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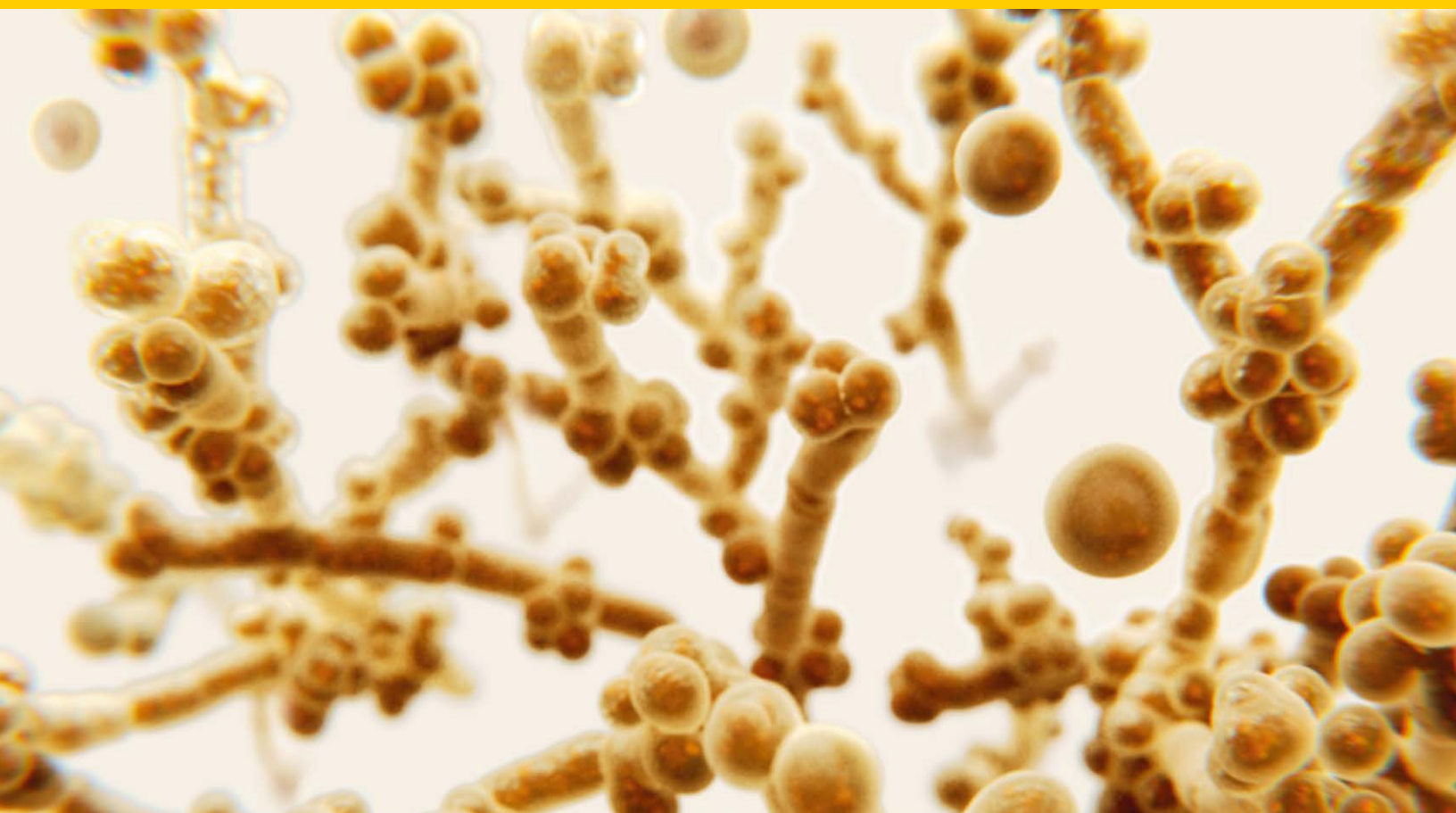
COMBATING *CANDIDA AURIS*: THE CRITICAL ROLE OF EFFECTIVE CLEANING



EXECUTIVE SUMMARY

Candida auris, also called *C. auris*, is a fungal pathogen increasingly wreaking havoc in healthcare facilities. *C. auris* spreads easily, contaminates the environment, and causes infections in susceptible people.[1] Deemed a global health threat by the Centers for Disease Control and Prevention (CDC), *C. auris* is challenging to identify, resistant to multiple classes of antifungals, and associated with a high mortality rate.[2] It is also a hardy fungus, capable of surviving for weeks in the healthcare environment.[1] As treatment options dwindle, prevention has become paramount, particularly as it relates to limiting the spread of *C. auris* in the patient care environment.[3]

Transmission-based precautions include frequent cleaning and disinfection of surfaces and medical equipment, which are fundamental to prevention.[2] As the CDC cautions, effective cleaning and disinfection depends on using EPA-registered disinfectants and strict adherence to manufacturer's instructions for use to ensure adequate disinfection.[2] However, adherence to instructions for use and contact times is a well-recognized challenge for time and training-constrained environmental service (EVS) technicians.[4-5] Appropriate disinfectants are critical, but research has also shown that mechanical removal is pivotal in successfully eliminating *C. auris* from surfaces.[6-7] Rubbermaid Commercial Products (RCP) HYGEN and Light Commercial microfiber remove 99.99% or more of multidrug-resistant *C. auris* from surfaces and effectively remove debris that can interfere with the disinfection process.[8] RCP microfiber is an essential tool in any *C. auris* prevention program.

INTRODUCTION

C. auris is a tiny fungus invisible to the naked eye, but it is having a significant impact on healthcare facilities in the U.S. and across the globe, causing serious - often deadly - infections in susceptible people. First identified in 2009 in Japan, *C. auris* was deemed a serious global health threat by the CDC in 2016.[2,9] *C. auris* is highly adaptive, capable of morphing and reacting to chemical and environmental stressors.[1] It can survive in the physical environment for weeks, tolerating harsh conditions like heat, dryness, and radiation. It has also rapidly developed resistance to antifungal medications, with resistance to the most common antifungal medication tripling in 2021 alone.[10-11] Between 2020 and 2021, reported clinical cases of *C. auris* increased by 95%, and roughly 1 in 3 infected patients died.[10-11] As treatment options dwindle, prevention is paramount, particularly in limiting *C. auris*' spread throughout the patient care environment.[1-2,3]

TRANSMISSION

C. auris can spread directly from one patient to another via contact with skin or other body sites.[2] Patients may have *C. auris* somewhere on their body without experiencing symptoms or having the fungus make them sick. This is referred to as being "colonized."[2] Infected patients have signs and symptoms of active infection (e.g., fever, open wounds, etc.) depending on the source and severity of the infection. Both colonized and infected patients can shed *C. auris* into the environment with skin cells, sweat, and oils.[1] This facilitates the other way that *C. auris* can spread: indirect transmission through contact with contaminated environmental surfaces or equipment.[2]

Research has found that as many as 70% of sampled surfaces in colonized patients' rooms test positive for the fungus.[3] *C. auris* has been recovered from multiple surfaces in healthcare settings, ranging from doorknobs to bed rails to hand hygiene dispensers. Shared mobile medical equipment such as blood pressure cuffs or vital sign monitors are of particular concern. These devices are often inadequately cleaned and disinfected between patients and can serve as reservoirs for *C. auris*.[2,12-13]

An outbreak reported in 2022 among pediatric patients in Nevada highlights this risk. The outbreak was linked to contaminated portable medical equipment used among infected adult patients and subsequently used in the pediatric unit. Though designated as "clean," researchers isolated *C. auris* from the devices, demonstrating the importance of ensuring and documenting effective cleaning and disinfection.[14]

C. auris can remain viable (i.e., alive) in healthcare environments for long periods. This is especially problematic for susceptible patients because evidence shows an individual admitted to a contaminated room can become infected in as little as 4 hours with signs and symptoms of an invasive infection in just 48 hours.[1] The bottom line: Environmental cleaning and disinfection are paramount; facilities cannot afford to have gaps in the process and leave *C. auris* behind.

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RISK FACTORS FOR INFECTIONS

In general, risk factors for *C. auris* are similar to those for other fungal infections: recent surgery, diabetes, and broad-spectrum antibiotic or antifungal treatment.[2] Infections have been found in patients of all ages, from pre-term infants to the elderly, but occur most often in patients already in the hospital for other reasons.[2] The CDC cautions that patients with an indwelling medical device, such as a breathing tube, feeding tube, or central venous catheter, are especially at risk.[2] Accordingly, outbreaks have most commonly occurred in long-term care facilities and intensive care units where patients have indwelling medical devices or are immunocompromised.[3,9]

In susceptible people, *C. auris* most often causes bloodstream infections, wound infections, and ear infections.[2] It has also been identified in the respiratory and urinary tracts, but it remains unclear whether *C. auris* can cause primary infections in those systems.[2]

TREATMENT

Correct identification is a significant challenge in treating and preventing the spread of *C. auris*. Many traditional culture or clinical microbiology-based identification methods often misidentify the fungus, and many facilities don't have access to molecular tests that accurately identify it.

Even when correctly diagnosed, *C. auris* treatment options are increasingly limited. The CDC reports that as many as 90% of *C. auris* isolates are resistant to the most common class of antifungal medication, while 30% are resistant to two classes of antifungals, and roughly 5% or less are resistant to three classes.[2] Most concerning are the pan-resistant isolates, meaning those resistant to all existing classes of antifungal medication.

These challenges underscore the importance of prevention, including reducing the presence of *C. auris* in the environment and limiting its spread.

INFECTION CONTROL AND PREVENTION

The CDC's Core Infection Prevention and Control Practices identify effective, routine, and targeted environmental cleaning and disinfection as among the "fundamental standards of care."[15] Accordingly, the CDC's recommendations for *C. auris* infection prevention and control, similar to other multidrug-resistant organisms, include:[2]

- hand hygiene
- transmission-based precautions (isolation, use of personal protective equipment, single-use patient care items, or thorough cleaning and disinfection of shared equipment)
- communication for patient transfers
- screening of close contacts
- laboratory surveillance
- cleaning and disinfection

The Importance of Physical Removal

C. auris is robust. It can adapt to environmental stressors like heat, high salt concentrations, and dryness (desiccation) and demonstrates resistance to disinfectants used for other fungal pathogens and standard doses of ultraviolet disinfection.[1,9] As a result, the CDC recommends using products from the Environmental Protection Agency's (EPA) List P, which have met their efficacy criteria against *C. auris*.[2]

One of *C. auris*' best weapons is its ability to form biofilms or a layer of microbial cells which adhere to a surface and have a self-created protective coating (called a matrix). This matrix can limit the penetration of disinfectants.[1] When a patient sheds *C. auris*, it begins adapting to the physical environment, and biofilm formation is triggered.[1] Researchers suggest "physically dislodging" *C. auris* biofilms may be essential to effective disinfection.[6] By mechanically disrupting the biofilm, direct contact can occur between the disinfectant and the fungal cells.

THE RUBBERMAID COMMERCIAL PRODUCTS SOLUTION

Healthcare facilities face a common challenge. Even with the best environmental protocols in place, the quality of the cleaning and disinfection process ultimately determines the outcome.

EVS technicians have a herculean job: 83% of new hires are trained on the job, receiving as few as 3 days of training, and are often tasked with cleaning rooms in as little as 15 minutes.[4-5] They must ensure they apply disinfectants appropriately and observe the necessary contact times every time they are used. This is especially challenging given the wide range of contact times among disinfectants.[16] Despite a growing awareness of the critical risk posed by the healthcare environment, as many as 37% of healthcare surfaces are inadequately cleaned.[17]

RCP microfiber supplements cleaning and disinfection procedures by addressing gaps in the process. As adherence to proper surface cleaning and disinfection technique is often suboptimal, it is reassuring to know that the textile used is highly effective at removing pathogens. A third-party study has shown that Rubbermaid Commercial Products microfiber removes 99.99% or more of multi-drug resistant *C. auris* with water alone.[8] RCP microfiber also effectively removes dirt and debris that can interfere with the disinfection process. Comprised of premium polymers that produce the finest fibers with a large surface area for absorbing and trapping dirt, debris, and microbes; physical removal is what RCP microfiber does best. RCP microfiber is also highly effective in removing other clinically relevant pathogens, including 99.7% or more of Clostridioides difficile, methicillin-resistant Staphylococcus aureus (MRSA), Pseudomonas aeruginosa, and common human coronavirus OC43, among others.

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CONCLUSION

Successful management of *C. auris*, like other novel multidrug-resistant organisms, will require commitment to the CDC's Core Infection Prevention and Control Practices, including leadership support, education, monitoring of practices, and adherence to standard and transmission-based practices.[15] Environmental cleaning and disinfection are critical components of these practices. Persistent pathogens like *C. auris* necessitate proper execution of environmental cleaning and disinfection protocols, highlighting the crucial need to use cleaning tools with proven efficacy.

Designed by engineers and scientists as an essential infection prevention tool, RCP microfiber is integral to your facility's defense against *C. auris*. Adding RCP microfiber to your arsenal empowers your EVS team to tackle *C. auris* with confidence and can help ensure you don't leave this potentially deadly pathogen behind.

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