Candida auris screening in the acute care setting: An infection control partnership between hospitals and skilled nursing facilities

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Candida auris screening in the acute care setting: an infection control partnership between hospitals and skilled nursing facilities

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Abstract

Background: Candida auris (C. auris) is a drug-resistant fungus that can spread easily between hospitalized patients and nursing home residents. To mitigate risk of C. auris spread, a nine-hospital healthcare system developed a facility surveillance system (FSS) in January 2020. Infection Preventionists (IPs) use the screening tool to determine which patients may harbor C. auris using nose swabs taken specifically at the facility type the patient came from. The IP then initiates the isolation and testing protocol with the bedside nurse and provider.

Methods: Over the course of three years, the hospital epidemiologist collected data on all screening events, such as date of lab testing and results, location of residence, and history of multidrug-resistant organisms (MDROs) to evaluate, educate, and report on the screening process. Epidemiological surveillance data were evaluated using pivot tables to identify possible epidemiological trends.

Results: Data analysis revealed three out of the thirty-five facilities had residents who tested positive for C. auris. Of the three facilities, all were skilled nursing facilities (SNFs), two of which provide ventilator care (v). The SNFs were identified with new labels — vSNF1, vSNF2, and SNF. Of the three facilities found to have C. auris positive residents (n=8), 2.3% (3/88) came from vSNF1, 5.7% (5/88) and 2.3% (2/88) were from vSNF2 and SNF, respectively. Outbreak clusters emerged from the pivot table using screening dates, which were organized into yearly quartiles. The first two clusters occurred at the SNF and vSNF2 facilities during the same timespan from 2021Q2 to 2021Q4. No additional screens resulted positive in 2022 for both facilities. The third cluster occurred between 2022Q3 to 2022Q4 at vSNF1.

Conclusion: Receiving a positive C. auris result allows the IP department to promptly reach out to the facility where the patient came from and begin assessing their infection prevention needs and staff education, if requested. Additionally, all positive results are reported to the state department of health, who also duly assists with control measures necessary to mitigate risk and prevent future outbreaks.

Introduction

Candida auris (C. auris) was first discovered in Japan in 2009 and has since been considered a threat to human health due to its intrinsic resistance to one or all classes of antifungal drugs. The prevalence of multidrug-resistant C. auris and its frequency of infections globally are obscure. The Centers for Disease Control and Prevention (CDC) and the World Health Organization (WHO) have collaborated to address the growing menace to global health. To reduce transmission within the hospital setting but also to perform audits to ensure HCP are practicing proper hand hygiene, as well as donning and doffing personal protective equipment (PPE) correctly; to address the correct transmission-based precautions are in place, and to flag the patient's chart as an alert to HCP for the current and any future admissions. In addition to the above guidance, the CDC also recommends notifying the receiving facility or unit of the patient's C. auris status when transferring the patient with C. auris colonization or infection to another healthcare facility or to another unit within a facility. To ensure this communication occurred, the hospital epidemiologist would contact the facility where the patient resided. In addition to notifying the SNF of the patient's C. auris infection or colonization status, the epidemiologist would also provide general C. auris education, cleaning product recommendations, appropriate PPE to use, instructions on following-up with the state health department, and offer training support, if requested.

Methodology

A C. auris and multidrug-resistant organism (MDRO) screening tool was developed and went into effect in January 2020. In addition to C. auris, other MDROs included in the screening were methicillin-resistant Staphylococcus aureus (MRSA), vancomycin-resistant Enterococcus (VRE), and carbapenem-resistant Enterobacteriaceae (CRE) or Klebsiella pneumoniae carbapenemase (KPC). To ensure appropriate ordering of isolation type and lab testing, a C. auris order panel was developed and built into the electronic medical record (EMR).

The original screening tool definition for high-risk patients included any patient who had been in either a long-term acute care (LTAC) or skilled nursing facility (SNF) within the past year and had a history of carbapenem-resistant Pseudomonas. CRE, or KPC. After routine evaluation of the screening tool by the hospital epidemiologist, the definition of high-risk patients was modified to include a history of ≥2 MDROs, or a history of mechanical ventilation or tracheotomy, or chronic or unhealing wounds.

The Infection Preventionists (IPs) utilized an EMR workbench report that included patient data necessary to determine whether screening criteria met. If criteria were met, the IP would then initiate C. auris screening by contacting the bedside nurse and/or attending provider. The hospital epidemiologist collected and managed data on all screening events, such as date of lab testing and results, location of residence, and history of other MDROs among other pertinent data on the screening process. Additionally, the epidemiologist would contact all facilities where the patients had resided and provide consultative support to those facilities.

Results

Data analysis revealed 3 facilities out of the 35 facilities had residents who tested positive for C. auris. A total of 88 screenings from the affected 3 facilities occurred. All 3 facilities were skilled nursing facilities (SNFs), 2 of which provide ventilator care (v). The SNFs were identified with new labels — vSNF1, vSNF2, and SNF. Of the three facilities found to have C. auris positive residents (n=8), 2.3% (3/88) came from vSNF1, 5.7% (5/88) and 2.3% (2/88) were from vSNF2 and SNF, respectively. Outbreak clusters emerged from the pivot table using screening dates, which were organized into yearly quartiles. The first two clusters occurred at the SNF and vSNF2 facilities during the same timespan from 2021Q2 to 2021Q4. No additional screens resulted positive in 2022 for both facilities. The third cluster occurred between 2022Q3 to 2022Q4 at vSNF1.

Conclusion

Receiving a positive C. auris result allows the IP department to promptly reach out to both facilities. The third cluster occurred between 2022Q3 to 2022Q4 where facility vSNF1 was receptive to the assistance and education offered by the hospital epidemiologist. The hospital epidemiologist would also provide general C. auris education, cleaning product recommendations, appropriate PPE to use, instructions on following-up with the state health department, and offer training support, if requested. Of the 3 SNFs that had C. auris infected or colonized residents, vSNF1 was receptive to the assistance and education offered by the hospital epidemiologist. A comprehensive screening and surveillance plan has been developed and implemented at vSNF1 in response to our C. auris and MDRO screening results. Furthermore, because the state health department was and continues to be informed of facilities with C. auris-infected or colonized residents, necessary follow-up and completion of surveillance testing in affected facilities are provided by the state, as well.

Discussion

Since implementing the C. auris screening process, the IPs have utilized the 5 infection control measures recommended by the CDC, which are as follows: to provide C. auris education to healthcare personnel (HCP); to ensure appropriate and adequate supplies are available; to perform audits to ensure HCP are practicing proper hand hygiene, as well as donning and doffing personal protective equipment (PPE) correctly; to address the correct transmission-based precautions are in place, and to flag the patient's chart as an alert to HCP for the current and any future admissions.

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