Infection Control & Hospital Epidemiology (2024), 1–4
doi:10.1017/ice.2024.5

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Concise Communication

Candida auris screening practices at healthcare facilities in the United States: An Emerging Infections Network survey

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Abstract

We surveyed members of the Emerging Infections Network about *Candida auris* screening practices at US healthcare facilities. Only 37% of respondents reported conducting screening; among these, 75% reported detection of at least 1 *C. auris* case in the last year. Increased screening could improve *C. auris* detection and prevent spread.

(Received 27 September 2023; accepted 20 December 2023)

Candida auris is an emerging fungal pathogen that colonizes the skin, particularly of patients who are chronically ill, have indwelling medical devices, or have frequent or prolonged healthcare exposures.[1] It contaminates healthcare surfaces and is not killed using certain commonly used healthcare disinfectants, making it prone to spreading in healthcare facilities.[2] Many products which are solely dependent on quaternary ammonia compounds (QACs) are not effective against *C. auris*.[3] Approximately 5%–10% of patients with *C. auris* skin colonization develop invasive disease, which is associated with high mortality rates ranging from 30% to 70%.[4]

Identifying patients colonized with *C. auris* through screening can help prevent spread in healthcare facilities by prompting implementation of appropriate infection prevention and control measures. CDC recommends *C. auris* colonization screening based on local epidemiological conditions, patient characteristics, and facility-level risk factors (https://www.cdc.gov/hai/mdro-guides/prevention-strategy.html). Such screening might help facilities in higher burden areas to mitigate transmission and those in lower burden areas to detect new introductions before spread begins (https://www.cdc.gov/hai/mdro-guides/containment-strategy.html). Screening practices at US healthcare facilities, including information on how practices vary based on local *C. auris* prevalence and how frequently screening detects new cases, are not well described. Therefore, we surveyed a US-based network of infectious disease practitioners about screening practices in their healthcare facilities.

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Cite this article: Hennessee I. P., Forsberg K., Beekmann S. E., Polgreen P. M., Gold J. A.W., Lyman M. *Candida auris* screening practices at healthcare facilities in the United States: An Emerging Infections Network survey. *Infect Control Hosp Epidemiol* 2024. doi: 10.1017/ice.2024.5

Methods

The Infectious Disease Society of America (IDSA) Emerging Infections Network (EIN) is a sentinel network of infectious disease physicians and other infectious disease specialists.[5] In August 2022, a link to a survey about *C. auris* screening practices was sent via the EIN listserv to ~3,000 member subscribers on 3 separate occasions ~1 week apart.

The survey included questions about whether screening was performed in the respondent's facility, whether patients were screened on admission or once they were already in the facility, laboratory methods used for screening, numbers of screening tests conducted and *C. auris* cases detected in the prior year, and their facility's location (city and state). Respondents could also report challenges or other observations about screening using a free-text response. We grouped responses by region within states (eg, southern California), and used Fisher exact tests to compare responses from regions where *C. auris* is frequently identified or endemic (tier 3 or 4) or not frequently identified (tier 2), as defined in the CDC's multidrug-resistant organism containment guidance (https://www.cdc.gov/hai/mdro-guides/containment-strategy.html). The location of survey responses in tier 3 or 4 or tier 2 regions was based on the investigator's informal assessment using information about *C. auris* case counts, transmission, and outbreaks in the year before the survey was launched.

Results

We received 253 responses, 119 (47%) from tier 3 or 4 areas and 134 (53%) from tier 2 areas. Responses were from 37 states and the District of Columbia, most frequently California (n = 87), New York (n = 17), Illinois (n = 12), and Florida (n = 11), with <10 responses from each of the remaining states.

Overall, 37% of respondents reported that *C. auris* screening was conducted at their facility (Table 1). More respondents from

Table 1. *Candida auris* Screening Practices Among Emerging Infections Network (EIN) Survey Respondents—United States, 2022

Variable	Overall, No. (%)	Respondent Location		*P* Value
		Tier 3 or 4, No. (%)[a]	Tier 2, No. (%)[a]	
Screening practices among all respondents	N = 253	n = 119	n = 134	
Screening conducted at facility				<.001
Yes	92 (36.8)	70 (58.8)	22 (16.8)	
No	158 (63.2)	49 (41.2)	109 (83.2)	
Unsure	3	0	3	
Practices in facilities that conduct screening	N = 92	n = 70	n = 22	
Type of screening conducted				
Screen patients on admission	71 (77.2)	59 (84.3)	12 (54.5)	.009
From selected healthcare facilities[b]	57 (80.3)	49 (83.1)	8 (66.7)	.010
To certain units[c]	18 (25.4)	13 (22.0)	5 (41.7)	.904
Patients with healthcare outside the United States	23 (32.4)	18 (30.5)	5 (41.7)	1.00
Patients with specific risk factors	23 (32.4)	18 (30.5)	5 (41.7)	1.00
Screen patients already in facility	47 (51.1)	34 (48.6)	13 (59.1)	.538
Laboratory methods most often used				
In-house tests	52 (58.4)	46 (67.6)	6 (28.6)	.003
Culture	35 (67.3)	30 (65.2)	5 (83.3)	.159
PCR	16 (30.8)	15 (32.6)	1 (16.7)	.139
Other	1 (1.9)	1 (2.2)	0 (0.0)	1.00
Send swabs to external lab	37 (41.6)	22 (32.4)	15 (71.4)	.003
State public health lab	24 (64.9)	12 (54.5)	12 (80.0)	.001
Other external lab	13 (35.1)	10 (45.5)	3 (20.0)	1.00
Unsure	3	2	1	. . .
No. of screening swabs collected in past year				.017
1–5	7 (10.0)	5 (9.3)	2 (12.5)	
6–25	17 (24.3)	8 (14.8)	9 (56.2)	
26–100	15 (21.4)	14 (25.9)	1 (6.2)	
101–200	10 (14.3)	9 (16.7)	1 (6.2)	
201–500	8 (11.4)	6 (11.1)	2 (12.5)	
>500	13 (18.6)	12 (22.2)	1 (6.2)	
Unsure	22	16	6	
No. of patients identified as having *C. auris* colonization in the past year				<.001
None	23 (27.7)	9 (14.5)	14 (66.7)	
1–5	30 (36.1)	28 (45.2)	2 (9.5)	
6–25	21 (25.3)	17 (27.4)	4 (19.0)	
26–100	7 (8.4)	6 (9.7)	1 (4.8)	
101–200	1 (1.2)	1 (1.6)	0 (0.0)	
>200	1 (1.2)	1 (1.6)	0 (0.0)	
Unsure	9	8	1	

[a]Results are stratified by whether the respondents were located in a region where *C. auris* is frequently identified (tier 3 or 4) or not frequently identified (tier 2), based on an informal CDC assessment using existing multidrug-resistant organism containment guidance (https://www.cdc.gov/hai/containment/guidelines.html).
[b]Selected healthcare facilities include influential healthcare facilities or those experiencing outbreaks.
[c]Certain units within healthcare facilities, such as intensive care units.

facilities in tier 3 or 4 areas reported screening than those from tier 2 areas (59% vs 17%; $P < .01$). Among respondents from facilities that conducted screening, 77% reported screening on admission and 51% reported screening patients already in the facility (eg, in response to cases or as part of point prevalence surveys). Respondents from tier 3 or 4 facilities more frequently reported screening patients on admission compared with tier 2 facilities (84% vs 55%; $P = .01$), whereas screening patients already in the

https://doi.org/10.1017/ice.2024.5 Published online by Cambridge University Press

Table 2. Colonization Cases Detected by Numbers of Patients Screened for *Candida auris* colonization in the last year, among survey respondents who reported screening — United States, 2022

Variable	Overall, No. (%)	Respondent Location		
		Tier 3 or 4, No. (%)[a]	Tier 2, No. (%)[a]	*P* Value
Facilities that screened ≥1 patient	N = 68	n = 52	n = 16	
≥1 case detected	51 (75.0)	45 (86.5)	6 (37.5)	<.001
>5 cases detected	25 (36.8)	21 (40.4)	4 (25.0)	.412
Facilities that screened >25 patients	N = 44	n = 39	n = 5	
≥1 case detected	40 (90.9)	36 (92.3)	4 (80.0)	.940
>5 cases detected	24 (54.5)	20 (51.3)	4 (80.0)	.461

[a]Results are stratified by whether the respondents were located in a region where *C. auris* is frequently identified (tier 3 or 4) or not frequently identified (tier 2), based on an informal CDC assessment using existing multidrug-resistant organism containment guidance (https://www.cdc.gov/hai/containment/guidelines.html).

facility was similar in tier 3 or 4 facilities and tier 2 facilities (49% vs 59%; $P = .54$). In-house laboratory testing was more commonly available in tier 3 or 4 facilities versus tier 2 facilities (68% vs 29%; $P < .01$), whereas respondents from tier 2 facilities more frequently reported sending screening specimens to external laboratories (71% vs 32%; $P < .01$). Among facilities that employed in-house tests, 67% used culture-based methods, 31% used PCR, and 2% employed other methods.

Among the 68 respondents who reported screening and had complete responses for numbers of patients screened and positive cases detected in the last year, 75% reported having identified ≥1 case in the previous year (tier 3 or 4 facilities, 87%; tier 2 facilities, 38%; $P < .01$) and 37% reported having identified >5 cases (tier 3 or 4 facilities, 40%; tier 2 facilities, 25%; $P = .41$) (Table 2). Among 44 respondents who reported screening >25 patients in the last year, 91% had identified ≥1 case in the previous year (tier 3 or 4 facilities, 92%; tier 2 facilities, 80%; $P = .94$). Among the same group, 55% identified >5 cases in the previous year (tier 3 or 4 facilities, 51%; tier 2 facilities, 80%; $P = .46$).

Limited laboratory capacity and long testing turnaround times were the challenges were reported by 6 respondents. Two respondents described limited resources and staff time to systematically identify which patients should be screened, such as admissions from high-risk facilities.

Discussion

Reported rates of *C. auris* screening at facilities were low: only 17% of EIN member respondents from tier 2 facilities and 60% from tier 3 or 4 facilities reporting any screening during the previous year. Admission screening was less frequently reported at tier 2 facilities, which is concerning because admission screening in areas where *C. auris* is not yet common has the potential to detect new introductions and guide the implementation of prevention measures before spread begins (https://www.cdc.gov/hai/mdro-guides/prevention-strategy.html). Additionally, results showed room for expanding screening among facilities in tier 3 or 4 areas where *C. auris* is prevalent. Preventive and responsive point prevalence surveys in facilities in these areas could help detect transmission and guide containment measures to limit further spread.[6,7] Altogether, these findings suggest opportunities to increase adoption of *C. auris* screening across US facilities, which might aid detection and prevent spread within and among facilities.

The challenges that respondents identified might prevent wider adoption of *C. auris* screening. The long turnaround time of culture-based methods compared to PCR may limit the feasibility of screening programs among facilities.[8,9] The CDC Antimicrobial Resistance Laboratory Network is a network of public health laboratories that provides free PCR-based colonization screening testing for healthcare facilities and health departments (https://www.cdc.gov/drugresistance/ar-lab-networks/domestic.html). Additionally, greater availability of PCR-based in-house laboratory testing might increase the adoption of *C. auris* screening by facilities. Limited staff availability and time to identify which patients should be screened and to conduct screening could also be a barrier to the adoption of screening programs.[10] Existing prevention guidance can help prioritize which patients should be screened, and increasing staff capacity for multidrug-resistance organism surveillance and adding tools like screening prompts in the admission electronic medical record may facilitate implementation.[11]

The survey was distributed to the entire EIN listserv rather than focusing on providers specifically involved with *C. auris* screening. Nevertheless, it is possible that primarily members who had experience with *C. auris* responded, potentially biasing our estimates of the proportion of facilities that conduct screening. Because survey responses were anonymized, we could not assess whether some facilities had duplicated responses from multiple EIN members. However, duplication appeared uncommon as responses came from 37 states and Washington, DC, and from diverse locations within states.

Overall, these results provide insight into screening practices and challenges for US healthcare facilities. Increased screening at tier 3 or 4 facilities and targeted admission screening in tier 2 facilities could enable better *C. auris* detection and help prevent the spread of this rapidly emerging pathogen.

Acknowledgments. We gratefully acknowledge all members of the Emerging Infections Network who participated in this survey. This activity was reviewed by CDC and was conducted consistent with applicable federal law and CDC policy (eg, 45 C.F.R. part 46, 21 C.F.R. part 56; 42 U.S.C. §241(d); 5 U.S.C. §552a; 44 U.S.C. §3501 et seq). The findings and conclusions presented in this manuscript are those of the authors and do not necessarily represent the views of the US Centers for Disease Control and Prevention or the Department of Health and Human Services.

Financial support. This work was supported by the Cooperative Agreement Number 5 (grant no. NU50CK000574), funded by the Centers for Disease Control and Prevention.

Conflicts of interest. All authors report no conflicts of interest relevant to this article.

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https://doi.org/10.1017/ice.2024.5 Published online by Cambridge University Press