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Concise Communication

Perioperative approaches to *Candida auris* colonization in surgical and transplant patients: insights from an EIN Quick Query

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Abstract

Candida auris is an emerging, multidrug-resistant pathogen with limited perioperative prevention guidance. A poll of U.S. infectious diseases professionals revealed *C. auris* perioperative guidelines, preoperative screening, and antifungal prophylaxis was uncommon. 19% of respondents had encountered postoperative *C. auris* infections, highlighting a need for research and standardized prevention strategies.

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Background

Candida auris is an emerging multidrug-resistant fungus that causes significant healthcare infection prevention challenges. It has been associated with human-human transmission, prolonged colonization, invasive life-threatening infections, and outbreaks in intensive care units.[1,2]

The Centers for Disease Control and Prevention (CDC) has issued general screening considerations for *C. auris* in the healthcare setting.[3] However, there are limited data or guidance related to perioperative infection prevention in colonized patients, including solid-organ transplant (SOT) donors or recipients.[1,4,5]

This study examined the reported experiences and approaches taken by infectious diseases professionals in managing *C. auris* colonization perioperatively to identify gaps and opportunities for standardized prevention practices.

Methods

An online "Quick Query" poll was distributed by the Emerging Infections Network (EIN) to ~3,000 member subscribers on 3 separate occasions ~1 week apart. EIN Quick Queries are a unique tool that utilizes focused, rapidly deployable, anonymous polls to ascertain members' opinions/approaches to various emerging infectious diseases. Given the uncommon topics, Quick Queries are sent to all EIN members and consist of a limited number of questions to maximize response rate. Our Quick Query included six targeted questions. (Table 1) Responses were collected and analyzed using descriptive statistics.

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Results

Eighty-four EIN members completed the poll, representing 29 U.S. states and three other countries/territories (one Canada; two "Other," non-specified). California accounted for the largest share of responses (17%), followed by Massachusetts (7%), and Florida (6%) (Table 1).

18% (15/84) of respondents reported institutional guidelines for *C. auris* prevention/management in surgical patients, while only one reported a transplant-specific guideline. Preoperative screening for *C. auris* was reported by 8% (7/84) of respondents, predominantly from California (5/7). Among the 44 respondents who had previously encountered colonized surgical patients, only four (9% or 4/44) reported current use of perioperative antifungal prophylaxis, with micafungin as the preferred agent.

13% (11/84) of respondents had encountered *C. auris* colonization in transplant recipients prior to transplantation. Only 2% (2/84) reported encounters involving patients who received transplants from colonized organ donors.

In total, 17% (14/84) of respondents reported encountering postoperative invasive *C. auris* infections in previously colonized patients. Most encounters involved nontransplant, surgical patients, and three involved transplant recipients. In the free-text comments, three additional cases were described among transplant recipients without known donor or recipient *C. auris* colonization prior to transplant.

Discussion

Our EIN Quick Query provides initial insight into current experiences around perioperative management of patients with *C. auris* colonization. This EIN Quick Query began with discussions between our Transplant Infectious Diseases and Infection Prevention and Control teams around the management of potential transplant donors/candidates colonized with *C. auris*. The first documented case of donor-derived transmission of *C. auris* was in 2017 in a SOT recipient in Massachusetts.[5] Since

Table 1. EIN C. auris perioperative practices Quick Query poll questions and responses

Quick query poll questions and responses	No. (%)
1. Does your healthcare facility screen patients preoperatively for *Candida auris*?	
a. Yes	7 (8)
b. No	77 (92)
c. N/A (eg no surgical procedures in my facility)	0
2. Do you start patients colonized with *C. auris* on antifungal prophylaxis perioperatively?	
a. Yes	4 (5)
b. No	40 (48)
c. N/A (eg have not seen *C. auris* in surgical patients)	40 (47)
3. Does your institution have specific perioperative policies related to *C. auris* prevention/treatment in surgical patients?	
a. Yes, a general protocol	14 (17)
b. Yes, a transplant-specific protocol	1 (1)
c. Yes, both a general and transplant-specific protocol	0
d. No	52 (62)
e. Not sure	17 (20)
4. Regarding solid organ transplants, has your healthcare facility had . . . . . . transplant recipients who were colonized with C. auris prior to transplant?	
a. Yes	11 (13)
b. No	39 (46)
c. N/A, no solid organ transplants in my facility	34 (41)
. . . patients who received a transplant from a donor colonized with *C. auris*?	
a. Yes	2 (2)
b. No	48 (57)
c. N/A, no solid organ transplants in my facility	34 (41)
5. Have you encountered cases of invasive *C. auris* infection in postoperative patients? *[Select all that apply]*	
a. Yes, in a surgical patient known to be previously colonized with *C. Auris*	13 (15)
b. Yes, in a transplant recipient known to be previously colonized with *C. Auris*	3 (4)
c. Yes, in a transplant recipient who received an organ from a donor known to be previously colonized with *C. Auris*	0
d. Other	8 (10)
e. No	63 (75)
6. Please select the state of your clinical practice	
a. California	14 (17)
b. Massachusetts	6 (7)
c. Florida	5 (6)
d. Georgia, New York, Virginia	4 (5)
e. Maryland, Michigan, North Carolina, Nebraska, Ohio, Texas, Washington, Wisconsin	3 (4)
f. Arizona, Iowa, Illinois, Louisiana, Pennsylvania, Other	2 (2)
g. Alabama, Arkansas, Colorado, District of Columbia, Indiana, Kentucky, Missouri, Oregon, South Carolina, Tennessee, Canada	1 (1)

then, reports of *C. auris* colonization and infection cases in the U.S. have increased, including in surgical and transplant patients.[1,4,5]

Screening guidance

The CDC issued initial guidance on *C. auris* screening in June 2016, targeting patients recently hospitalized in countries with reported cases.[3] Since then, recommendations have expanded—driven by rising U.S. cases and emerging evidence—to include patients with tracheostomies, ventilator dependence, indwelling devices, recent carbapenemase-producing organism infection, frequent or long healthcare stays, international healthcare exposure, or recent stays in skilled nursing facilities or facilities with known *C. auris* transmission.[3] However, there is no national guidance specific to patients undergoing invasive surgeries, transplant donors or recipients, likely due to limited data on screening benefits in these contexts.

Despite this gap, some institutions have begun to implement local perioperative screening guidelines. In this poll, 17% of respondents reported established perioperative screening/

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management guidelines for *C. auris* in their institutions, with only one reporting transplant-specific guidelines. This hypothesis-generating poll suggests that further research is needed to evaluate the benefits of *C. auris* screening in surgical and transplant patients to inform future national guidance.

Barriers to screening

Only 8% of respondents reported routine preoperative *C. auris* screening, suggesting it is not yet standard practice. In addition to limited guidance, several barriers may contribute to this including lack of available in-house testing, limited laboratory staff availability, and the long turnaround time of culture-based methods. In a recent survey of US healthcare facilities, only 36.8% (92 out of 253 respondents) reported performing in-house testing for *C. auris*.[6] Recently, the FDA authorized a *C. auris* PCR-based assay (DiaSorin) for commercial use, potentially improving testing accessibility and turnaround.[7] As screening for *C. auris* expands, the development of guidance on screening surgical and transplant patients should be considered by local facilities until comprehensive national recommendations are available.

Role of perioperative antifungal prophylaxis

Reported bloodstream infection rates among *C. auris*–colonized patients range from 3% to 18%; U.S. surveillance found 6.9% positive clinical specimens among >21,000 colonized patients, with mortality up to 60%.[8,9] No data exist on effective decolonization strategies.[4] Eyre et al reported fewer postoperative invasive infections among *C. auris*–colonized patients following single-dose micafungin prophylaxis as part of a broader infection prevention effort, suggesting a potential role for targeted perioperative antifungal prophylaxis.[2]

Fluconazole, commonly used for pretransplant prophylaxis, demonstrates ~90% resistance among *C. auris* isolates in the U.S.[3] In contrast, most U.S. isolates remain susceptible to echinocandins, which may explain their use by poll respondents. Identification of *C. auris* colonization in transplant patients is important, as it may warrant adjustments in antifungal prophylaxis. Antifungal prophylaxis in colonized patients should be guided by infection risk, regional epidemiology, and antimicrobial stewardship.

Invasive post-surgical infections

Since *C. auris* colonizes the skin, procedures that disrupt the skin barrier can increase infection risk. A retrospective cohort study in Spain of 206 patients colonized with *C. auris* identified procedures as an independent risk factor for infection.[8]

SOT recipients face additional risk factors, including immunosuppression, antibiotic and antifungal exposure, prolonged ICU stays, and indwelling catheters.[4,8] Fourteen (17%) respondents of our poll reported invasive *C. auris* infections postoperatively in previously colonized patients, including surgical patients and transplant recipients. Briano et al found a 0.4% incidence of *C. auris* candidemia in transplant recipients in a tertiary center in Miami (2020–2021).[10] Previously reported cases of donor-derived *C. auris* infections further highlight the importance of risk assessment before transplantation.[5]

Mortality in transplant recipients with *C. auris* is not well described. A small case series of five liver transplant recipients noted 40% mortality, while another study of 27 patients, including four transplant recipients, reported a 26% mortality rate.[1] These cases support the need for evidence-based guidelines determining *C. auris* risk and a focus on infection prevention in transplant and surgical patients.

Limitations

EIN Quick Queries rely on voluntary self-reporting; providers who had previously encountered patients with *C. auris* may have been more likely to respond, potentially affecting generalizability. Additionally, limited questions in a Quick Query restrict in-dept assessment and conclusions. Respondent demographic data were limited, and institutional overlap is possible.

Conclusion

The survey highlights the lack of institutional guidelines for *C. auris* prevention in perioperative settings, including among SOT patients. Although postoperative *C. auris* infections appear to be uncommon, their reported occurrence in previously colonized patients raises concern about infection prevention gaps and underscores the need for further research and evolving guidelines to optimize perioperative prevention and management of this emerging fungal pathogen.

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