Post exposure management protocol: *Candida auris* in the laboratory

BACKGROUND

Candida auris is a relatively new emerging species that was first identified in Asia in 2009 and has rapidly spread across the world. *C. auris* differs from most other Candida species in that antifungal resistance is the norm rather than the exception, it is a commensal of human skin rather than the human gut, and it can be easily transmitted from person to person in a healthcare setting. Unlike other species of Candida, experts do not believe *C. auris* lives naturally on your body and transmission generally occurs from contaminated surfaces or from other people who have a *C. auris* infection. Most people without underlying health conditions are not at risk for *C. auris* infections. Most infections in immunocompetent individuals are asymptomatic or very mild, but more serious infections occur in immunocompromised individuals and occasionally in well persons.

SCOPE

This protocol is a component of the Occupational Health Management System and Post exposure management as outlined in the Occupational Health Policy. Biological agents approved for use within King Abdullah University of Science and Technology (KAUST) research present potential hazards and health risks and have the potential to cause laboratory acquired infection (LAI). LAI can occur via needle stick, laceration causing broken skin or mucous membrane(s) splash. While LAI is a rare event, KAUST takes proactive measures to mitigate risks to researchers.

PREVENATIVE MEASURES

Designate all work conducted inside certified Class II biosafety cabinet. Ensure appropriate infection control practices are place including hand hygiene, donning and doffing of PPE including gowns, disposable sleeves and gloves, appropriate storage and laundering practices of lab coats and environmental cleaning and disinfection. The primary infection control measures for prevention of *C. auris* transmission in laboratory settings are:

- Conducting and containing all research in biosafety cabinets.
- Adherence to strict hand hygiene and washing hands after every experiment. Remembering wearing gloves is not a substitute for hand hygiene.
- Use of disposable arm sleeves, and regular/weekly laundering of lab coats.
- Limit use of sharps during experiments and strict adherence to no recapping of needles and/or sharps.
- Cleaning and disinfecting the environment daily. Use of an Environmental Protection Agency (EPA)–registered hospital-grade disinfectant effective against *C. auris* for cleaning and disinfecting, if the products are not accessible or otherwise suitable, use an EPA-registered hospital-grade disinfectant effective against C. difficile spores for the disinfection of C. auris. It is important to follow all manufacturer's directions for use, including applying the product for the correct contact time.

POST EXPOSURE MANAGEMENT

Exposure of mucous membranes and skin to infectious material, and exposure to infectious material on surfaces are the primary hazards associated with exposure to C. auris. Personnel who are immunocompromised, have eczema, rashes or skin breaks are at increased risk for infection following exposure, particularly in individuals who do not wear gloves with routine specimen handling. Meticulous wound cleansing after exposure is important in preventing infection. Follow up treatment at KAUST Health after an exposure is required if the nature of the wound requires additional care (sutures, etc.). Consultation with an Infectious Disease Specialist is required to determine the course of treatment dependent on the exposure.

Mode of Transmission	Treatment
Needle stick, Animal Bite, Laceration	Immediately wash the wound with soap and water for 15 minutes.
Mucous membranes (Eyes, nose, mouth)	Use sterile saline or water to irrigate for 15 minutes, preferably in an eye wash station. Rinse out mouth without swallowing.
Inhalation	If contaminated materials are aerosolized and potentially inhaled, rinse out mouth and/or nose without swallowing.
Intact skin	Wash the area thoroughly with soap and water.

GUIDANCE

Reporting & treatment:
Report immediately to KAUST Health for additional support and medical attention. Provide the healthcare provider with information about the specific organism and strain involved (Agent Information Sheet), route of exposure and inoculum concentration.
Employees must inform their supervisors of any work-related exposures, injuries, or illnesses as soon as possible and report by end of the shift and report the incident via the SALUTE portal. Follow up with Occupational Health will occur to ensure appropriate surveillance, treatment, and fitness to return to work after all exposure incidents. Please contact the Occupational Health specialist post-treatment for further guidance.

Susceptibility: Most strains of *C. auris* have been susceptible to echinocandins. Treatment may include one of the following, Micafungin IM, Caspofungin IM, Anidulafungin IM. Consultation with an Infectious Disease specialist is warranted postexposure.

Symptoms: Many people carrying *C. auris* don't have symptoms. Symptoms are dependent on the site of infection. Systemic infection may cause fever, headache malaise, and myalgia.

- Fever
- Chills
- Lethargy
- Low blood pressure
- Tachycardia
- Hypothermia

Viability: *C. auris* is susceptible to sodium hypochlorite at various concentrations (0.39-10% or 1,000-10,000 ppm chlorine), 0.125-1.5% chlorhexidine gluconate, 2% chlorhexidine gluconate in 70% isopropyl alcohol, 0.07-10% povidone-iodine, 1.4% hydrogen peroxide, activated hydrogen peroxide (AHP), 11% hydrogen peroxide in silver nitrate, 5% phenol, 2% glutaraldehyde, 29.4% ethyl alcohol, and 2000 ppm peracetic acid.

Vaccination: None available

References:
CDC

Government of Canada

Health Canada