

# Fungal infections

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This issue's special feature, on which these questions are based, was commissioned from independent authors. The information in the box (below, right) should help readers to identify knowledge gaps and undertake continuing professional development. All readers are invited to complete the questions overleaf on fungal infections, to test their understanding of the articles, and send their answers, together with a stamped and addressed C5 envelope, to:

Life-long Learning — fungal infections  
Hospital Pharmacist  
1 Lambeth High Street  
London SE1 7JN

Entries must be received by 27 November. Results will be returned with a certificate of completion.

Your name, address and scores will be held on a database for the purpose of awarding prizes. Should you wish your details not to be held in this way, please tick the box. If you do this, you will be sent a certificate, but you will be ineligible for a prize.



Name: \_\_\_\_\_

RPSGB registration number: \_\_\_\_\_

Address: \_\_\_\_\_

Post code: \_\_\_\_\_

### Life-long Learning competition

The 2005/06 Life-long Learning series ended with the July/August issue of *Hospital Pharmacist*. The winner and runners up of the competition will be announced in the November issue. Details about the next Life-long Learning competition are currently being finalised, but readers are invited to continue to answer the Life-long Learning questions for continuing professional development purposes. Accreditation by the College of Pharmacy Practice remains unchanged.

### Hospital Pharmacist online

*Hospital Pharmacist* is available online at [www.pjonline.com/hp/index.html](http://www.pjonline.com/hp/index.html). The website contains the current issue and an archive of back issues from January 2000 onwards. There are also links to the regular features in *Hospital Pharmacist* (eg, Life-long Learning, meeting reports, comments, careers, focus on technicians) and forthcoming special features.

The site also contains advice to contributors to *Hospital Pharmacist*, information about the annual *Hospital Pharmacist* conference, a link to *The Pharmaceutical Journal* careers website and information on subscribing to the journal.

There is a diary page with information about reunions, meetings, courses and health events ([www.pjonline.com/diary](http://www.pjonline.com/diary)).

### How to undertake continuing professional development

#### Identify knowledge gaps

- ◆ To understand the causes and diagnosis of fungal infections
- ◆ To have a knowledge of the different antifungal drugs available, their side effects and the monitoring required

Reading the feature and completing the questions will help readers to fulfil aspects of the following competency areas, depending on their area of practice and application of learning: G1, G5, G8, G9, HP1, HP2, HP4, HP5, HP10.

#### Act

- ◆ Read the articles in this issue
- ◆ Test your knowledge by answering the multiple-choice questions overleaf

Completion of the questions entitles undergraduates to one point towards the Professional Development Certificate, a joint initiative between the British Pharmaceutical Students' Association and the College.

#### Evaluate

- ◆ What have you learnt?
- ◆ How has it added value to your practice?
- ◆ What will you do now and how will this be achieved?

The assistance of the College of Pharmacy Practice is acknowledged in producing the CPD elements of this month's special feature.

The feature on fungal infections has been accredited by the College of Pharmacy Practice against the Royal Pharmaceutical Society's general and hospital practice areas of competence, which can be accessed via *Hospital Pharmacist* online ([www.pjonline.com/links/hp](http://www.pjonline.com/links/hp)).

Further information on how hospital pharmacists are approaching the challenges of CPD can be found in articles in the February 2005 issue of *Hospital Pharmacist* (2005;12:65–72).



To answer the questions, tick either the True or False column

	True	False
<b>1. Regarding fungi:</b>		
a) Most fungi cause infections in humans		
b) Dimorphic fungi can exist as either yeasts or moulds		
c) All dermatophytes are zoophilic		
d) Exposure to bird droppings is a risk factor for cryptococcal infection		
e) Yeasts reproduce by spore formation		
<b>2. Concerning the pathogenesis of infection:</b>		
a) The incidence of systemic fungal infections is decreasing		
b) <i>Malassezia</i> spp commonly infect the hair and nails		
c) Systemic aspergillus infection is uncommon in the immunocompetent host		
d) Cutaneous mucormycosis can present after an insect bite or gardening injury		
e) <i>Candida glabrata</i> is a pathogenic species that is gradually becoming less common		
<b>3. Considering the clinical manifestations:</b>		
a) The creamy white patches seen with superficial candida infections consist solely of colonies of <i>Candida</i> spp.		
b) Aspergillus lung infections can be diagnosed on X-rays or CT scans by a distinctive "halo" or "crescent" sign		
c) Cutaneous mucormycosis may present as a chronic, non-healing ulcer with a necrotic centre		
d) <i>Pneumocystis jiroveci</i> pneumonia can produce a classic "bat-wing" bilateral infiltrate on chest radiographs		
e) Zoophilic fungi may cause inflammatory or pustular lesions		
<b>4. Regarding investigations:</b>		
a) Fungal nail infection may be diagnosed by microscopic examination of nail scrapings		
b) Bronchoalveolar lavage is recommended to diagnose fungal infection in the lung		
c) Cryptococci can be identified by a distinctive halo surrounding the capsule on India ink staining		
d) The optimal temperature for growth of most clinically relevant fungi in the laboratory is 37C		
e) There are no specific culture media for fungi		
<b>5. Regarding the presentation and outcome of fungal infections:</b>		
a) Mortality due to candidaemia infections is estimated to be between 35 and 55 per cent		
b) Mucormycosis is characterised by slow organism growth and gradual disease progression		
c) The lungs are rarely affected in invasive aspergillosis		
d) Rhinocerebral mucormycosis is the most common presentation of mucormycosis and disease progression can be fatal		
e) Disseminated infection following <i>Pneumocystis jiroveci</i> pneumonia is common		
<b>6. Regarding antifungal drugs:</b>		
a) Echinocandins inhibit the synthesis of 1,3-β-D glucan in mammalian cells		
b) Fluconazole has poor central nervous system penetration		
c) Terbinafine is the treatment of choice for fungal nail infections		
d) Amphotericin B is highly protein bound <i>in vivo</i>		
e) Higher doses of liposomal amphotericin B are required to achieve equipotence with conventional amphotericin B		
<b>7. Considering treatment regimens:</b>		
a) Infusion of a test dose of amphotericin B is recommended to check for adverse reactions		
b) Sodium chloride is a suitable infusion fluid for lipid formulations of amphotericin B		
c) Griseofulvin accumulates in keratin, making it useful for treating fungal nail infections		
d) Nystatin is a suitable agent for treating dermatophyte infections of the skin		
e) Flucytosine is suitable as monotherapy for cryptococcal meningitis		
<b>8. Regarding adverse drug reactions:</b>		
a) Azole antifungals exhibit few drug interactions		
b) Itraconazole can precipitate heart failure due to a negative inotropic effect		
c) Rifampicin increases the plasma concentration of azole antifungal drugs		
d) Periodic liver function tests are not required for patients on long term ketoconazole therapy		
e) Infusion-related reaction to caspofungin can be due to histamine release		
<b>9. Tailoring therapy to individual patients:</b>		
a) Therapeutic drug monitoring is recommended for patients on flucytosine		
b) The maintenance dose of caspofungin is independent of the patient's body weight		
c) Griseofulvin is a suitable choice of antifungal for pregnant women		
d) Patients with renal impairment will require reduced doses of oral voriconazole		
e) Thorough checking of possible drug interactions is necessary before starting treatment with itraconazole		
<b>10. Antifungal resistance and future options:</b>		
a) Sensitivity testing should be performed on fungal isolates before starting treatment with flucytosine		
b) Prophylaxis with antifungal drugs may lead to increased drug-resistant strains		
c) Resistance to azoles can be mediated by altered C-14a demethylase		
d) Inhibition of chitin synthesis represents a novel approach to antifungal treatment		
e) Micafungin and anidulafungin were the first echinocandins to be licensed in the UK		

