## FUNGAL CULTURE: SITE SPECIFIC SPECIMEN SELECTION AND COLLECTION

- **REPLICATION LIMITS:** In general, with the exception of biopsy specimens, one fungal culture per site per day, not to exceed three per week should be adequate for the recovery of fungi.
- Communicate with the Microbiology laboratory details about the patient’s area of residence, travel history, contact with animals, and previous therapy with antibacterial, antifungal, or immunosuppressive cytotoxic agents.
- The anatomic site of the fungal infection can be an indicator of what mycotic agent to suspect, but in an immunocompromised patient population, virtually any fungus can be an opportunistic pathogen.
- **ALERT MICROBIOLOGY** if dimorphic fungi suspected (e.g. *H.capsulatum*, *B dermatitidis*, *C. immitis*, etc.) or *Malassezia* spp.

### Specimen Source | Common Fungal Agents | Recommended Collection and Transport Procedures | Additional Collection Comments
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Abscess, drainage, or wounds | Yeasts Filamentous fungi Aerobic actinomycetes | Following skin antisepsis (where applicable):
- **ASPIRATES:** Aseptically collect aspirate/fluid by needle and syringe and transport in capped syringe (without needle) or submit aspirate/fluid in a sterile screw cap container.
- **WOUND TISSUE:** Following skin antisepsis (where applicable), collect biopsy. Sample advancing margin of lesions. Surgery should submit a portion of the abscess wall. | Swabs are the least preferred collection device and should only be used when other samples cannot be obtained (tissues aspirates and fluids preferred). Collect sample with aerobic swab transport system. Non-cotton tip swabs are recommended.
Blood | *H. capsulatum* *C. neoformans* Candida spp. *Malassezia* spp. | Following skin antisepsis as outlined in the blood culture collection procedure, aseptically collect blood and inoculate 8 ml into a SPS tube AND 10 ml into an aerobic blood culture bottle (REDOX 1). Be sure to decontaminate the rubber stoppers of the tube/bottle with 70% alcohol prior to inoculating tubes/bottles with specimen. Recommended volume of blood is 18 ml. | Both SPS AND aerobic blood culture bottle required.
Alert Microbiology if *Malassezia* spp. or *H.capsulatum* is suspected.
Bone marrow | *H. capsulatum* *C. neoformans* | Following skin antisepsis, aseptically collect bone marrow and inoculate sample into a SPS tube. Be sure to decontaminate the rubber stoppers of the tube with 70% alcohol prior to inoculating tube with specimen. Recommended volume is 5 ml. | Microbiology staff will aseptically inoculate a portion of the sample in to an aerobic blood culture bottle. DO NOT submit bone marrow sample in blood culture bottle.
Catheter Tip | *Malassezia* spp. Candida spp. | Place 5 cm. of the distal end into sterile screw-cap container.
NOTE: Fungal blood cultures are also recommended. | Alert Microbiology if *Malassezia* spp. is suspected.
Catheter exit site | Using aerobic swab transport system, collect sample from infected skin site surrounding the intravenous line.
NOTE: Fungal blood cultures are also recommended. | 
Eye Corneal scrapings | *Candida albicans* *C. neoformans* Numerous filamentous fungi have been isolated in fungal keratitis | Samples should be collected at bedside. Contact Microbiology 309-762-8555 ext. 3550 prior to procedure (preferably > 24 hrs) to obtain media. Directly inoculate scrapings on to media. Tape plate lids shut prior to transport.
IMA, IMA w/Gentamycin (fungal culture media)
Blood Agar, Chocolate Agar, Sabouraud Dextrose agar, EB fluid (aerobic bacteriology media) | 
Conjunctiva | Samples should be collected at bedside. Contact Microbiology 309-762-8555 ext. 3550 prior to procedure (preferably 24 hrs) to obtain media. Directly inoculate on media. Tape plate lids shut prior to transport.
Alternatively, sample can be collected by an aerobic swab transport system. | Sample both eyes separately (even if one eye is uninfected). The uninfected eye can act as a control to compare agents isolated from the infected eye.
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<td>Intraocular fluid</td>
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| Hair/nails      | *Trichophyton* spp.  | • HAIR: After selecting infected area, scrape scalp and, if possible, collect at least 10 broken hairs for dermatophyte infection.  
• NAIL: Scrape infected nail area, or clip infected nail.  
• SCALP: Gently scrape with a sterile toothbrush. Bedside inoculation of media, or transport in a sterile screw top container preferred. A clean envelope can be used for nails and hair. Skin scrapings can also be submitted between two clean glass slides taped together (transport slides in slide carrier) | A clean envelope can be used for nails and hair. Skin scrapings can also be submitted between two clean glass slides taped together (transport slides in slide carrier) |
| Respiratory sites | Yeast and filamentous fungi, *Aerobic actinomycetes* | Specimen include:  
• SPUTUM: Collect three early-morning sputa resulting from a deep cough  
• INDUCED SPUTUM  
• BRONCHOSCOPY SPECIMENS: bronchoalveolar lavage samples, transtracheal aspirates, or bronchial brushings. Transport specimens in sterile screw-cap containers. | 24 hours sputum collections are not acceptable |
| Skin/Intertriginous Areas | *Trichophyton* spp.  
*Epidermophyton* spp.  
*Microsporum* spp.  
*Candida* spp.  
*Malassezia* spp.  
*Sporothrix schenckii* | Decontaminate the skin surface with 70% alcohol. The specimen should be collected from the edge of the lesion and inoculated directly onto fungal medium or submitted in a sterile screw-cap container are preferred. Contact Microbiology 309-762-8555 ext. 3550 prior to procedure (preferably 24 hrs) to obtain media. Tape plate lids shut prior to transport. Potato dextrose (PD) and IMA (fungal culture media) | A clean envelope or between two clean glass slides taped together. (Transport slides in a slide carrier). Alert Microbiology if *Malassezia* spp. is suspected. |
| Sterile fluids (CSF, pleural, pericardial, joint, peritoneal) | *H. capsulatum*  
*C. neoformans* | Collect a minimum of 2 ml in a sterile screw-cap container or capped syringe (needle removed). In general, the more fluid obtained for culture, the better the chance of isolation of any fungal pathogen.  
For some fungal infections the fungal load may be low. Inadequate amounts of fluid may yield false-negative results. Recommend sending as much fluid as possible for culture. If CSF, samples for cryptococcal antigen testing may be useful. |                                |
| Tissues/biopsy specimens | Yeast and filamentous fungi, *Aerobic actinomycetes* | Collect tissue and transport in sterile screw-cap container with a small amount of nonbacteriostatic saline to prevent drying. The size of the tissue should be about the size of a pea. Never transport in formalin | Most Candida spp. will grow on bacterial culture media. 24-hour urine collections and Foley catheter urine specimens are not acceptable. Samples for *Histoplasma* and *Blastomyces* antigen testing may be useful. The significance of growth of other molds from urine specimens should be considered cautiously. |
| Urine            | *Yeast*  
*C. immitis*  
*H. capsulatum*  
*Note: Patients with blastomycosis or cryptococcosis may have prostatic infection.* |                                |