Should routine testing for *Candidozyma auris* be implemented in Canadian healthcare facilities?

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BACKGROUND

Candidozyma auris (*C. auris*) is an emerging human fungal pathogen that was first discovered from a human external ear specimen from Japan in 2009 (Satoh et al. 2009 and Lockhart et al. 2023). However, a subsequent retrospective study found infections with *C. auris* as early as 1996 in South Korea initially misidentified as *Candidozyma haemuli* (Lee et al. 2011). The fungus has rapidly spread across six continents (Ahmad & Asadzadeh, 2023; World Health Organization [WHO], 2022). Extensive transmission has occurred in South Asia, South America, South Africa, and United States with some areas considered endemic (Jackson et al. 2019; Geremia et al. 2023; Reiner-McAfee et al. 2021; WHO, 2022). Analyses of genetic divergence between *C. auris* clades suggest that the pathogen likely emerged simultaneously in multiple locations globally (Akinbobola et al. 2023; Lockhart et al. 2017). Considering its thermotolerance (it can be cultured at temperatures as high as 42°C), climate change may have played a role in the evolution of *C. auris* as a human pathogen. (Ahmad & Asadzadeh, 2023; Jackson et al. 2019; WHO, 2022). Another factor in its emergence is the widespread use of antifungals in agriculture exerting a selective pressure on environmental yeasts (Akinbobola et al. 2023; WHO, 2022; WHO, 2025).

In fact, *C. auris* is frequently multidrug resistant, with increasing resistance to one or more antifungal drug classes (azole, polyene, and echinocandin), including pan-resistant isolates resistant to all three drug classes. (Lyman et al. 2021; Lyman et al. 2023; WHO, 2025). This limits current available treatments as there are currently few antifungal drug classes in development (WHO, 2025). Invasive *C. auris* infections also have a high mortality (Geremia et al. 2023) and are increasing worldwide (Akinbobola et al. 2023). Also, the fungus is increasingly causing outbreaks in healthcare facilities worldwide (Ahmad & Asadzadeh, 2023), and is resistant to some disinfectants (Public Health Agency of Canada, 2024). For these reasons, the World Health Organization in 2022 classified *C. auris* as a fungal pathogen of critical priority and the Centers for Disease Control (CDC) named *C. auris* as an urgent antimicrobial threat (WHO, 2022; CDC, 2019).

Although neighbouring United States has seen exponential growth in *C. auris* colonisations and infections (Public Health Ontario [PHO], 2024), *C. auris* prevalence in Canada remains low, with only 64 cases reported between 2012 and March 2025, although case counts are increasing (A. Bharat, personal communication, March 10, 2025). The potential for *C. auris* transmission in Canadian healthcare facilities remains high whether through importation from international healthcare settings or within Canadian healthcare facilities (Eckbo et al. 2021; Garcia-Jeldes et al. 2020; Schwartz & Hammond, 2017; Townsend et al. 2021). This risk is further compounded when laboratory testing is not done and transmission occurs undetected (Ahmad & Asadzadeh, 2023; PHO, 2024; WHO, 2022).

RECOMMENDATIONS

The Public Health Agency of Canada (PHAC) recommends that screening programs for *C. auris* be in place for Canadian healthcare facilities, including long-term care facilities (PHAC, 2024). Those admitted to healthcare facilities with the following risk factors require microbiological testing (including axilla and groin swabs for colonization); admission to healthcare facility or long-term care facility outside of Canada within the past twelve months and those transferred from facilities with ongoing *C. auris* transmission (PHAC, 2024). Currently, healthcare facilities in Canada are not universally screening patients or residents for *C. auris*. In addition, not all healthcare laboratories have the ability to identify *C. auris* from routine clinical and surveillance specimens (PHO, 2024; PHO, 2024). Although there are advancements in microbiological identification of *C. auris*, misidentification still occurs (Ahmad & Asadzadeh, 2023) and laboratories incur a cost in order to have these diagnostic capabilities (PHO, 2024). Discussions are ongoing among public health and Infection Prevention and

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Control (IPAC) communities regarding the need for screening and laboratory surveillance for *C. auris* (PHO, 2024).

Some of the reasons brought forward for not initiating a screening program include a facility not yet having a case of *C. auris*, competing priorities, and insufficient resources (PHO, 2024). In my opinion, if consistent screening guidelines are not applied universally in Canada, undetected instances will likely occur when only few patients or residents are screened (PHO, 2024). For example, one retrospective study found *C. auris* in Canada preceding the first known introduction of a multidrug-resistant case as far back as 2014 in Ontario (Ahmad & Asadzadeh, 2023; Hota et al. 2020; Schwartz & Hammond, 2017) and inadvertent cases of *C. auris* occurred that did not have the above risk factors for *C. auris* screening (Eckbo et al. 2021; PHO, 2024). It's even more concerning as outbreaks can be fast and protracted (Adams et al. 2018; Eckbo et al, 2021; Geremia et al, 2023). If *C. auris* can proliferate before detection, the cost to Canadian healthcare facilities will increase both in resources and in patient and resident outcomes (PHO, 2024).

The value of screening

As determined by Lapointe-Shaw et al. (2017), universal microbiological testing for carbapenemase-producing *Enterobacterales* (CPE) of all hospital inpatients on admission was cost-effective when the prevalence in a population was above 0.3%. Unfortunately, there is yet no prevalence threshold for *C. auris* to justify the cost of universal testing, but cases are increasing in Canada (A. Bharat, personal communication, March 10, 2025). However, early identification of *C. auris* would facilitate the implementation of appropriate infection prevention methods such as contact precautions (having the affected patient or resident in a single room with dedicated toileting facilities and the use of glove and gowns for all contact with the individual), dedicating equipment, and the use of recommended sporicidal disinfectants for environmental and shared equipment cleaning and disinfection (PHAC, 2024).

Although screening programs incur a cost, laboratories and IPAC programs across Canada should prepare and reassess on a regular basis the need to initiate screening programs. If currently not feasible, both departments should become familiar with the requirements of laboratories and IPAC programs to shift priorities in the event of changing regional epidemiology. A key factor will be the wide aggregation of Canadian surveillance data. Though the Canadian Nosocomial Surveillance Program (CNISP) reports *C. auris* numbers in Canada, participation in this surveillance program is voluntary (Ettles et al. 2024) and obtaining accurate data is a challenge as *C. auris* is only reportable in British Columbia, Alberta and Ontario (PHO, 2024; Ettles et al. 2024; Ontario Ministry of Health, 2025). Determining when to adopt a screening program may depend on knowing the prevalence in a province or region, yet the prevalence will remain unknown until more healthcare facilities test and report cases to national programs like CNISP. Those accessing Canadian healthcare are at risk from this pathogen, and likely, there will be more transmission in the coming years.

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