Candida Auris Prevention Strategies

General Directorate of Infection Prevention and Control

# *General Glance to Candida auris*

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# Objectives :

- ***Background***
- ***Risk factors***
- ***Transmission***
- ***Clinical manifestations***
- ***Case definition & classification***
- ***Laboratory diagnosis***
- ***Reporting of Confirmed Cases***
- ***Treatment***
- ***Preliminary investigation***
- ***Contact tracing***
- ***Screening***

# Background

- Candida auris (**C. auris**) is an emerging fungus that presents a serious global health issue as it was first reported **in Japan in 2009**; it resistant to multiple antifungal drugs commonly used to treat Candida infections.

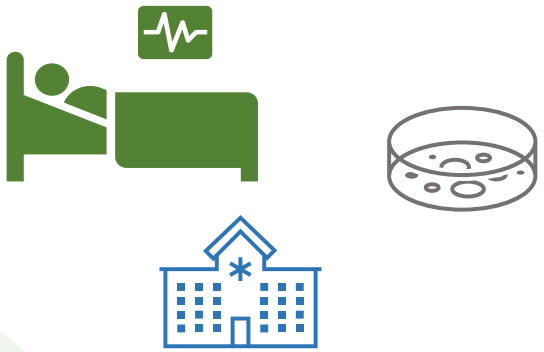
- It identified as one of Candida species that has been associated with **infection and outbreaks in healthcare facilities in various countries**. Clinically, C. auris capable of causing serious invasive fungal infections such as candidemia, pericarditis, osteomyelitis, pneumonia, and urinary tract infections.

# Background

- Patients can carry C. auris somewhere on the body but not have an infection or any symptoms, this is called **colonization**. Colonized patients are at **increased risk** for developing infection.

- **Only three classes of antifungal drugs are available to treat severe Candida infections:** azoles, echinocandins, and amphotericin B. It can cause severe illness among patients with immunocompromising conditions or those receiving high acuity care.

# Risk factors

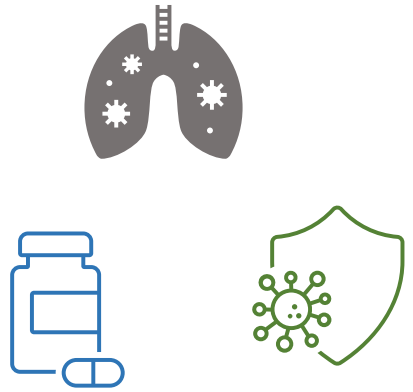


***C.auris infections have been found in patients of all ages, from preterm infants to the elderly***

**With the following risk factors:**

- A prolonged critical care areas (ICUs, NICUs, PICU, Dialysis)/ hospital stays.
- carbapenem-resistant Enterobacterales (CRE) positive patient (infected &colonized)
- Current or active outbreak in the healthcare facility.

# Risk factors – cont.



- An indwelling medical device, such as a central venous catheter, urinary catheter, biliary catheter, or wound drain.

- An impaired immune system (e.g., Recent surgery, Diabetes)

- Prolonged use or misuse of broad-spectrum antibiotics or antifungals drugs.

# Transmission

- Candida auris is transmissible whether a patient has C. auris infection or colonization. Thus, infection prevention & control precautions are the same for patients with C. auris infection or colonization.

- Implementation of these practices **starts with the identification of cases.** Typically, C. auris spreads in hospitals and other healthcare facilities through **contact with contaminated surfaces or equipment.**

- It can also be spread from person to person due to that cases infected or colonized with C. auris can shed the fungus.

# Case Identification

- To contain candida auris transmission, **it is critical to perform timely identification, detection**, and

accordingly, **implementation of appropriate infection prevention and control measures.**

# Clinical manifestations

*Colonization with C. auris is asymptomatic.*

- Colonization is **generally on the skin, nares, and other external body sites.**
- However, the symptoms that appeared on the infected cases are as the following: **fever, chills, sweats and low blood pressure.**
- Infections have been found in patients of all ages, from preterm infants to the elderly.

# Case definition & classification

Case Description:

**Suspected Case**

A person with a non-Candida albicans species isolated from a diagnostic or screening specimen.

**Confirmed Case**

A person with Candida auris (C. auris) isolated from a diagnostic or screening specimen irrespective of phenotypic susceptibility.

# Case definition & classification

***A confirmed C.auris case can be defined as the follows:***

**A. Clinical Confirmed C.auris Case**

Person with confirmatory laboratory evidence from a clinical specimen collected for the purpose of diagnosing or treating disease in the normal course of care.

This includes specimens from sites reflecting **invasive infection** (e.g., blood, cerebrospinal fluid) and specimens from **non-invasive sites** such as wounds, urine, and the respiratory tract. This does not include swabs collected for screening purposes.

# Case definition & classification

**B. Screening Confirmed C.auris Case**

Person with confirmatory laboratory evidence from a swab collected for the purpose of screening for C. auris colonization regardless of site swabbed. Typical screening specimen sites are skin (e.g., axilla, groin), nares, rectum, or other external body sites.

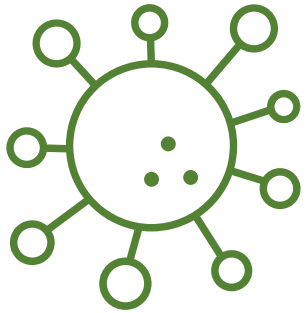
# Laboratory Diagnosis

- Detection of Candida auris requires blood tests as well as those of other bodily fluids.
- Detecting this pathogen is challenging as it's very similar to others of the same family and can be misdiagnosed; a quick diagnosis is rarely possible.

- Laboratory diagnosis via **culture** is the way to diagnose C. auris infection or colonization.

- Molecular methods can identify C. auris.

# Laboratory diagnosis



- Clinicians and laboratories should be aware of the possibility of C. auris, especially in **high-risk patients** who have cultured non-albicans Candida species. 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.

# Laboratory diagnosis

*The following aspects in regard of specimen processing must be considered:*

- C. auris grows **on blood agar** as all other Candida species but for sub-culturing, **use Sabouraud's agar.**
- Growth at **40-42 C** is useful to differentiate it from many other Candida species.
- **CHROM agar** is widely used as a differentiation medium, C. auris appear **pale purple or pink colonies.**
- Microscopically is indistinguishable from other Candida species, but it is **germ tube negative budding yeast.**
- It is commonly misidentified with other yeast (especially **Candida haemulonii**) in**: VITEK-2 YST, API 20C, Microscan and BD phoenix yeast identification system.**

# Laboratory diagnosis

***Safety Considerations for Laboratory Diagnosis of Candida Auris:***

•Use a biological safety cabinet (**BSL2**) when manipulating **known or suspected C. auris isolates**.

- C. auris can contaminate surfaces extensively, and it is difficult to eradicate.

•MOH approved **high level environmental disinfectants should be used for cleaning the work area** with consideration of manufacturer recommendations to avoid equipment damage.

# Reporting of Confirmed Cases

**The Microbiology laboratory should notify the followings upon identification:**

a) Nurse-in-Charge of the ward/unit where the patient was admitted.

b) Infection Prevention & Control Department.

c) Treating physician

# Reporting of Confirmed Cases

**Infection Prevention & Control Department should notify the following:**

- Any confirmed cases of C. auris should be reported to the General Directorate of Infection Prevention and Control (GDIPC) through the national approved electronic platform.
- All reports should be generated within 48 hours of identification through GDIPC healthcare associated infections (HAIs) outbreak notification electronic platform.

# Treatment

- First-line therapy should be prescribed based on **the specific susceptibility testing** which should be undertaken as soon as possible.
- However, there is evidence that resistance can evolve quite rapidly in this species. **The selection of antifungal must be based on a case-by-case basis and depending on the site of infection as well as the infectious diseases & the treating physicians' recommendations.**

# Preliminary investigation


**Preliminary Investigation**

- Every identified case of C. auris, regardless of the degree of antimicrobial resistance, **requires immediate investigation to determine the probable source of C. auris** and **to assess the risk of transmission within the healthcare facility.**
- Risk factors for C. auris acquisition **should be identified** for any patient who tests positive for C. auris.
- **Microbiology records should be reviewed** (if possible) to determine if the patient had a previous isolate positive for C. haemulonii or other non-albicans candida that may have been misidentified.

# Contact Tracing

Contact defines as; an individual who is exposed to a case colonized or infected with C. auris in a manner that might allow transmission to occur,

**OR**

an individual who is exposed to a C. auris-contaminated environment where there is an increased risk of acquisition of C. auris.

# Contact Tracing

Healthcare facilities should **strongly consider performing more extensive screening** if there is evidence or suspicion of ongoing transmission in a healthcare facility

(e.g., C. auris detected from multiple patients through contact screening or clinical cultures, increase in infections from unidentified Candida species).

Contact investigation will consist of screening and identifying high-risk contacts for C. auris acquisition.

# Contact Tracing

***There are two categories of contact – a room contact, and a ward contact:***

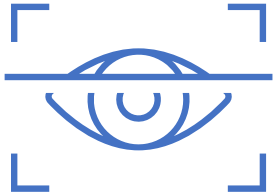
**Room contact**

A room contact is a person who resided for ≥24 hours in a healthcare facility in a shared room with a confirmed case during the case's period of transmission risk.

**Ward contact**

A ward contact is any person who has been on a ward for ≥24 hours in the time that the ward has been designated as a transmission risk area (TRA).

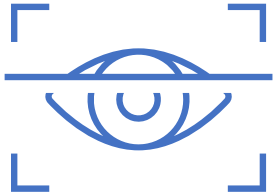
# Screening



•A process to identify patients at risk for being colonized with antibiotic resistant organisms and, if risk factors are identified, obtaining appropriate specimens.

- ✓ •Screening patients and healthcare workers (HCWs) to identify C. auris colonization is important practice for **avoiding transmission** of C. auris.
- ✓ •The healthcare facility should construct an **internal screening policy after risk assessment.**
- ✓ •Screening is recommended in **departments that are experiencing outbreak or having an increasing in the number of ongoing cases and/or colonization.**

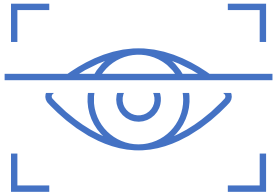
# Screening



- ✓ •In all cases, in the **four weeks prior** to diagnosis of the index patient, healthcare facility should look back to see if there has been an increase in detection of Candida in the same intensive care setting or ward ,as this may represent unrecognized transmission.

- ✓ •Healthcare departments and healthcare facilities should consider performing **more extensive screening to detect ongoing transmission**, such as *a point prevalence survey,* if there is evidence or suspicion of ongoing transmission in a facility
- ✓ (e.g., C. auris detected from multiple patients through contact screening or clinical cultures, increase in infections from unidentified Candida species).

# Screening



- ✓ •**If the index patient was not isolated**, patients who have close contacts been in the same bay with an affected patient in the 48 hours prior to first identification **should be isolated and cared for** with enhanced infection prevention and control measures as detailed later in other lecture.

- ✓ •Screening is advised for **patients coming from other affected hospitals or long-term facility.**

- ✓ •**While awaiting** for screening results, healthcare facilities could **consider placing patients at highest risk of C. auris colonization** on **appropriate transmission-based precautions**

## Suggested screening sites that colonies the skin and mucosal surfaces

- i.e. genitourinary tract, gastrointestinal, mouth and respiratory tract, are:
- groin and axilla
- urine
- nose and throat
- perineal swab
- rectal swab or stool sample.

Other sites that may be considered if clinically indicated are:

- sputum / endotracheal secretions
- drain fluid (abdominal/pelvic/mediastinal)
- cannula entry sites
- wounds

Screening

## Reassessment of Colonization

CDC **does not recommend** routine reassessments for C. auris colonization.

Long-term follow-up of colonized patients in healthcare facilities, especially those patients who continue to require complex medical care, such as ventilator support, suggests colonization persists for a prolonged period of time.

Screening

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# References


- *Healthcare-Associated Infections (HAIs)Outbreak Management Manual,January 2023,V. 7.0*

- *Guidance For Candida Auris Infection Prevention and Control Measures ,Version 1.0,June 2023*

*Thank You*


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