Deptartment of Public Health; Massimo Pacilli, Chicago Department of Public Health

Background: Candida auris and carbapenemase-producing organisms (CPO) are multidrug-resistant organisms that can colonize people for prolonged periods and can cause invasive infections and spread in healthcare settings, particularly in high-acuity long-term care facilities. Point-prevalence surveys (PPSs) conducted in longterm acute-care hospitals in the Chicago region identified median prevalence of colonization to be 31% for C. auris and 24% for CPO. Prevalence of C. auris colonization has not been described in pediatric populations in the United States, and limited data exist on CPO colonization in children outside intensive care units. The Chicago Department of Public Health (CDPH) conducted a PPS to assess C. auris and CPO colonization in a pediatric hospital serving high-acuity patients with extended lengths of stay (LOS). Methods: CDPH conducted a PPS in August 2019 in a pediatric hospital with extended LOS to screen for C. auris and CPO colonization. Medical devices (ie, gastrostomy tubes, tracheostomies, mechanical ventilators, and central venous catheters [CVC]) and LOS were documented. Screening specimens consisted of composite bilateral axillae and groin swabs for C. auris and rectal swabs for CPO testing. The Wisconsin State Laboratory of Hygiene tested all specimens. Real-time polymerase chain reaction (PCR) assays were used to detect C. auris DNA and carbapenemase genes: blaKPC, blaNDM, blaVIM, blaOXA-48, and blaIMP (Xpert Carba-R Assay, Cepheid, Sunnyvale, CA). All axillae and groin swabs were processed by PCR and culture to identify C. auris. For CPO, culture was only performed on PCR-positive specimens. Results: Of the 29 patients hospitalized, 26 (90%) had gastrostomy tubes, 24 (83%) had tracheostomies, 20 (69%) required mechanical ventilation, and 3 (10%) had CVCs. Also, 25 (86%) were screened for C. auris and CPO; 4 (14%) lacked parental consent and were not swabbed. Two rectal specimens were unsatisfactory, producing invalid CPO test results. Median LOS was 35 days (range, 1-300 days). No patients were positive for C. auris. From CPO screening, blaOXA-48 was detected in 1 patient sample, yielding a CPO prevalence of 3.4% (1 of 29). No organism was recovered from the blaOXA-48 positive specimen. **Conclusions:** This is the first documented screening of *C*. auris colonization in a pediatric hospital with extended LOS. Despite a high prevalence of *C. auris* and CPOs in adult healthcare settings of similar acuity in the region, C. auris was not identified and CPOs were rare at this pediatric facility. Additional evaluations in pediatric hospitals should be conducted to further understand C. auris and CPO prevalence in this population.

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## **Presentation Type:**

Poster Presentation

Candida auris in the US Department of Veterans' Affairs (VA) Cynthia Lucero-Obusan, Department of Veterans' Affairs; Patricia Schirmer, Department of Veterans' Affairs; Gina Oda, Department of Veterans' Affairs; Mark Holodniy, Department of Veterans' Affairs

**Background:** Candida auris is an emerging pathogen with high mortality and challenges in detection. C. auris healthcare-associated infections are now being reported worldwide. Most isolates are resistant to fluconazole, and some show resistance to all 3

classes of antifungals. Herein, we describe *C. auris* surveillance in the VA. Methods: Cultures were identified using VA data sources for C. auris isolates and surveillance cultures (axilla and groin) performed January 1, 2010, through October 15, 2019. Chart reviews were performed for patients with *C. auris*, including isolate susceptibilities and antifungal treatment. Results: Overall, 6 C. auris isolates from 3 patients at 2 VA hospitals (located in the Midwest and Northeast) were identified. From a single patient, 3 urine isolates were identified June-July 2018, and they were susceptible to all antifungals tested (voriconazole, posaconazole, micafungin, itraconazole, flucytosine, caspofungin, anidulafungin, amphotericin B, and fluconazole). No antifungal treatment was received (presumed colonization). C. auris surveillance cultures for 32 additional patients at this facility between July 10, 2018, and July 19, 2018, were negative. From a second patient (admitted November 9, 2018), 2 C. auris blood isolates were identified at the same facility, first on February 3, 2019, and they were susceptible to all antifungals tested (same as above). The infection was deemed healthcare associated, and the patient received 2 weeks of micafungin. On October 11, 2019, C. auris was identified again (susceptibilities as above) and another course of micafungin was started. A third patient from a different VA hospital had a C. auris sputum isolate (September 5, 2018, susceptibilities not reported), which was not treated with antifungals. This patient with tracheostomy had a documented history of C. auris colonization from a non-VA long-term care facility. This VA facility screened 3 additional patients for "rule out C. auris" between July 2018 and March 2019, finalized as C. parapsilosis (1 blood and 1 wound isolate) and C. tropicalis (1 blood isolate). At 2 other VA facilities, 3 patients had C. auris surveillance cultures performed in 2019, which were negative. Additionally, at least 65 isolates of C. haemulonii, which can be difficult to distinguish from C. auris, have been identified from 51 unique individuals at 24 other VA facilities since 2010. **Conclusions:** Two VA facilities have identified cases of *C. auris* infection and colonization. Additional awareness is needed because C. auris can be difficult to identify using traditional biochemical methods and may be resistant to standard treatment. According to the CDC, screening of close healthcare contacts should be considered for patients with newly identified *C. auris* infection or colonization. Early and accurate diagnosis are important for improving outcomes and reducing transmission of this rapidly emerging pathogen.

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## **Presentation Type:**

Poster Presentation

Candida auris Infection Among Patients With Cancer in an Oncology Center in Eastern India

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**Background:** The multidrug-resistant fungus *Candida auris* is emerging as a major cause of healthcare-associated infection



globally. Understanding the epidemiology of these infections in vulnerable groups such as cancer patients is important for hospital infection control and their effective management. In this report we present diagnostic, clinical, antifungal resistance and outcome data of 11 cases of C. auris infection from an oncology center in India. Methods: C. auris strains were identified by Sanger-based DNA sequencing of the internal transcriber spacer (ITS) gene. Antifungal susceptibility testing (AFST) was performed using the broth dilution method. Identification and AFST were checked by the WHO Collaborating Center for Reference & Research on Fungi of Medical Importance. Patients had both empirical as well as directed therapy with antifungal agents based on AFST results and clinical assessment. Results: Between November 2018 and March 2019, 11 cases of C. auris (8 from patients with solid-organ tumors and 3 from hematological malignancy) were detected. Two distinct genetic clusters were identified by ITS gene sequencing; one of these clusters showed 100% homology with a previously unknown C. auris isolate (GenBank accession no. MK881076) and the other cluster had a 100% identity score with isolates from Japan and South Korea (GenBank accession nos. MH071441, KY657027, and EU884189). All 11 strains were resistant to fluconazole. With voriconazole, 1 isolate was susceptible, 3 were

|              | Area 1               | Area 2                  | Area 3       |
|--------------|----------------------|-------------------------|--------------|
|              | ICU/HDU/Surgical Bay | General /Emergency ward | Private ward |
|              | Clu                  | ster 2                  |              |
| MR/19/001858 | A <b>=</b>           |                         | •            |
| MR/18/010448 |                      | A <b>=</b>              |              |
| MR/18/017471 | A <b>=</b>           | •                       | -            |
| MR/13/004285 |                      | <b>A</b>                |              |
| MR/19/005106 | <b>A</b>             | •                       |              |
|              | Clu                  | ster 1                  |              |
| MR/18/011942 | A <b>=</b>           | •                       | -            |
| MR/18/017317 | <b>▲</b> ■           |                         |              |
| MR/17/010086 | A <b>=</b>           | •                       |              |
| MR/17/010584 |                      | <b>▲</b> ■              |              |
| MR/16/010836 | <b>▲</b> ■           | •                       |              |
| MR/17/012502 | A <b>=</b>           |                         | -            |

▲ Patient's location at the time of positivity ■ Patient location before positivity

Fig. 1.

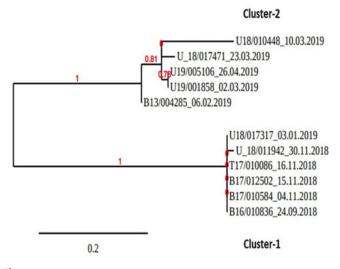


Fig. 2.

resistant, and 7 showed dose-dependent susceptibility. Two isolates were resistant to amphotericin B. Resistance to caspofungin or anidulafungin was noted in 1 of 11 isolates (9%); most showed intermediate susceptibility (63% to caspofungin). Among all of the patients, 72% were from the intensive care unit (ICU) or the highdependency unit. The 30-day all-cause mortality was 5 of 11 (45%) in the C. auris group and 4 of 11 (36%) the control group (ie, infections with other Candida spp during same period). Duration of ICU stay in the *C. auris* group was 12 days and in the control group it was 6 days. The median cost (in terms of hospital bill at the time of discharge or death) for management of Candida auris infection and the primary medical condition was US\$10,121 for the C. auris groups and US\$8,608 for the control group. Most cases (10 of 11) were detected in wards without isolation rooms, and 8 of the 11 C. auris cases (73%) were detected in patients in the intensive care unit. Conclusions: Morbidity, mortality, ICU stay, and healthcare costs are significant in C. auris infection.

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Poster Presentation

## Candida auris Outbreak Control in Critical Care Units in a Tertiary-Care Hospital in Nairobi, Kenya

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Background: Candida auris is an emerging pathogen associated with nosocomial outbreaks. During January to May 2019, 11 invasive cases of C. auris were identified in the intensive care unit (ICU) and high-dependency unit (HDU) at a hospital in Nairobi, Kenya. We report on the interventions implemented to control the outbreak. **Methods:** Intensified infection prevention and control (IPC) interventions were implemented. All patients infected or colonized with C. auris were placed in single-patient rooms with strict contact precautions. Cleaning of the patient care environment was enhanced by instituting a 3-step procedure of cleaning with soap and water, disinfecting with 0.5% chlorine, and rinsing with water. Glo-Germ gel was used to evaluate the cleaning processes, and percentage of missed surfaces was calculated. Hand hygiene training and compliance observations were conducted to enforce adherence to hand hygiene. The IPC team provided training and observational feedback of IPC to staff, patients, and their families. The IPC interventions were guided by screening activities. To monitor ongoing transmission, a biweekly point-prevalence survey (PPS) was performed to screen all previously negative ICU and HDU patients for C. auris. Furthermore, admission and contact screening were added to