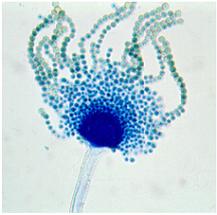
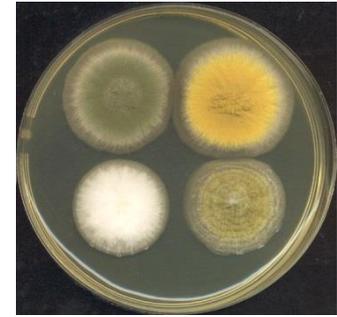


Infection Prevention and Control  
Candida auris  
Board of Directors – Oct 17

Dr C Bates



# Fungi



- Candida auris is a fungus
- Fungi are more complicated than virus and bacteria and nearer to mammalian cells – can cause issues when looking for agents to treat them with
- Fungi broadly split into two groups – a) moulds e.g. aspergillus, penicillium and b) yeasts e.g. candida
- Generally we could not live life on this planet without them
- Key in breaking down and recycling organic material
- Produce useful products e.g. penicillin
- Eat them – e.g. mushrooms
- Yeasts react with their food sources and produce ‘by-products’ which we find useful! – alcohol (beer, wine etc.) and bread



# Fungi

- Overall fungi are a good thing
- Environment is full of them
- Humans carry them (usually yeasts) on skin/mucosal surfaces, in gut – usually in low numbers
- Humans breath them in and out
- Certain conditions can allow fungi to proliferate –
  - like warm damp conditions e.g. excessive skin folds, nappies
  - alter normal bacterial flora e.g. antibiotics
  - immunosuppression e.g. pregnancy, diabetes, chemotherapy
  - Breaches in normal defences e.g. intravenous lines
  - ‘Opportunistic’ pathogens

# Yeast infections

- Clinically what do 'yeasts' cause
- Skin/mucosal infection: Nappy rash, oral thrush, vulvo-vaginal thrush, aural/ear infection – can be very irritating and annoying
- Deep infection: IV line infections, intra-abdominal infections, fungaemia (can lead to endocarditis and posterior eye infection) - generally more indolent than many bacterial infections, but can be insidious and long lasting and difficult to 'spot' clinically

# Treatment

- Assess whether colonisation, skin/mucosal infection or infection – most isolates are from superficial sites and represent colonisation or topical infection (not discussed further here)
- If colonisation only – take measures to keep it that way and where possible
  - Allow normal body defences to re-establish e.g. remove lines, catheters
  - Stop any antibiotics
  - Optimise underlying conditions e.g. diabetes
- Deep infection - as above
  - Removal of lines emphasised
  - Antifungal treatment

# Antifungal Treatment

- Range of topical treatments for skin/mucosal infections (not detailed here)
- Deep infections – limited range of antifungals
  - Polyenes – Amphotericin – renal and liver toxic – only IV – very wide spectrum of activity – including most ‘yeasts’
  - Azoles - Fluconazole, itraconazole, voriconazole, posaconazole etc – liver toxic – available oral and IV – vary in spectrum of activity but most have activity against ‘yeasts’ unless patient has had heavy exposure to azoles
  - Echinocandins – caspofungin, anidulafungin – only IV – wide spectrum of activity including most ‘yeasts’

# Candida auris

- C. auris – latin for ear - first isolated/named from an ear swab in Japan in 2009
- Since then been isolated from a range of body sites including deep sites
- Isolates reported from across the world e.g. Asia, South Africa, Kuwait, ISC, South America, North America, Europe, UK.
- Mainly causing problems in ITUs

# What is different about C. auris

## Laboratory Detection

### Issue

- Cannot be distinguished from other candida on an agar plate
- Some older, commonly used, identification systems misidentify it as another species

### Current STH position

- For several years – STH has used a system that does correctly identify C. auris

### Implications for STH

- Nil

# What is different about C.auris

## Laboratory identification

### Issue

- Most of the time candida isolates in the UK (including STH) are not identified to species level
- Most are considered colonisers and therefore no treatment required or minor infections where empirical treatment can be given
- Identification takes time and costs money
- Most species are sensitive to most drugs – so speciation is of little benefit – especially in minor infections

### Current STH position

- For many years – have identified to species isolates from deep infections (blood, line cultures) and from persistent infections in those treated with empirical therapy
- Further specific sensitivity testing undertaken on some isolates depending on the species

### Implications for STH

- To pick up C.auris as early as possible – STH will identify to species level the first candida isolate we detect from all patients on ITU/HDU patients, in addition to isolates from deep infections (blood, line cultures) and from persistent infections in those treated with empirical therapy
- Laboratory protocol to ensure this happens consistently being developed
- Cost pressure for laboratory

# What is different about C.auris Treatment

## Issue

- Tend to be resistant to many of the antifungal agents
- Amphotericin 20-33% resistant
- Fluconazole – almost all highly resistant, many cross resistance to other azoles
- Echinocandins – 10% resistant
- Some (not in UK) have been reported as resistant to all three classes of agent
- Not all agents get into all body sites – NB: echinocandins poor levels in central nervous system

## Current STH position

- Laboratory has capability to test for resistance either in-house or sending to reference laboratory
- Not had any isolates as yet

## Implications for STH

- Laboratory cost pressure re testing
- Potentially could have patients that require treatment – probably dual therapy , possibly more toxic – may need to be on ITU longer
- Outcomes vary – reported high mortality but as mostly ITU patients, attributable mortality not consistently reported – in UK to date no deaths thought to be attributable

# What is different about C.auris Individual Patient

## Issue

- Appears to spread easily and persistently colonise patients
- Work ongoing to determine an optimum regimen for suppression of colonisation/decolonisation – uncertain if anti-MRSA topical agents are effective or not – PHE have sent out draft recommendations – efficacy uncertain
- Advice is for scrupulous standard infection prevention and control practice in particular for insertion and ongoing management of IV lines
- Single room isolation with standard barrier precautions

## Current STH position

- IPC standards within STH generally high
- Regularly monitored via audits and Accreditation

## Implications for STH

- Isolation and barrier precautions not normally undertaken for candida isolates
- Increased requirements for single rooms, staff time etc

# What is different about C.auris Environment - Cleaning

## Issue

- Difficult to clear from the environment
- Seems to be able to spread via inanimate objects e.g. blood pressure cuffs
- Deep clean including HPV post patient discharge

## Current STH position

- Good cleaning in place as standard
- Have protocols for when patients have had barrier precautions in place
- Already have HPV

## Implications for STH

- Extra deep cleaning
- May need more patient dedicated equipment

# What is different about C.auris

## Screening: Admissions & following a case(s)

### Issue

- Detecting patients already colonised on admission
- PHE recommends isolation and screening of all patients coming from an affected UK hospital or hospital abroad
- Moving fast as to which hospitals 'affected'
- What is meant by 'affected'
- 6 or so UK trusts to date have had outbreaks, 55 trusts have cared for at least one patient with the organism
- PHE are not recommending any trusts are 'affected' at present
- Less information available regarding the situation outside of UK
- If we do get a case – extensive screening of other patients – continue over the weeks the patient is in

# What is different about C.auris

## Screening: Admissions & following a case(s)

### STH

- Working group to met October – Micro and IPC
- Propose to screen all direct transfers from hospitals abroad and UK hospitals outside of South Yorkshire coming into our ITUs/HDUs
- Propose to screen admissions from affected UK hospitals /units – will depend on the unit affected – may be just ITUs or certain other units
- Will vary over time
- Will need to keep up to date via PHE
- Hopefully affected unit would mention the issue when transfer requested
  
- ITUs in particular need to be vigilant
- Work with Clinical Operations
- Laboratory have developed a protocol for screening
- APEX requesting to be made available

# Candida auris

- Questions?