

Risk Factors Associated with Transmission of *Candida auris* in the Acute Care Setting

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Background

- The US Centers for Disease Control (CDC) identified *Candida auris* (*C. auris*) as an urgent threat due to its resistance to multiple antifungal treatments, rapid rate of transmission, and high mortality (1, 2).
- The environment is suspected to be a key reservoir of *C. auris* and leads to its transmission to HCPs, particularly on their gowns and gloves, which can spread to patients through direct contact.
- A 2020 study examining MRSA and carbapenem-resistant Enterobacteriaceae transmission in hospitals suggested that there are certain healthcare personnel (HCP) types, such as respiratory therapists, who have higher gown and glove contamination (3).
- It remains unknown which HCP types, specific activities performed in patient rooms, and types of interactions are at highest risk for *C. auris* transmission.
- We hypothesize that there are certain types of HCPs and activities performed in patient rooms that lead to a higher proportion of HCP gloves and gowns becoming contaminated with *C. auris*.

Methods

- Patients at four hospitals in Maryland, Illinois, California, and New York were identified using surveillance or clinical *C. auris* cultures.
- After a patient was deemed eligible, ten HCPs had their patient care interactions observed and recorded, and gloves and gown swabbed before exiting the room with a BBL dual-tipped CultureSwab.
- Inclusion criteria include a positive *C. auris* surveillance or clinical culture during the time of enrollment, admission to one of the four participating hospital systems, and age greater than 18.
- Variables included in the study form used for analysis were HCP type, touched in the patient's room, and items touched in the patient's domain.
- Patients' bioburdens were assessed by using ESwabs to sample patients' axillae, finger webs, groin/inguinal folds, nares, and stool/perirectal areas.
- Patients with all seven swabs negative for *C. auris* were excluded from the analysis.
- The primary outcome for this study is presence or absence of *C. auris* on gowns or gloves.

Results

58 patients were enrolled from March 2023 through July 2023. Seven patients were excluded from the analysis due to having no *C. auris* recovered from any body cultures. Of 485 HCP gloves and gowns swabbed, *C. auris* transmission occurred 26.0% and 13.4% of the time, respectively. Transmission to HCP gloves or gowns occurred at a rate of 30.7% (Fig. 1).

Culture source (N=485)	Number of interactions resulting in contamination	Percent of interactions resulting in contamination
Glove	126	26.0%
Gown	65	13.4%
Glove or gown	149	30.7%

Figure 1: Rate of transmission to healthcare personnel gloves and gowns.

Occupational/physical therapists (OT/PT) were most frequently contaminated with *C. auris* (100.0%); followed by other types of HCP, including medical and nursing students, pastoral care, radiology technicians, nutritionists, phlebotomists, and speech pathologists (32.5%); and nurses (31.4%) (Fig. 2).

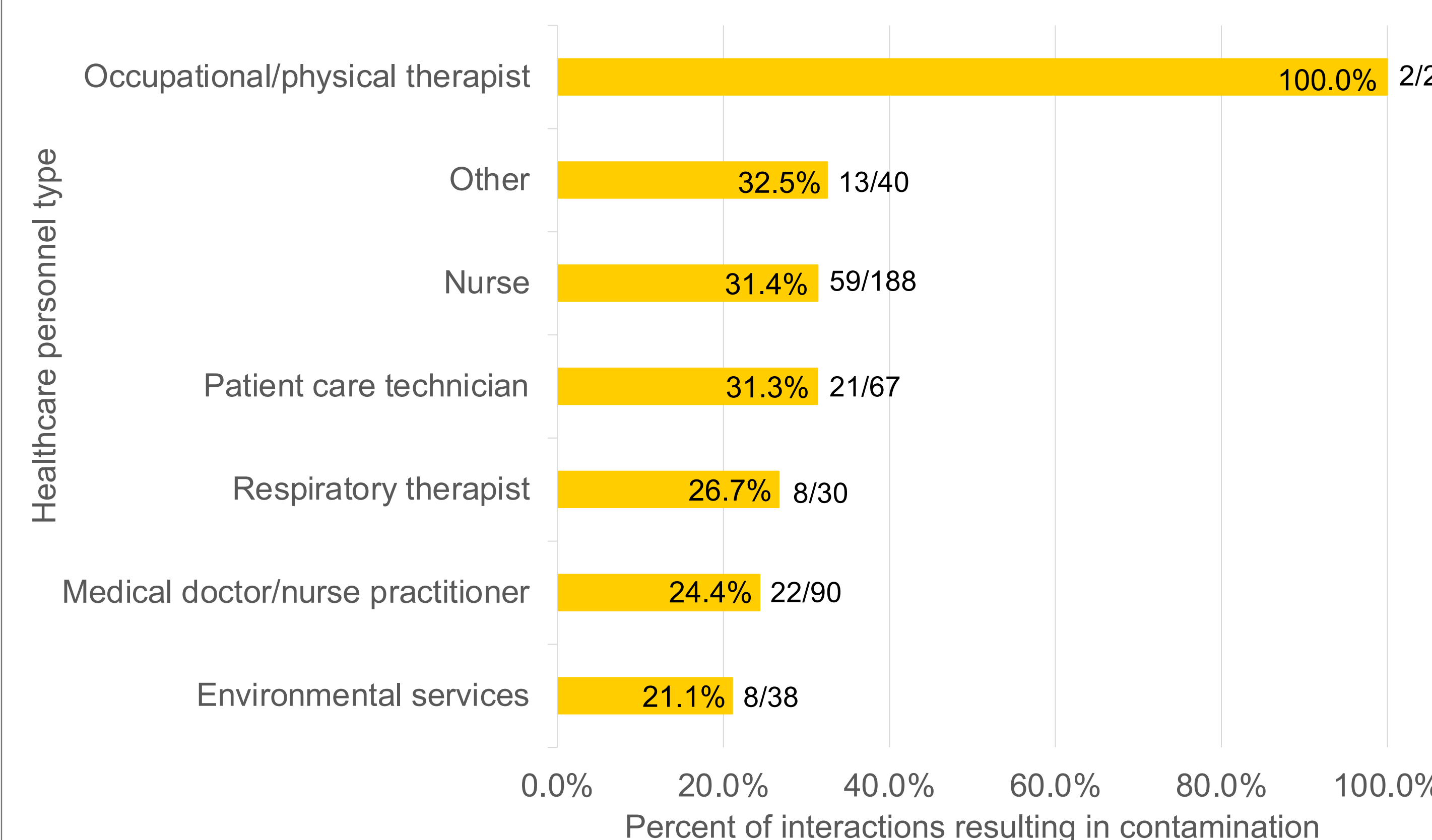


Figure 2: Percent of glove and gown contamination with *Candida auris* by HCP type.

Transmission to HCPs was also analyzed as originating from only patient contact, only environmental contact, both, or neither. The highest risk of HCP glove or gown contamination occurred after interactions with both the patient and the environment (34.5%) (Fig. 3).

Results, cont.

Domain Touched (N=485)	Observations	Interactions resulting in contamination	Percent of Interactions Resulting in Contamination
Patient only	6	2	33.3%
Environment only	114	23	20.2%
Both	359	124	34.5%
Nothing	6	0	0.0%

Figure 3: *Candida auris* transmitted to HCP gloves or gowns from interactions performed in the patient domain, contact with the environment, contact with both, and contact with neither.

Conclusions

- The interim results of this multicenter study indicate that HCP gloves and gowns are frequently contaminated with *C. auris* in the acute care setting.
- OT/PT have the highest proportion of glove or gown contamination with *C. auris*, followed by other types of HCP, and nurses. More OT/PT will be sampled throughout the course of the study to increase the power.
- Interactions that include contact with both the patient and the environment have the highest contamination rates among HCP.
- Altogether, these results support our hypothesis that there are some types of HCP and activities in patient rooms that have higher rates of glove and gown contamination.
- These findings can be used to help curb transmission of this rapidly emerging pathogen in healthcare facilities, reduce patient mortality, and guide infection prevention and control measures in hospitals.

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