

## Appendix 6:

### Positive BC Cheat Sheet (Adults): Yeasts (?Candidaemia)

#### Likely organisms

- **Yeasts/Candida in blood (or any normally sterile site) should never be regarded as a contaminant:** prompt initiation of appropriate treatment is associated with better outcomes. Mortality rate is 30-40%; untreated this is even higher.
- Candida are the most common causes of yeast in blood cultures
- Other yeast-like fungi (e.g. Cryptococcus) are rare and associated with specific risk factors (e.g. travel, HIV, immunocompromise, indwelling lines, implanted devices)

Total % of Candidaemias*:	
40%	<b>C. albicans</b>
33%	<b>C. glabrata</b> (also called Nakaseomyces glabratus)
4%	<b>C. kruzei</b> (also called Pichia kudriavzevii)
23%	<b>Other Candia species:</b> e.g. C. parapsilosis, C. tropicalis, C. dubliniensis
0%	<b>Other Yeasts of Clinical significance:</b> e.g. Candidozyma auris, Cryptococcus sp.

\* As a proportion of blood cultures (n=24) with Yeasts within NHS D&G from Sept 2020-2025

#### Invasive Candidaemia

##### Risk factors

- Broad-spectrum antibiotics
  - Suppression of normal flora → Candida colonisation & overgrowth
- Recent abdominal/urology surgery
- Prosthetic material / implants
  - IV catheters (e.g. PICC, Central), urinary catheters, peritoneal dialysis catheters, ureteric stents, prosthetic joints, prosthetic heart valves.
- Critical illness and ICU stay
- Immunosuppression
  - Incl. neutropenia, haematological malignancies, solid organ cancers, stem cell transplants, untreated HIV, steroids
- Total parenteral nutrition

##### Sites of disease

Can cause severe sepsis or multi-organ disease with minimal signs, especially in neutropenia.

- IV catheters (e.g. PICC, Central)
- Endocarditis & vascular device infection
- Eyes (chorioretinitis, vitritis)
- Meningitis
- Bone and joint, especially vertebral
- Intra-abdominal (post-surgical, pancreatitis, perforation, PD peritonitis, hepatosplenic)
- Urinary tract (UTI, pyelonephritis, abscess)

#### Predicted susceptibilities

Where susceptibility testing was undertaken on Candida sp. from BCs in NHS D&G between Sept 2020-2025:

##### Anidulafungin

- ➔ No observed resistance: **100% susceptible**
- ➔ **Note: poor CNS / urinary tract penetration**

##### Fluconazole

- ➔ high dose (800mg daily): **90% susceptible**
- ➔ standard dose (400mg daily): **60% susceptible**

If Cryptococcus sp. is suspected based on clinical picture (e.g. HIV, foreign travel) seek senior input. Antifungal of choice is determined by site of disease, severity and immune status of the patient.

Local susceptibility testing is unavailable for Candida, and isolates are automatically referred to a reference laboratory (~7d turnaround).

If the *Candida* species ID is available, the antifungal activity can often be predicted:

	Fluconazole	Voriconazole	Echinocandin	Amphotericin B
<i>C. albicans</i>	++	++	++	++
<i>C. dubliniensis</i>	++	++	++	++
<i>C. tropicalis</i>	++	++	++	++
<i>C. glabrata</i>	+/-	+	+	++
<i>C. krusei</i>	-	+	++	++
<i>C. parapsilosis</i>	++	++	+	++
<i>C. guilliermondii</i>	+	++	+	++
<i>C. lusitanae</i>	++	++	++	-

Source: <https://www.idstewardship.com/five-practical-considerations-using-antifungal-drugs-invasive-candidiasis/>

**Echinocandin:** e.g. anidulafungin, caspofungin

**C. glabrata:** Local epidemiology indicates isolates are usually susceptible to high dose fluconazole (800mg OD)

- **ALWAYS review past microbiology results** for potentially relevant results e.g. *Candida* sp. ID in recent results.

## Suggested initial actions when Blood Culture with “Yeasts” phoned through

Yeasts may be part of a polymicrobial infection:  
*Anti-fungals AND anti-bacterials are often required*

**AVOID de-escalating a patient’s empiric antibiotic treatment based on Yeasts/Candida in blood culture, unless discussed with Microbiology Consultant or Senior clinician.**

- **Review patient.** Determine clinical status, likely focus of infection, current antibiotics
- **Consider source and source control:** remove IV catheters or other implicated prosthetic material e.g. urinary stent, biliary stent, urinary catheter.
- **Look for metastatic complications:** e.g. endocarditis, osteomyelitis, septic arthritis, meningitis, hepatosplenic candidiasis. Risk greater with persistent fever, persistent positive BCs or prosthetic material.
- **Look for *Candida* eye disease** e.g. endophthalmitis / chorioretinitis
  - If new visual symptoms OR unable to report visual symptoms (e.g. ICU) → refer ophthalmology
- **If NEWS score ≥7, request senior review**
- **Review past microbiology results** for potentially relevant results. e.g. *Candida* species ID.
- **Blood cultures**
  - **All cases:** repeat peripheral (+/- line) cultures BEFORE starting antifungal
    - Repeat BCs every other day until negative to confirm clearance of candidaemia
    - **If present, infected IV catheters should be removed promptly**
  - **Cardiac, orthopaedic or vascular implants ONLY:** consider device infection/endocarditis
    - Take 2 further sets of blood cultures 20 minutes apart, from different sites – even if stable
    - *Seek advice from specialist teams if implant/device infection suspected*

### All sources (except urinary tract)

#### → Start IV anidulafungin

- 200mg loading dose followed by 100mg OD

No renal adjustment needed. Well tolerated and limited drug-drug interactions.

**Note: Poor CNS / urinary tract penetration**

### Likely Urinary Source

#### → Start IV fluconazole

- 800mg loading dose followed by 400mg OD
- *Dose adjustment required if CrCl <50ml/min*

**Recent isolation of *C. krusei* (fluconazole-resistant) OR contra-indication to fluconazole (e.g. QT prolongation / drug interaction):**

- Seek senior input
- Consider liposomal amphotericin – discuss with pharmacy.

### If CNS disease OR *Cryptococcus* is suspected

- **Seek urgent senior input** (or Microbiology / Infectious Diseases Consultant, if available)
  - Antifungal choice is determined by site of disease, severity and immune status