

Infection prevention and control of *Candida auris*

1. Purpose

This guideline provides recommendations regarding best practice to support infection prevention and control of *Candida auris*.

2. Scope

This guideline provides information for all Queensland Hospital and Health Services

3. Related documents

Standards, procedures, guidelines

- Australian guidelines prevention and control infection healthcare 2010 <https://www.nhmrc.gov.au/book/australian-guidelines-prevention-and-control-infection-healthcare-2010/b2-transmission-based-pr>
- Management of multi-resistant organisms <https://www.health.qld.gov.au/clinical-practice/guidelines-procedures/diseases-infection/infection-prevention/management-advice?a=167340>
- IVD Management <https://www.health.qld.gov.au/clinical-practice/guidelines-procedures/diseases-infection/infection-prevention/intravascular-device-management>
- Management of outbreaks of communicable diseases in healthcare facilities https://www.health.qld.gov.au/_data/assets/pdf_file/0025/444508/management-outbreaks.pdf
- Guidance for the laboratory investigation, management and infection prevention and control of cases of *Candida auris*. Public Health England, August 2017. <https://www.gov.uk/government/publications/candida-auris-emergence-in-england/candida-auris-within-the-united-kingdom-updated-guidance-published>

4. Guideline for infection prevention and control of *Candida auris*

4.1. Background

Candida auris (*C. auris*) is an emerging fungus (yeast) that presents a serious global threat. It was first identified in 2009 in Japan but has since been identified in over 20 countries including Australia. Laboratory misidentification as other *Candida* species is well recognised, so the real prevalence may be underestimated: a recent study has found that isolates from 1996 in South Korea were *C. auris* but were misidentified at the time. Guidance on how to best treat and manage patients who are infected or colonised might change as new information becomes available. This organism is of significant concern because:

- it is associated with invasive infection, most notably blood stream infections (candidaemia) with significant mortality, especially in those with co-morbidities
- it is commonly multi-resistant to antifungal agents (resistant to at least two classes of antifungal agents) with some strains resistant to all three classes of antifungal agents (azoles e.g. fluconazole, polyenes e.g. amphotericin formulations and echinocandins e.g. caspofungin)

Colonisation and superficial infection may occur in isolation, precede invasive infection and/or transmit to others in a healthcare facility. It has been isolated from a range of body sites, including skin (very common), urogenital tract (common), and respiratory tract (occasional). In addition to candidaemia, other invasive infections have been described: pericarditis, urinary tract infections and pneumonia. *C. auris* is known to affect both paediatric and adult populations, and has predominantly been identified in critically unwell patients in high dependency settings e.g. Intensive Care Units (ICU). Risk factors for infection include central venous access, mechanical ventilation and the use of broad spectrum antimicrobials.

4.2. Diagnosis

Like other *Candida* infections, *C. auris* infections are usually diagnosed by culture of blood or other body fluids such as urine or respiratory secretions. However, *C. auris* is harder to accurately identify in the laboratory than other more common types of *Candida* using conventional commercial systems and can be confused with other more commonly encountered *candida* species.

All invasive isolates should undergo antifungal susceptibility testing. *C. auris* should be suspected if fluconazole resistance is detected and a species not characteristically fluconazole resistant is identified and those isolates should be referred promptly to the Central laboratory.

If *C. auris* is suspected on epidemiological grounds (e.g. known contact of a case or transferred from another centre/overseas country suspected of harbouring the organism), clinicians should notify the lab (by request and phone call) that this organism is suspected, in order that correct methods can be applied to diagnostic samples.

Screening of patients is addressed below.

4.3. Notification

C. auris is not currently a notifiable disease; however, it is requested that the Communicable Diseases Branch of the Department of Health is notified of any isolate of *C. auris*.

Notifications can be emailed to CDIM_Infection_Management@health.qld.gov.au

4.4. Care of a colonised inpatient

Clinical experience to date has shown that colonisation tends to persist and is difficult to eradicate making infection prevention and control strategies particularly important. It is recommended that strategies to prevent and/or treat colonisation include:

- strict adherence to intravascular device guidelines and bundles (<https://www.health.qld.gov.au/clinical-practice/guidelines-procedures/diseases-infection/infection-prevention/intravascular-device-management>) urinary catheter care bundles and care of the tracheostomy site
- prompt removal of all venous access devices if there is any sign of infection or they are no longer needed
- high standards of aseptic technique when undertaking wound care
- minimisation of broad spectrum antimicrobial use in keeping with local antimicrobial stewardship (AMS) recommendations.

Currently, there is no evidence to support de-colonisation strategies and it is not recommended.

4.5. Managing transmission

A single case of *C. auris* in a patient without a history of overseas travel in the last six months should be investigated as for an outbreak.

Refer to the *Management of outbreaks of communicable diseases in healthcare facilities* for outbreak management guidance.

Upon the detection of infection or colonisation with *C. auris*:

- isolate the patient into a single room with an unshared ensuite
- observe [standard](#) and [contact](#) precautions.
- the movement of the patient within a facility should be minimised wherever possible
- daily and terminal cleaning and disinfection (see environmental cleaning for current recommendations)
- whenever possible dedicated equipment should be used, however if equipment must be shared, then it must be **cleaned and disinfected** before use on another patient
- contact tracing - screen contacts of newly identified cases to determine if they are colonised with *C. auris* (see section 4.9 [Screening](#)).
- staff should take particular care when undertaking dressings, and managing or changing urinary catheters and other devices. A discharging wound should be secured with an impermeable dressing and any environmental contamination, from the wound or other body fluids, cleaned and disinfected immediately according to your local policy. Waste should be discarded into a clinical waste bag.

These precautions should continue indefinitely as there is currently not enough evidence to exclude lifelong colonisation. Periodic re-screening for *C. auris* of those known to be colonised is not recommended.

Hand Hygiene

The importance of hand hygiene should be emphasised to staff, patients and visitors. Staff should remember to adhere to the “[5 moments](#)” of hand hygiene.

The importance of hand hygiene after removing gloves must be reinforced.

Current evidence suggests chlorhexidine products and alcohol based hand rubs are effective when used with appropriate contact times.

[Communication with patients](#) throughout this process is important. Effective infection prevention requires involving patients in their care. A process of education and feedback with patients is essential throughout their admission.

4.6. Special considerations for residential care facilities

There is no reason for non-acute or community care settings to refuse admission or readmission of persons because they are or have been colonised or infected with *C. auris*.

Residents should be accommodated in a single room with ensuite facilities. If a single room is not available, the individual should not share a room or bay with an immunocompromised individual.

Residents known to be colonised with *C. auris* should be placed on contact precautions whilst in their rooms. Communal activities can continue as normal for the person if standard precautions and effective environmental hygiene can be maintained.

Residents with *C. auris* can leave their rooms if secretions and bodily fluids can be contained and the resident can perform hand hygiene prior to leaving their room. Close supervision may be required for some residents. If residents with *C. auris* receive allied health services or diversional therapy (e.g., physio/occupational therapy equipment, recreational resources), staff should work with the patient individually and contact precautions should be maintained for the duration of the therapy.

Affected residents should be the last to receive therapy on a given day. Shared equipment should be thoroughly cleaned and disinfected after use. See [4.7 Environmental cleaning](#), [4.7.1 Discharge cleaning](#) and [4.8 Linen](#).

4.7. Environmental cleaning

C. auris can persist on surfaces in the environment. Cleaning of the environment both daily and on discharge with a Therapeutic Goods Administration (TGA) approved product that is effective against *C. difficile* spores is recommended. No single disinfectant has proven efficacy on all surface types.

Correct concentrations and contact times need to be observed for the product used.

It is important to follow all manufacturers' directions for use of the surface disinfectant, including applying the product for the correct contact time and dilution concentration (a sodium hypochlorite solution of 1000 ppm of available chlorine or peracetic acid solution of 2000 ppm are currently recommended).

The cleaning of areas outside of the affected persons rooms after receiving treatment is also required e.g. medical imaging or rehabilitation gym. When a procedure is unable to be carried out in the patient's environment, it is best to schedule the patient at the end of the day for the procedure and the procedure area is thoroughly cleaned afterwards according to the local cleaning protocols.

Cleaning and disinfection of rooms and equipment of patients/residents with *C. auris* should be undertaken using one of the following processes:

- a physical clean using a combined detergent and 1000ppm available chlorine, or combined detergent and 2000ppm peracetic acid, in either solution or impregnated wipe (2-in-1 clean),
or
- a physical clean using detergent followed by a chemical disinfectant (2-step clean) i.e. clean with detergent, then clean with 1000 ppm available chlorine or 2000 ppm peracetic acid solution or impregnated wipe

Quaternary ammonia products that are routinely used for disinfection may not be effective against *C. auris*. All patient/resident surrounds and frequently touched surfaces (such as, bedrails, trolleys, bedside commodes, doorknobs, light switches, tap handles and ensuite facilities) should be cleaned and disinfected.

NB: ensure the product is applied as per manufacturer's instructions and correct contact times are followed.

After the floor of the room has been mopped, the mop should be changed and bucket cleaned before use in any other area.

Due to the organism's capacity for rapidly forming surface biofilms, frequency of cleaning regimes should be increased whilst the colonised/infected person is an inpatient.

Cleaning should be monitored and audited on a regular basis to ensure standards are maintained.

Whichever of the above products are chosen, the compatibility of cleaning chemicals used should be checked and manufacturer Material Safety Data Sheets should be consulted.

4.7.1 Discharge cleaning

Once the patient has been discharged a terminal clean should be undertaken. For terminal cleaning of a bed space or room vacated by a *C. auris* colonised/infected patient, the entire environment must be decontaminated by thorough cleaning and disinfection of:

- all horizontal surfaces
- all patient care equipment
- all items that may have come into contact with the patient or staff hands
- the walls.

Privacy curtains should be changed and laundered if they are not disposable. Consideration should be given to discarding less expensive items that are difficult to decontaminate, or using single-patient use devices such as blood pressure cuffs.

Stocks of single use items in the immediate patient environment should be discarded.

Staff performing the cleaning should be aware of the recommended cleaning and disinfection process, and ensure they change gloves and aprons and perform hand hygiene after cleaning each *C. auris* area.

4.8. Linen

Hospital and Health Services should follow their current waste and used linen policies as for any other multi-resistant organism.

- Attention should be paid to appropriate bagging and isolation of used linen and waste so that the environment is not contaminated.
- In paediatric and neonatal units, specific attention should be paid to disposal of used nappies
- At no time should contaminated material be discarded or washed in the clinical hand wash basins.

4.9. Screening

A contact is defined as: roommates of the colonised or infected patient who were in the same bay/room for longer than 24 hours with an affected patient within the period 28 days prior to first isolation of *C. auris*.

All identified contacts should be screened for *C. auris* colonisation.

Newly identified *C.auris* positive patients should be isolated and managed as per section 4.5 *Managing transmission* above with the aim is to prevent the spread of *C. auris* to those at most risk. Any unique contacts of these newly identified cases will also need to be screened.

If contacts have already been discharged then the facility should provide consumer information to the discharged patient.

All healthcare facilities should have a system for identifying patients at re-admission or outpatient attendance were previously positive for *C.auris* or who are identified as a contact but have not been screened.

Precautionary isolation and screening of patients transferred from hospitals that have detected *C.auris* should be undertaken by all facilities until the outbreak is declared over.

Similarly, patients who have been inpatients of a hospital in another country which has reported multiple cases and/or transmission within the last 12 months should be identified at presentation and screened, if admitted, they should be isolated until screening swab results return.

The identified contacts will be considered negative for *C.auris* if no positive results for the organism are detected after the following:

- screening samples should be collected on three consecutive days
- screening should be undertaken promptly
- separate screening swabs should be taken from both axillae and both sides of the groin

- screening should not be performed whilst the patient is on antifungal medication or had been treated with an antifungal medication within the preceding 7 days or who had been exposed to topical antiseptic washes in the preceding 48 hours. Any screening undertaken must be repeated when such factors no longer apply before a negative result can be considered valid.

The laboratory **must** be informed that *C. auris* is under investigation.

4.10. Transmission precautions for contacts

If practicable, facilities should consider implementing contact precautions and isolation for contacts awaiting screening results. Prioritisation should be given to those with closest contact within the preceding 28 days and those most vulnerable e.g. immunosuppressed, in situ vascular access, indwelling urinary catheters (IDC), and/or those who have recently spent overnight stays in hospitals in countries that have identified multiple cases/transmission of *C. auris*. should be isolated upon admission.

4.11. Clearance

Current evidence suggests that patients may remain colonised for many months, perhaps indefinitely; it is advised that until further advice becomes available that these patients are not categorised as being cleared from the organism.

Once colonisation has been identified further routine screening is not recommended.

5. References and resources

- Centers for Disease Control and Prevention. (2017). Interim Guidance for a Public Health response to contain novel or targeted Multidrug resistant Organisms (*MDROs*). Retrieved from <https://www.cdc.gov/hai/outbreaks/docs/Health-Response-Contain-MDRO.pdf>
- Centers for Disease Control and Prevention,. (2017). Recommendations for Infection Prevention and Control for *Candida auris*. Retrieved from <https://www.cdc.gov/fungal/candida-auris/c-auris-infection-control.html#disinfection>.
- G. Moore, S Schelenz, A. B. (2017). Yeastocidal activity of chemical disinfectants and antiseptics against *Candida auris*. *Journal of Hospital Infection*, 371 - 375.
- J.L. Cadnum, A. S. (2017). Effectiveness of disinfectants against *Candida auris* and other *Candida* species. . *Infection Control & Hospital Epidemiology*.
- Public Health England,. (2017). Retrieved from *Candida auris: infection control in community care settings*: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/707121/C._auris_in_community_settings.pdf
- Public Health England,. (2017). The characteristics, diagnosis and management of *Candida auris*. Retrieved from <https://www.gov.uk/government/collections/candida-auris>.
- R.Kean, L. S. (2018). Surface disinfection challenges for *Candida auris*: an in-vitro study. *Journal of Hospital Infection*, 433 - 436.
- T.S.N.Ku, C. Walraven, (2018). *Candida auris*: Disinfectants and implications for infection control. *Frontiers in Microbiology*.

6. Document approval details

Document custodian

Communicable Diseases and Infection Management, Communicable Diseases Branch, Prevention Division.

Approval officer

Dr Heidi Carroll

Approval date:

7. Version control

Version	Date	Prepared by	Comments / reason for update
1.0	9 August 2018	CDIM	<i>New document</i>
2.0	9 Sept 2018	CDIM	<i>Minor changes following feedback</i>
3.0	Jan 2019	CDIM	<i>Changes to decontamination and screening recommendations</i>