Candida auris

Ilan S. Schwartz MD PhD, Tanis C. Dingle PhD

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1 *Candida auris* is an emerging pathogen that has spread rapidly across the globe, including to Canada

Candida auris was first described in Japan in 2009, but infections have been reported from 32 countries on 5 continents (Figure 1).[1] Although the reasons are unclear, *C. auris* emerged in parallel on 3 continents, then spread to North America through travel.[2] In Canada, 19 cases of *C. auris* have been identified since 2012;[3] most patients had received health care abroad.

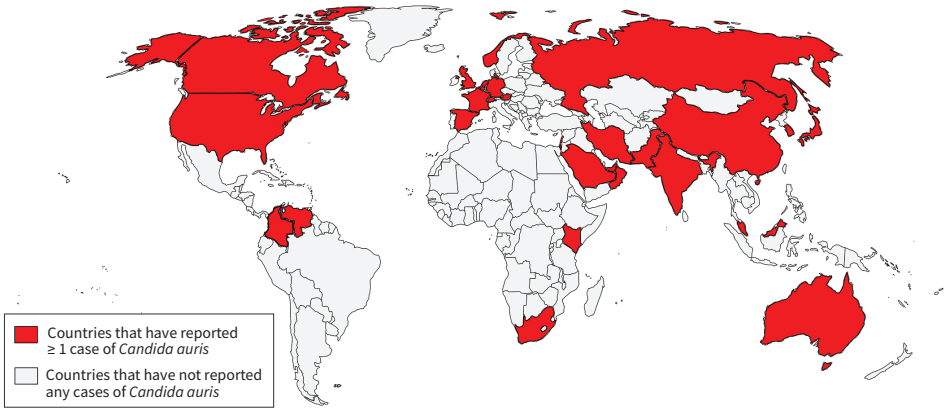

Figure 1: Countries reporting at least 1 case of *Candida auris* through Apr. 15, 2019.

2 *Candida auris* can spread efficiently between patients in health care facilities

Outbreaks of *C. auris* infections have occurred in hospitals and long-term care facilities.[4] *Candida auris* can colonize patient skin for months, and environmental contamination is difficult to eradicate.[4] Infected and colonized patients should be isolated with contact precautions in private rooms disinfected daily with sporicides like bleach.[4] Notification of infection control and public health is essential.[4]

3 *Candida auris* can cause invasive candidiasis in patients in hospital

Candida auris is an opportunistic pathogen that can cause invasive candidiasis, including candidemia, in patients in hospital, with a high rate of death.[4] Risk factors for disease include intensive care, central lines, and antibiotic and antifungal exposure.[5]

4 Antifungal resistance of *C. auris* presents therapeutic challenges

Many *C. auris* isolates are resistant to antifungals. In most isolates, resistance is seen to fluconazole, in one-third to amphotericin B, and in about 5% to echinocandins. Very rarely, resistance occurs to all antifungal classes.[2] Echinocandins are appropriate for empiric therapy pending susceptibility testing.[4]

5 Laboratory misidentification of *C. auris* can delay appropriate therapy and implementation of infection control precautions

Certain biochemical and matrix-assisted laser desorption/ionization time of flight (MALDI-TOF) mass spectrometry identification systems cannot accurately identify *C. auris*;[4] laboratories should refer suspicious isolates to reference laboratories when identification is necessary. Microbiologists should be consulted if unidentified or unusual *Candida* spp. are isolated from patients who have received health care abroad or are unresponsive to empiric antifungals.[4]

References

1. Tracking *Candida auris:* April 30, 2019: case count updated as of March 31, 2019. Atlanta: Centers for Disease Control and Prevention, National Center for Emerging and Zoonotic Infectious Diseases (NCEZID), Division of Foodborne, Waterborne, and Environmental Diseases (DFWED); 2019. Available: www.cdc.gov/fungal/candida-auris/tracking-c-auris.html (accessed 2019 May 15).
2. Lockhart SR, Etienne KA, Vallabhaneni S, et al. Simultaneous emergence of multidrug-resistant *Candida auris* on 3 continents confirmed by whole-genome sequencing and epidemiological analyses. *Clin Infect Dis* 2017;64:134-40.
3. Bharat A, Alexander DC, Dingle TC, et al. *Candida auris* in Canada, 2012–Feb. 2019. *Proceedings from the 2019 AMMI Canada — CACMID annual conference*; 2019 Apr. 3–6; Ottawa.
4. Tsay S, Kallen A, Jackson BR, et al. Approach to the investigation and management of patients with *Candida auris*, an emerging multidrug-resistant yeast. *Clin Infect Dis* 2018;66:306-11.
5. Rudramurthy SM, Chakrabarti A, Paul RA, et al. *Candida auris* candidaemia in Indian ICUs: analysis of risk factors. *J Antimicrob Chemother* 2017;72:1794-801.

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Affiliations: Division of Infectious Diseases, Department of Medicine (Schwartz); Division of Diagnostic and Applied Microbiology, Department of Laboratory Medicine and Pathology (Dingle), Faculty of Medicine and Dentistry, University of Alberta; Provincial Laboratory for Public Health (Dingle), Alberta Public Laboratories, Edmonton, Alta.

Correspondence to: Ilan Schwartz, ilan@ualberta.ca

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