologist II

Figure 1. Chicago C. auris Cases (n=3,140) by specimen collection year and specimen type¹, May 2016 –March 31, 2025²



¹Colonized (screening) to clinical cases (n=261) are counted twice: once as a screening case and once as a clinical case at the time of specimen collection

²Data are provisional as of 4/8/25

Data Source: Combined IL XDRO Registry, INEDSS, and CDPH conducted PPS.

Figure 2. Chicago C. auris Cases (n=733) by specimen collection month and specimen type¹, April 1, 2024 – March 31, 2025²



¹Colonized (screening) to clinical cases (n=119) are counted twice: once as a screening case and once as a clinical case at the time of specimen collection ²Data are provisional as of 4/8/25

Data Source: Combined IL XDRO Registry, INEDSS, and CDPH conducted PPS.

Figure 3. Percent of Chicago clinical C. auris cases (n=991) by gender, May 2016 – Mar 31, 2025¹



¹Data are provisional as of 4/8/25 Data Source: Combined IL XDRO Registry, INEDSS, and CDPH conducted PPS.

Figure 4. Percent of Chicago clinical C. auris cases (n=991) by age group and year of specimen collection, May 2016 – Mar 31, 2025¹



¹Data are provisional as of 4/8/25 Data Source: Combined IL XDRO Registry, INEDSS, and CDPH conducted PPS.

Figure 5. C. auris prevalence¹ by facility type from CDPH conducted point prevalence surveys², Chicago, IL, January 1, 2025 – March 31, 2025



¹Prevalence is calculated as total number of positives (previously known positives + new positives) over the census ²CDPH routinely conducts point prevalence surveys at vSNFs and LTACHs and only does PPS in ACH and SNF when there is newly identified positive case

Data Source: Point Prevalence Surveys Conducted by CDPH

Abbreviation: vSNF, ventilator-capable skilled nursing facility; LTACH, long-term acute-care hospital; ACH, acute care hospital; ICU, intensive care unit; SNF, skilled nursing facility

Figure 6. Chicago clinical C. auris cases (n=991) by facility type and year of specimen collection, May 2016 – March 31, 2025¹



¹Data are provisional as of 4/8/25

Data Source: Combined IL XDRO Registry, INEDSS, and CDPH conducted PPS.

Figure 7. Percent of Chicago clinical C. auris cases (n=62) by specimen source and month of specimen collection, Jan 1, 2025 – Mar 31, 2025¹



¹Data are provisional as of 4/8/25 Data Source: Combined IL XDRO Registry, INEDSS, and CDPH conducted PPS.



Candida auris Whole Genome Sequencing and Genomic Epidemiology in Chicago

Hannah Barbian, Genomic Epidemiologist hannah_j_barbian@rush.edu

Do not distribute



- 1. C. auris WGS process overview
 - i. RIPHL introduction
 - ii. Sample submission
 - iii. WGS methods
 - iv. Data interpretation
- 2. Molecular epidemiology of C. auris
 - i. Global
 - ii. Chicago
- 3. Use cases for *C. auris* WGS
 - i. Intra-facility transmission
 - ii. Inter-facility transmission
 - iii. Limitations



Regional Innovative Public Health Laboratory (RIPHL):

- Innovative public-academic partnership between Chicago Department of Public Health and Rush University (begun in 2021)
- Sustainable, flexible framework for molecular detection, characterization, and genomic surveillance of pathogens of public health importance
- Timely, actionable data for public health response





A molecular biology and next-generation sequencing laboratory

- Housed within the Rush Genomics and Microbiome Core Facility (GMCF)
 - Nucleic acid extraction
 - Quantitative analysis of RNA/DNA
 - Genotyping
 - Next-generation sequencing (NGS)
 - Bioinformatics support



- Specializing in high-throughput and automated molecular laboratory processes...
 - Automated nucleic acid extraction robotics
 - Liquid handling robots
 - Automated library preparation
- and pathogen / microbial characterization
 - Culture lab for bacterial/fungal isolation









- CDPH authorization
- RIPHL submission form
- Coordination of shipment to RIPHL

- Pure C. auris isolate preferred
 - Fresh or frozen
 - Sabouraud Dextrose agar plate or slant preferred
- Patient swabs also accepted
- De-identified with RIPHL ID
- Courier transfer to RIPHL









- Genome quality
- Candida auris clade
- Mutations in antifungal-resistance associated genes
- Relatedness to other submitted isolates
 - Single nucleotide polymorphism (SNP) distance
 - Phylogenetic clustering
- Relatedness to previously sequenced isolates from
 Chicago healthcare facilities
- Relatedness to publicly available sequences



Phylogenetic analysis



- Each leaf represents a specimen
- Each branch point represents a divergence
- Length of horizontal line indicates number of single nucleotide polymorphism (SNP) differences
- Those along the same vertical line have identical sequences
- Leaf color and metadata blocks to the right of tree tips can incorporate metadata



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- There is no defined SNP cutoff for C. auris transmission clusters
- In outbreak settings, usually 0-2 SNPs between epidemiologically-linked cases
- We consider ~7 SNPs "closely related isolates"
 - Mean SNP distance in isolates collected from a single individual
 - SNP distance enriched in isolates collected from the same facility
 - Number of SNPs expected in 1 year of C. auris evolution
- While WGS data can be used to support putative transmission links, independent introductions of closely related genomes is also possible; epidemiological data is required to definitively identify transmission events



RIPHL Global Candida auris molecular epidemiology

10 000 SNP

- Six clades of *C. auris* •
- Associated with different • geographic regions
- >10,000 SNPs between clades ٠
- <100 SNPs within clades ٠

South American

Venezuela

Venezuela

Colombia

clade

Now detected in over 50 countries ٠ and ~40 US states



RIPHL Summary of Chicago C. auris isolates sequenced

- Whole genome sequencing (WGS) has been performed on 831 Illinois C. auris isolates
- SNP distances between sequenced isolates has increased from ~4 in 2016 to >30 in 2021







 Convenience sample of retrospective isolates from Antimicrobial Resistant Laboratory Network (ARLN)



• Outbreak/cluster response point prevalence surveys



National Library of Medicine

Public database

•

RIPHL Molecular epidemiology of *C. auris* in Chicago

- 831 isolates from Illinois have been sequenced
 - 824 (99%) are clade IV
 - 3 (0.4%) are clade I
 - 4 (0.5%) are clade III
- All Illinois clade IV C. auris sequences fall into a single cluster in a phylogenetic tree
- This suggests regional clade IV C. auris was the result of a single introduction event and subsequent spread
- Sporadic detection of clade I and III suggests that ongoing introductions are occurring, but so far spread is not widespread beyond clade IV



RIPHL Molecular epidemiology of C. auris among Chicago healthcare facilities Facility:

- Sequences from different healthcare facilities are interspersed throughout other Illinois clade IV sequences
- This suggests frequent strain sharing between facilities in the region
- However, some clusters of closely related sequences from single facilities suggest possible within-facility transmission or environmental persistence



RIPHL WGS use cases: Identify intra-facility transmission

3 patients from LTACH G have identical genomes



RIPHL WGS use cases: Exclude intra-facility transmission

4 isolates from ACH H are not related





Patient transfer data:

RIPHL Considerations: Patients can have different *C*. *auris* genotypes across body sites and time

Swabs collected at both axilla/groin and nares to determine relatedness of isolates collected from different sites

Isolates collected at different body sites from the same individual are closely related in 17 of 21 (80%) cases

Tree tips colored by patient

Arrows with same color indicate isolates from the same patient

Sequencing of a single isolate from a single site may miss some *C. auris* genotypes







35

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- Genomic epidemiology of *Candida auris* in Chicago suggests a single introduction of clade IV in 2016 that spread within and between healthcare facilities across 9 years
- While 99% of sequenced *C. auris* isolates are Clade IV, clade I and III have been detected at low levels, suggesting continuing introductions of other clades
- Whole genome sequencing can support *C. auris* surveillance, mitigation strategies and outbreak investigations
- While WGS data can be used to support putative transmission links, independent introductions of closely related genomes is also possible; epidemiological data is required to definitively identify transmission events



Thank you for participating!

Next Roundtable: Wednesday, June 18, 2-3 PM on Teams









Reach out to us!

Our team:

- Chief Medical Officer: <u>Stephanie Black</u>
- Medical Director: <u>Michelle Funk</u>
- Projects Administrator: <u>Shane Zelencik</u>
- Infection Preventionist (IP):
 - o Andrea Castillo
 - o Karen Branch-Crawford
 - o Kim Goitia (Dialysis and FQHCs Settings)
- Public Health Administrator (PHA):
 - o <u>Maggie Li</u>

Major role: Build infection control capacity across healthcare facilities in Chicago

ACHOO Email: cdphhaiar@cityofchicago.org

ACHOO Phone: (312) 744-1100

NEW: ACHOO HAN page: <u>Acute Care Facilities - HAN</u> (chicagohan.org)



Additional Slides/Resources

(not presented during the meeting)

Helpful Resources for reporting via the CHIMS Provider Portal

- CHIMS weblink: <u>https://chims.cityofchicago.org/maven/login.do</u>
- Instructions for submitting a Provider Portal account application, click <u>here</u>
- Instructions for submitting electronic **SYPHILIS** case reports, click <u>here</u>
- Instructions for submitting electronic **CONGENITAL SYPHILIS** case reports, click <u>here</u>
- Instructions for submitting electronic **HIV/AIDs** case reports, click <u>here</u>
- For CHIMS Provider Portal technical assistance and support, please send an email to: <u>chims@cityofchicago.org</u>

***** Chicago HAN- HIV, STI and Mpox webpages

- Mpox: https://www.chicagohan.org/mpox
- HIV and STIs: <u>https://www.chicagohan.org/diseases-and-</u> conditions/sti
- Congenital Syphilis: <u>https://www.chicagohan.org/diseases-and-conditions/cs</u>

***** Congenital Syphilis reporting

 If you have any questions about reporting a Congenital Syphilis case to CDPH, please contact our Congenital Syphilis Epidemiologist, Cece Pigozzi at (312) 744-4949 or cecilia.pigozzi@cityofchicago.org

*** As a reminder, please do not email PHI or PII to us ***



Our team consists of Infection Prevention Specialists, Epidemiologists, Project Managers, Projects Administrators, and Medical Directors who provide the following assistance:

- IP&C Guidance and Training
- Infection Control Assessments and Responses (ICARs)
- Epidemiology Support
- IP&C Roundtable
- Our partnerships and site visits are meant to be educational, constructive, non-regulatory, and non-punitive
 - We work with you to resolve any identified issues
 - These services are not in response to citations or complaints



CDPH requires additional epidemiological information for specific cases, beyond the standard reporting requirements. Providing this information helps us gain a better understanding of individual cases and aids in limiting the transmission of certain multi-drug-resistant organisms.

For training on MDRO reporting (whether you're a new Infection Preventionist or need refresher), or for any questions regarding CRF completion requirements, please contact Maggie Li at <u>maggie.li@cityofchicago.org</u>.





🖈 Project Firstline Overview

- Project Firstline is the Center for Disease Control's (CDC) National Training Collaborative for Healthcare Infection Control education
- Project Firstline (PFL) brings together more than 75 healthcare, academic, and public health partners to reach healthcare workers across the country
- PFL offers educational resources in a variety of formats to meet the diverse learning needs and preferences of the healthcare workforce

As of May 2022, Project Firstline and its collaborative partners have:



Developed **200+** educational products and training materials on healthcare infection control



Hosted **750+** educational events, reaching approximately **65,238** healthcare workers

Received **84 million+** views across the web and various digital platforms



- Learn about Infection Control in Health Care: CDC's Project Firstline provides innovative and accessible resources so all healthcare workers can learn about infection control in health care.
 - Topics include 14+ foundational IP&C (e.g., hand hygiene, environmental services, ventilation, PPE, how viruses spread, etc.), <u>Recognizing Risk using Reservoirs</u>, <u>Where</u> <u>Germs Live training toolkits</u>, and more interactive resources.
- Lead an Infection Control Training: Our facilitator toolkit is designed to work with your team's learning styles and busy schedules (10-, 20-, and 60-minute scripted sessions).
- <u>Access Infection Control Educational Materials</u>: Find short videos, fact sheets, job aids, infographics, posters, <u>printed materials</u>, interactive computer lock screens, and social media graphics to utilize at your facility on foundational IPC topics.
- Earn Continuing Education: Earn CEU's on CDC Train for PFL content.
- **Translated Resources:** IPC materials translated into Spanish & additional languages.

Infection Control Training Topics (Onsite/Virtual with IDPH CEU/CEC)

- 1. The Concept of Infection Control
- 2. The Basic Science of Viruses
- **3**. How Respiratory Droplets Spread COVID-19
- 4. How Viruses Spread from Surfaces to People
- 5. How COVID-19 Spreads A Review
- 6. Multi-Dose Vials
- 7. PPE Part 1 Eye Protection
- 8. PPE Part 2 Gloves & Gowns

- 9. Hand Hygiene
- 10. Virus Strains
- 11. PPE Part 3 Respirators
- 12. EVS (Enviro Cleaning & Disinfection)
- 13. Source Control
- 14. Asymptomatic Spread of COVID-19
- **15.** Ventilation

Print Materials & Job Aids

- Several print materials and job aids available on foundational IP&C topics.
 - Available for <u>free download</u> on CDC's website.
 - Including lock screens for staff computers.
- We are happy to offer professional printing support for poster requests!
 - Please see our team after the presentation to request print materials.
 - For remote guests, please email: projectfirstline@cityofchicago.org.





[PDF – 1 Page]

Germs are everywhere, including on surfaces and devices in the healthcare environment.

Learn how to stop their spread: WWW.CDC.GOV/PROJECTFIRSTLINE





INFECTION CONTROL







The right infection control actions help stop germs from spreading.

Learn more: WWW.CDC.GOV/PROJECTFIRSTLINE







2023 LEARNING NEEDS ASSESSMENT

WE WANT YOUR FEEDBACK TO DEVELOP NEW CONTENT!

- CDPH is a proud partner of CDC's National IP&C Training Collaborative, Project Firstline.
- We are working to identify priority
 IPC training needs among your
 frontline healthcare staff.
- This brief survey (<10 minutes) helps us develop relevant content for your and your team.
- These trainings will be developed for our Fall 2023 IPC webinar series (with free CEUs)!

X Your Chicago Project Firstline Team

- **CDPH Infection Preventionist**: Your facility's main contact for all infection prevention and control questions.
 - General contact information: cdphhaiar@cityofchicago.org
- **PFL-CDPH Team**: Contact our team to learn about specific Chicago-based educational opportunities!
 - We offer many resources including virtual or onsite trainings, webinars, and job aides.
 - CDPH Project Firstline email: projectfirstline@cityofchicago.org





Visit our <u>Chicago Health Alert Network (HAN)</u> page by scanning the QR code in the shield logo above to access resources and sign up for the newsletter to stay up to date on exciting new IPC resources!



Are non-regulatory and non-punitive

Facilitate collaboration among facility departments

Provide learning opportunities in critical areas

Help facilities prepare for Joint Commission surveys

Increase involvement of facility leaders in infection prevention work

Infection Control Assessment Tools | HAI | CDC

Click on each module below to open the tool in a fillable PDF document.

Module 1 – Training, Audits, Feedback Module 2 – Hand Hygiene Module 3 – Transmission-Based Precautions (TBP) Module 4 – Environmental Services (EVS) Module 5 – High-level Disinfection and Sterilization Module 6 – Injection Safety Module 7 – Point of Care (POC) Blood Testing Module 8 – Wound Care Module 9 – Healthcare Laundry Module 10 – Antibiotic Stewardship Module 11 – Water Exposure