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***Candida auris*: A New Disease of Public Health Significance Management of this Highly-Transmissible Fungal Pathogen**

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Disclosures

- Dr. Lorne Small does not have any conflicts of interest to disclose
- Catherine Kerr does not have any conflicts of interest to disclose
- Pegah Eschli does not have any conflicts of interest to disclose

Objectives

By the end of this session, participants will:

- Understand reporting requirements for *Candida auris* (*C. auris*) as part of the Disease of Public Health Significance (DoPHS) categorization
- Be familiar with Public Health Ontario's (PHOs) *C. auris* related resources and their application
- Have improved knowledge of *C. auris* including how to manage cases and outbreaks at their health care setting

The New Disease of Public Health Significance

- As of January 1, 2025, *Candida auris* is classified as a new DoPHS under the Health Protection and Promotion Act (HPPA).
- New documents and resources for **Public Health Units (PHUs)**:
 - Memo to PHUs
 - New standard
 - Ontario Public Health Standards: Appendix 1: Case Definitions and Disease Specific Information Disease: *Candida auris* Effective: January 2025¹
 - Supporting resources
 - iPHIS User Guide: *Candida auris*²
 - iPHIS Investigation Tool³

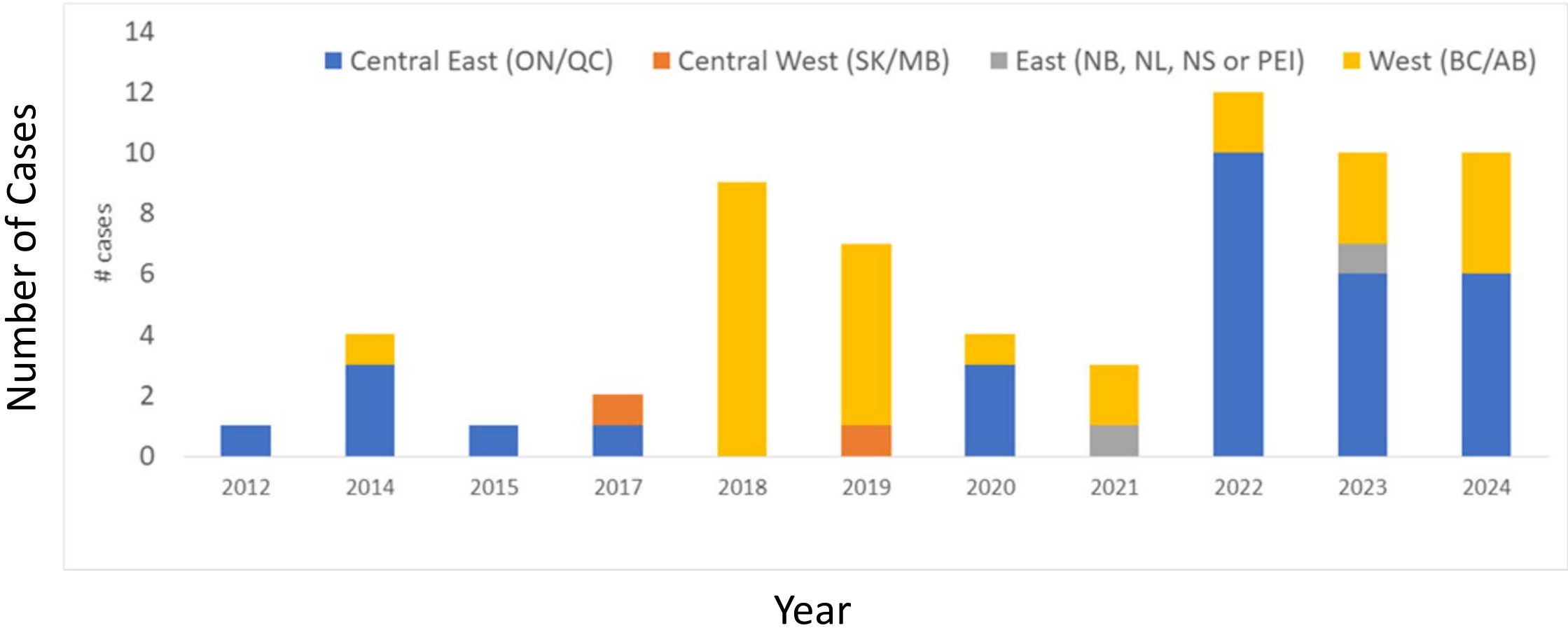
What is *Candida auris*?



Background

- Emerging fungal pathogen
- First identified in Japan in 2009
 - Capable of invasive disease
 - Range from superficial skin infection to invasive disease
 - ~10% of cases are invasive
 - 40% mortality
 - Can cause persistent outbreaks in health care settings^{1,4}

Reported Cases of *C. auris* in Canada



Data source: National Microbiology Laboratory, Public Health Agency of Canada. Reported cases of *C. auris* in Canada [unpublished]. Ottawa, ON: Government of Canada; 2025.

Characteristics

- **Aetiologic Agent:** Multidrug-resistant fungus that can cause serious infections
- **Reservoir:** Patient/resident in healthcare setting, environmental surfaces and medical equipment
- **Modes of Transmission:** Transmission of *C. auris* occurs primarily through direct contact
- **Communicability:** For the duration of the individual being colonized or infected
- **Host Susceptibility and Resistance:** Immunocompromised, patients with indwelling devices or receiving broad-spectrum antibiotics^{4,5}

What Supports are Available?



Best Practice Resources

- **Foundational resources:**

- PIDAC best practice recommendations: Interim Guide for Infection Prevention and Control of *Candida auris*⁵
- PHO Focus On: *Candida auris*⁴

- **New resources:**

- Management Algorithm: Management of single new case of *C. auris* Algorithm (July 2024)⁶
- Screening Checklist: Antibiotic Resistant Organism (ARO) Risk Factor-Based Screening Guidance for All Health Care (July 2024)⁷

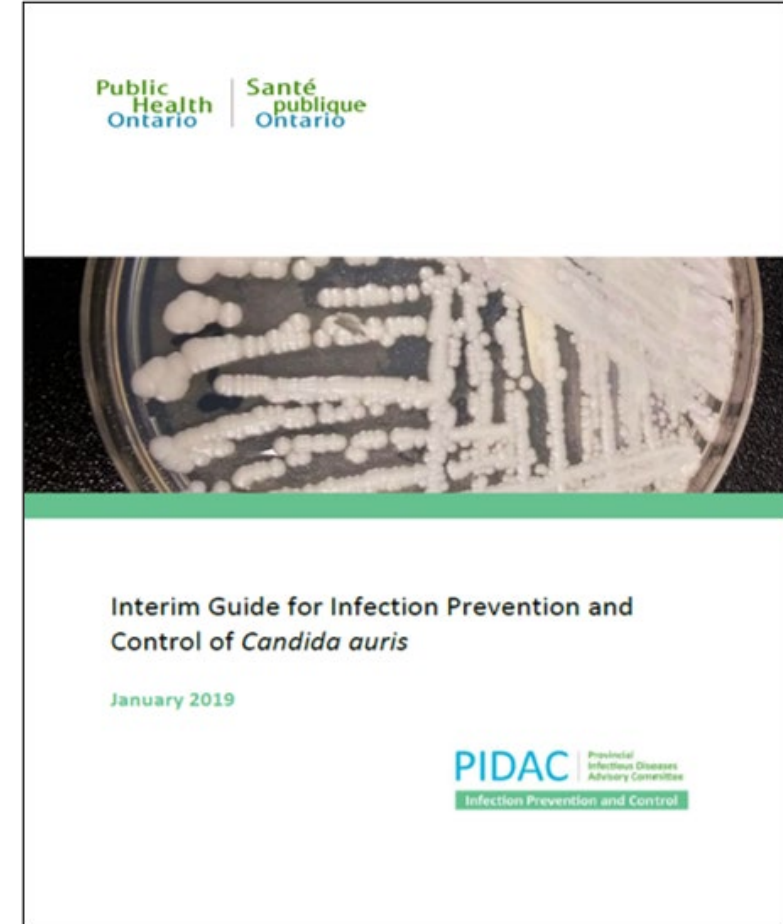


Image source: Ontario Agency for Health Protection and Promotion (Public Health Ontario), Provincial Infectious Diseases Advisory Committee. Interim guide for infection prevention and control of *Candida auris* [Internet]. Toronto, ON: Queen's Printer for Ontario; 2019 [cited 2025 Jan 22]. Available from: https://www.publichealthontario.ca/-/media/Documents/P/2019/pidac-ipac-candida-auris.pdf?rev=7f655451d9144044b38ca13c77649ee3&sc_lang=en

Algorithm: Management of a New Case of *Candida auris*

Management of a Single New Case of *Candida auris* (*C. auris*)

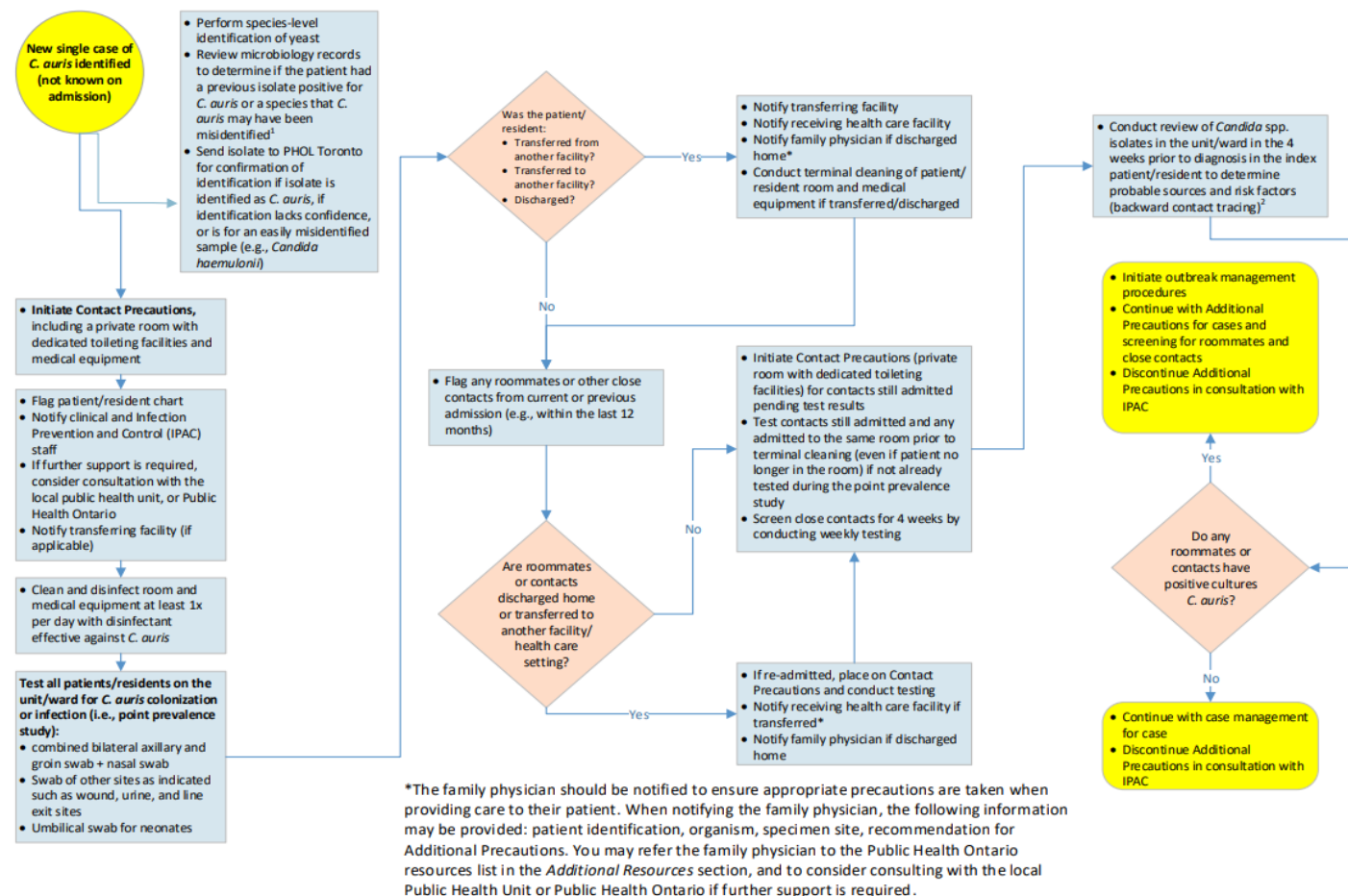


Image source: Ontario Agency for Health Protection and Promotion (Public Health Ontario). Management of a single new case of *Candida auris* (*C. auris*) [Internet]. Toronto, ON: King's Printer for Ontario; 2024 [cited 2025 Jan 22]. Available from: https://www.publichealthontario.ca/-/media/Documents/C/24/candida-auris-new-case-management.pdf?rev=a8add81cebeb4bb29ad54bf6c65a74c7&sc_lang=en

ARO Risk Factor-Based Screening Checklist for All Health Care Settings

- Compiles best practice recommendations for ARO screening
- Identifies patients/residents at higher risk of AROs
- May be used as a point-of-care resource

B. *Candida auris* Risk Factor-Based Guidance

Has the patient / resident been admitted to a health care facility outside of Canada (including the United States) within the previous 12 months? ☐ Yes ☐ No

Has the patient / resident been transferred from a Canadian health care facility with an ongoing outbreak or transmission of *C. auris*? ☐ Yes ☐ No

Does the patient / resident have a prior history of colonization or infection with *C. auris*? ☐ Yes ☐ No

Is the patient / resident chart flagged with a history of *C. auris*, or *C. auris* exposure? ☐ Yes ☐ No

Follow-up Actions for a Positive *C. auris* Screen

If the patient or resident answers 'yes' to any of the questions in **Section B**, or is unable to answer any of the screening questions in **Section A**:

Initiate Contact Precautions in a private room with dedicated toileting facilities, and dedicate all equipment and supplies as able.

Test for *C. auris*

Sites to swab for *Candida auris* include:

- Combined bilateral axilla **and** groin
- Nares
 - Previously colonized, or clinically relevant sites (e.g., wounds, exit sites, external ear canal) may also be indicated

Image Source: Ontario Agency for Health Protection and Promotion (Public Health Ontario). Antibiotic Resistant Organism (ARO) risk factor-based screening guidance for all health care settings [Internet]. Toronto, ON: King's Printer for Ontario; 2024 [cited 2025 Jan 22]. Available from: https://www.publichealthontario.ca/-/media/Documents/A/24/Antibiotic-resistant-organism-risk-factor-screening-guide.pdf?rev=4e2697b81e99493c8db807e92267298c&sc_lang=en

What are the Key Best Practice Recommendations?



Recommendations for Screening and Testing

- Screen patient(s)/resident(s) who have:
 - Spent time in a health care facility outside of Canada within the previous 12 months
 - Been transferred from a Canadian health care facility with an ongoing outbreak or transmission of *C. auris*
 - Prior history of colonization or infection with *C. auris*
 - A history of exposure to *C. auris*⁵
- If any of the above apply:
 - Send specimens for testing as soon as possible
 - Initiate Contact Precautions
 - Place in a private room with dedicated toileting facilities
 - Dedicate all equipment and supplies⁵

Testing Methods

Chromogenic Media



Molecular Assays



Methods will vary by laboratory

Source: Ontario Agency for Health Protection and Promotion (Public Health Ontario). Focus on: *Candida auris* [Internet]. Toronto, ON: King's Printer for Ontario; 2023 [cited 2025 Jan 22]. Available from: https://www.publichealthontario.ca/-/media/Documents/C/2023/candida-auris.pdf?rev=28bed64fce3b427597a55d4be6ce3646&sc_lang=en

Lab Testing and Confirmation

- For further information about surveillance testing contact your local (frontline) microbiology laboratory
- For further information about confirmatory testing and/or antifungal susceptibility testing:
 - Contact the PHO Laboratories at customerservicecentre@oahpp.ca
 - Refer to the PHO Laboratory Services webpage: [Mycology – Reference Identification of Yeast, Filamentous Fungi and Nocardia/Aerobic Actinomycetes | Public Health Ontario](#)⁸

Infection Prevention and Control Measures

- Use Contact Precautions: gloves and gown
- Private room with dedicated toileting facilities
- Dedicated patient care equipment
- Antimicrobial stewardship
- Hand hygiene
- Environmental cleaning and disinfection^{4,5}



Environmental Cleaning

- Rigorous attention to environmental cleaning
- Sodium hypochlorite and improved hydrogen peroxide (0.5%, 1.4%) are effective agents against *C. auris*
- BUT - Quaternary ammonium compounds (Quats) should not be used for disinfection of the environment/equipment⁹



Image source: Ontario Agency for Health Protection and Promotion (Public Health Ontario). Significant organisms in environmental cleaning [Internet]. 1st revision. Toronto, ON: King's Printer for Ontario; 2024 [cited 2025 Jan 22]. Available from: https://www.publichealthontario.ca/-/media/Documents/E/2023/ec/environmental-cleaning-significant-microorganisms-faqs.pdf?rev=f7aa82226ed54c6d8ee00760860b9b12&sc_lang=en

Hand Hygiene and Antimicrobial Stewardship

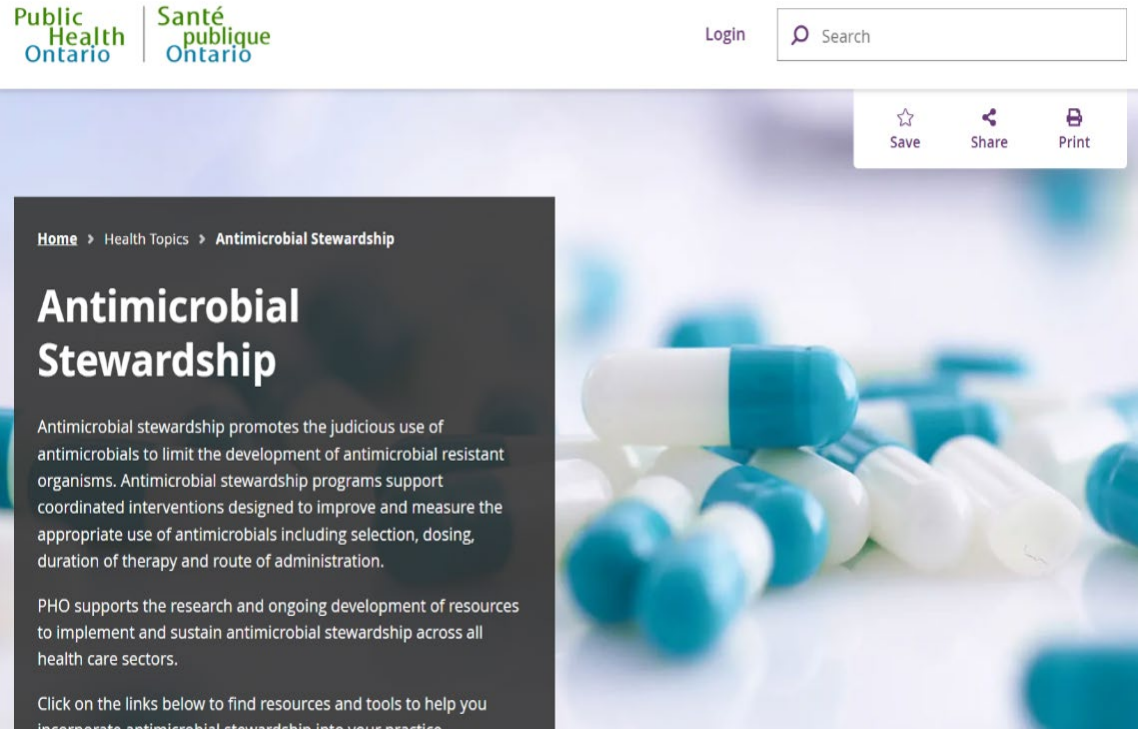
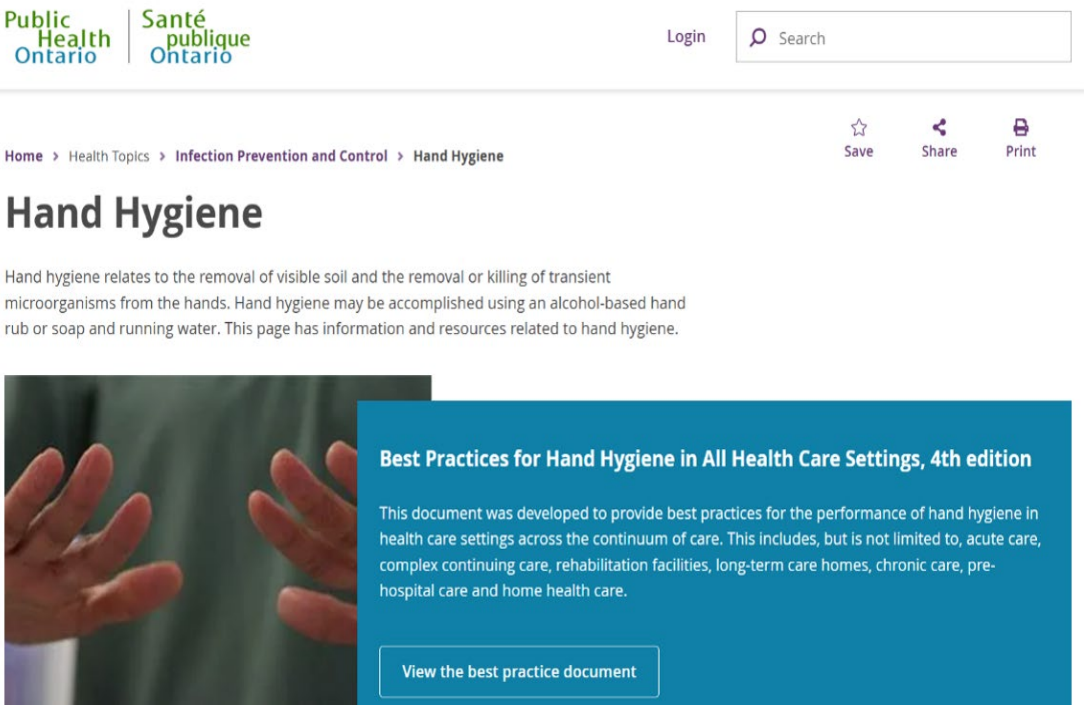


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DoPHS-Related Requirements (1/2)

1. **Reporting:** *Candida auris* must be reported by health care settings to their local public health unit

- What is to be Reported:
 - Lab-confirmed cases – **infections only**
 - Outbreak-related data¹

2. **Surveillance:**

- All reported cases must be investigated to determine source of transmission
- Reporting requirements include risk factors assessment¹

DoPHS-Related Requirements (2/2)

3. Lab Testing

- The first positive isolate from any individual should be sent to PHO Laboratories for confirmation¹

4. Case and Outbreak Management

- PHUs are directed to our PHO resources for support
 - Within a health care setting – screen and test and conduct a point prevalence when a single case is identified in a setting that has not previously had a case
 - The threshold for a suspect outbreak and a confirmed outbreak is low¹

Outbreak Definitions

- **Suspect Outbreak Definition**

- A single confirmed case is identified in a facility that has not seen a case previously; OR
- Two or more confirmed cases are identified within a facility even if they present on different units and present months apart.¹

- **Confirmed Outbreak Definition**

- Evidence of transmission between patients is identified; OR
- An epidemiological link between patients is identified; OR
- The hospital/long-term care home considers, based on their policies, transmission has occurred, or if the incidence of *C. auris* at the facility is higher than expected even without a clear link between patients.¹

Outbreak Experience



Facility Information

- Large GTA community, academic hospital with diverse catchment
- 3 main facility sites
- Outbreak involved 700 bed site
- Two medical ICUs; 18-24 beds (built <15 years ago) and 15-20 beds (built >30 years ago)
- No routine *C. auris* surveillance
- Organization has never had a *C. auris* isolate
- Microbiology lab on site; *C. auris* screening and isolates go to reference lab

Index Patient

- 63M admitted to M-ICU December 2021
- Admitted with Fever, Jaundice, Pneumonia
- Diabetes Mellitus, Laparoscopic Cholecystectomy 2015
- From Philippines, Canada 1989, last travel 2016 to Philippines
- Intubated on Day#2, Hemodialysis started soon after admission
- Found to have granulomatous hepatitis and disseminated TB
- Complicated course
- Multiple bacteremias and many antimicrobial courses ; Serratia 8/2022 (meropenem)
- *C. albicans* isolated from multiple sites including candidemia 3/2022 (Caspofungin)

Initial Isolate

- Aug 30, 2022: fever, rigors while on meropenem for *Serratia* bacteremia
- Sept 1: Blood cultures grew candida with preliminary identification as *C. auris*
- Sputum later also grew *C. auris*
- Caspofungin started (changed to Liposomal Amphotericin due to possible resistance)
 - Later found not be caspofungin resistant
 - Recovered from this infection
- IPAC notified of result⁵

Next Steps?

Next Steps

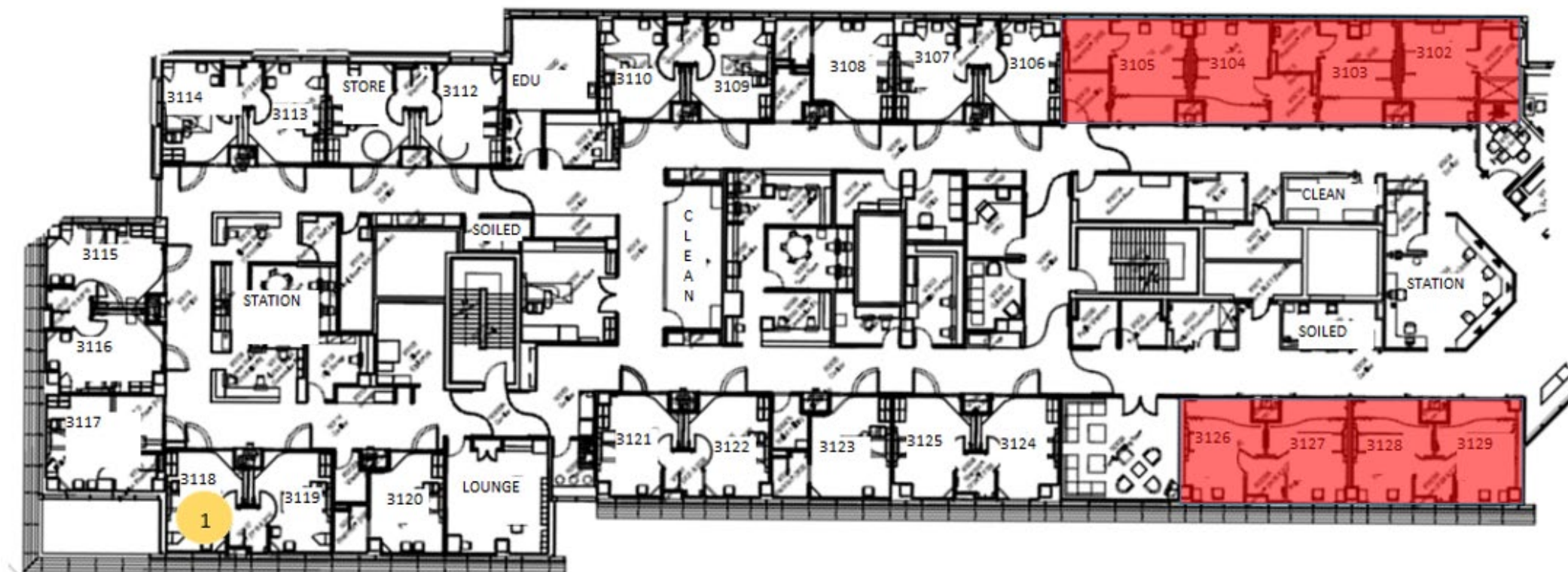


Image source: Small L. Floorplan of C. auris outbreak. Toronto, ON: King's Printer for Ontario; 2025.

Investigation and Initial Management

- Isolate sent to PHO Laboratories for confirmation
- “Heightened Awareness” declared/communication
- Index case contact precautions
- Terminal cleaning including washroom for index room
- Enhanced Cleaning of unit with Sodium Hypochlorite
- Contact tracing for the past 90 days – patients occupying adjacent room
- Who to screen?
- Groin/Axilla swabs and Nares

Investigation Results

- Sept 12: Swabs from 14 ICU+6 patients sent to reference lab
 - resulted as “No *C. auris* isolated” including index patient
 - results communicated
- Sept 15: Parallel processing in-house resulted with a positive axilla swab on 2nd patient

- Patient #2 admitted Nov 2021 with anemia/UGIB multiple co-morbidities
 - 64M from Pakistan/UK. Canada in 2001. Has been back to Pakistan, medical care
 - Transferred to ICU in June 2022, same room throughout ICU stay
 - Multiple infections/bacteremia and antimicrobial courses
 - Hemodialysis
 - No *C. auris* infections, but eventually did have a catheter tip that grew *C. auris*

Next Steps?

Next Steps

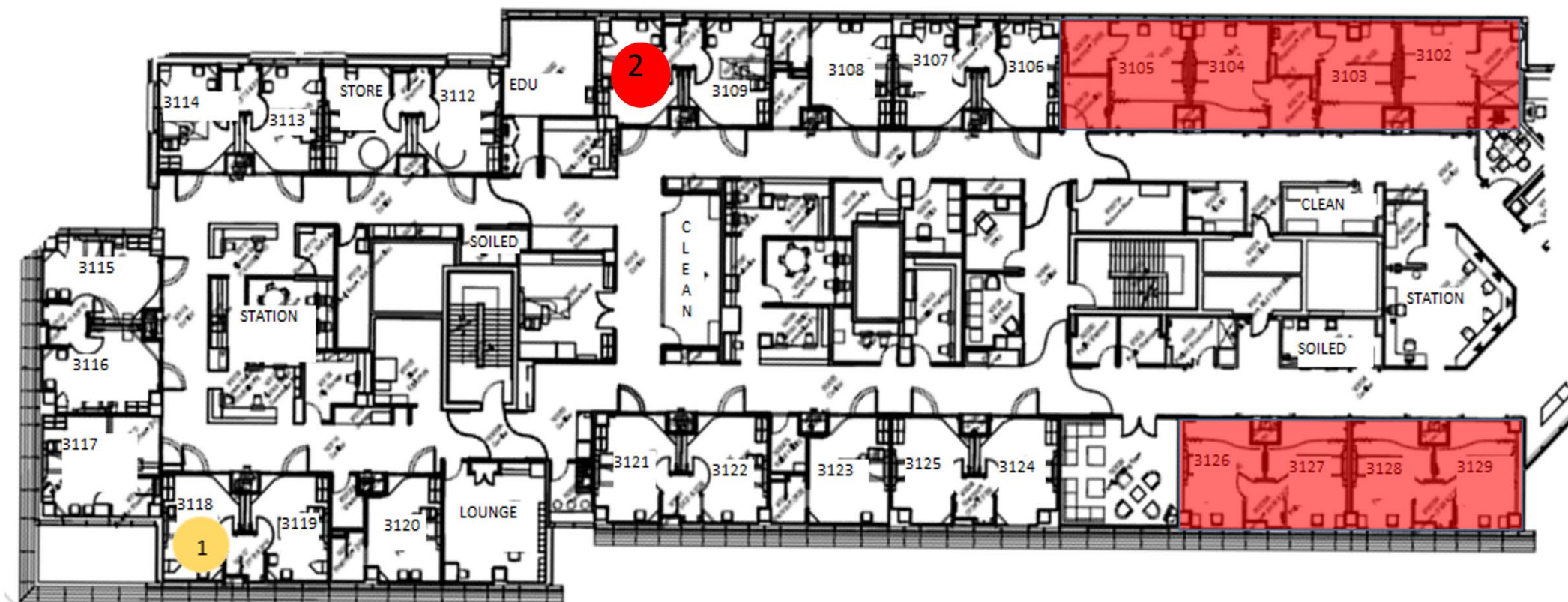


Image source: Small L. Floorplan of *C. auris* outbreak. Toronto, ON: King's Printer for Ontario; 2025.

Outbreak Management

- Sept 15: Entire unit on contact precautions
- Sept 19: Confirmed 2nd *C. auris*; Outbreak officially declared
- Communicated to organization; ICU patients/families provided with information
- PHU informed, PHO engaged, Isolates referred to NML for WGS
- 90 Day Contact Tracing of Patient #2 (No additional patients identified)
- Sept 15/16: 2nd PP pending + new patients until unit was on precautions (37)
- Hemodialysis equipment swabs added and one shared HD unit removed from service
- Unit remains open to admissions
- Continued enhanced cleaning

Follow-Up Surveillance

- Sept 19: 2nd Point Prevalence and HD swabs all negative
- Sept 26: 3rd Point prevalence with same criteria (30)
- Sept 29: 3rd Point Prevalence all negative
- Oct 3: 4th Point prevalence with same criteria (27)
- Oct 7: 4th Point Prevalence all negative, outbreak declared over
- Additional monthly Point Prevalences Oct, Nov, Dec all negative

Conclusions and Takeaways

- First *C. auris* outbreak in Ontario
- No further cases at this hospital
- Guidance from PIDAC and other institutions with *C. auris* experience was invaluable
- PHO consultation provided reassurance where little experience existed
- Communication with stakeholders was crucial
- Coordination with microbiology lab and PHOL for proper collection and submission
- Experience with other investigations (CPE) was helpful for efficient contact tracing
- Routine *C. auris* screening planned but not implemented yet
- How long to keep patients on precautions; clearance?

Key Highlights to Take-Away



Key Highlights (1/2)

- *C. auris* is an emerging fungal pathogen that can be highly resistant to antifungals normally used to treat Candida species
- *C. auris* is capable of causing invasive disease, can lead to persistent outbreaks, and became a DoPHS in Ontario 01 Jan 2025
 - Lab-confirmed cases, as well as outbreak-related data, require reporting
- Additional resources for Public Health Units available to help support reporting requirements:
 - [Appendix 1: Case Definitions and Disease Specific Information Disease: *Candida auris*¹](#) Effective: January 2025
 - Supporting Resources
 - iPHIS User Guide: *Candida auris*²
 - [iPHIS Investigation Tool](#)³

Key Highlights (2/2)

- PHO has resources to help support organizations, including:
 - PIDAC Interim Guide for Infection Prevention and Control of *Candida auris* (2019)⁵
 - PHO Focus On *Candida auris* (2023)⁴
 - Management of a Single New Case of *Candida auris* (2024)⁶
 - Antibiotic Resistant Organism (ARO) Risk Factor-Based Screening Guidance for All Health Care Settings (2024)⁷
 - Significant Organisms in Environmental Cleaning (2024)⁹
 - *Candida auris* reference identification and susceptibility testing (2019)¹²
- Clean your hands!

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