

# Tuberculosis

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This issue's special feature, on which these questions are based, was commissioned from independent authors. The Life-long Learning scheme is supported by an educational grant from Mayne Pharma but the company has no editorial input. The scheme is open to all pharmacists. The information in the box below should help readers to identify knowledge gaps and undertake continuing professional development. Readers are also invited to complete the questions overleaf on tuberculosis, to test their knowledge of the articles, and send their answers, together with a stamped and addressed A5 envelope, to:

**Life-long Learning – Tuberculosis**  
**Hospital Pharmacist**  
 1 Lambeth High Street  
 London  
 SE1 7JN

Entries must be received by Monday 24 April. Results will be returned with a certificate of completion.

Mayne Pharma is offering a place as part of its delegation to the European Association of Hospital Pharmacists conference in spring 2007 to the entrant who achieves the highest marks overall in this series of exercises. The best eight scores from the ten exercises in the series (September 2005 – July/August 2006) will be taken into



consideration. This is the sixth set of questions.

The runner-up will receive registration and expenses for the *Hospital Pharmacist* conference in autumn 2007. Third and fourth place, respectively, will receive Pharmaceutical Press vouchers and British Society for the History of Pharmacy china mugs. Further details on this scheme can be found in *Hospital Pharmacist* (2004;11:436) and at [www.pjonline.com/lifelong](http://www.pjonline.com/lifelong)

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: \_\_\_\_\_

## How to undertake continuing professional development

### Identify knowledge gaps

- ◆ To understand the cause and presentation of tuberculosis
- ◆ To have an appreciation of the drug regimens used to treat the disease and measures taken to control its spread

### Act

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

### 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 feature on tuberculosis 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)).

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.

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.



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

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		True	False
<b>1. Regarding the epidemiology of tuberculosis:</b>			<b>6. Regarding antituberculous drugs:</b>		
a) The global incidence of tuberculosis is decreasing			a) Mycolic acid is unique to the cell wall of mycobacteria and a target for antituberculous drugs		
b) Incidence of tuberculosis in the UK has increased over the last decade			b) Rifampicin is active against common pathogens as well as mycobacteria		
c) Most cases of tuberculosis in the UK are seen in people who were born abroad			c) Ethambutol is bactericidal		
d) Homeless people are not at increased risk of tuberculosis			d) Antituberculous drugs are prescribed in combination to reduce the risk of resistance and shorten course length		
e) Untreated tuberculosis has a mortality rate of 50 per cent within two years of diagnosis			e) Addition of a second-line antituberculous agent may salvage a failing regimen		
<b>2. Considering the pathogenesis of infection:</b>			<b>7. Considering standard treatment regimens:</b>		
a) <i>Mycobacterium bovis</i> causes most human tuberculosis			a) Typical course length for respiratory TB is six months but the risk of relapse is comparable for four-month courses		
b) Tuberculosis is transmitted by inhalation			b) The use of combination tablets is associated with inferior outcomes but better compliance		
c) In most cases tuberculosis infection becomes latent			c) Six-month treatment courses are generally recommended for all forms of TB except TB meningitis		
d) The lifetime risk of reactivation of latent infection is 15 per cent			d) Glucocorticoids reduce mortality in all TB patients		
e) HIV infection is not associated with a higher risk of reactivation of tuberculosis			e) Combination of rifampicin and pyrazinamide for latent TB is associated with unacceptable rates of hepatotoxicity		
<b>3. Clinical manifestations:</b>			<b>8. Regarding adverse drug reactions:</b>		
a) The lung is the most common site of infection			a) Generalised erythematous rash may be managed symptomatically with antihistamines		
b) Symptoms such as weight loss, anorexia and fever are rare			b) Asymptomatic elevations of liver function tests occur in 10–20 per cent of patients receiving TB therapy		
c) Disseminated tuberculosis is more common in children			c) Peripheral neuropathy associated with isoniazid warrants immediate discontinuation of isoniazid therapy		
d) Enlargement of lymph nodes after starting tuberculosis therapy necessitates stopping all drugs			d) Isoniazid causes neurotoxicity and testing of visual acuity should be conducted before starting therapy		
e) CNS involvement is associated with a poorer prognosis			e) Gastrointestinal symptoms can be managed by administering the drugs with food		
<b>4. Regarding investigations:</b>			<b>9. Tailoring TB therapy to individual patients:</b>		
a) A chest X-ray is only necessary if the patient has pulmonary symptoms			a) TB therapy poses a greater risk to pregnant women and their fetuses than untreated TB		
b) "Smear-positive" means that mycobacteria are not seen on microscopy, but grow in culture			b) HIV-positive patients may be prescribed rifabutin in preference to rifampicin to minimise interactions		
c) Caseating granulomas in a tissue biopsy are strongly suggestive of tuberculosis			c) Baseline monitoring of liver function is recommended for all patients on TB therapy		
d) Mycobacteria cannot be detected before eight weeks in liquid culture systems			d) Risk of peripheral neuropathy with isoniazid is increased in renal disease and patients should receive pyridoxine		
e) Molecular tests are of no value for detection of drug resistance in <i>M. tuberculosis</i>			e) Hyperuricaemia may be used as an indicator of compliance with pyrazinamide		
<b>5. Control of tuberculosis</b>			<b>10. Multidrug resistant TB and future options:</b>		
a) All patients with untreated pulmonary tuberculosis should be isolated on admission to hospital			a) Multidrug resistance is defined as resistance to any two first-line antituberculous drugs		
b) Face masks are not necessary for staff looking after an untreated case of multidrug resistant TB (MDR-TB)			b) MDR-TB should be suspected in patients who are co-infected with HIV		
c) Patients with no risk factors for MDR-TB are deemed non-infectious after two weeks of appropriate treatment			c) Rifampicin resistance indicated by mutations in the <i>rpoB</i> gene is highly correlated with multidrug resistance		
d) All contacts of infectious cases should be offered chemoprophylaxis			d) Treatment of MDR-TB should continue with at least three drugs for 15–18 months after confirmation of <i>in vitro</i> sensitivity		
e) BCG vaccination is currently offered to all children in the UK aged 10–14 years			e) Newer quinolones have the potential to shorten TB treatment course lengths significantly		

Answers will appear in the May 2006 issue

