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## Pulmonary hypertension

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 pulmonary hypertension, to test their knowledge of the articles, and send their answers, together with a stamped and addressed A5 envelope, to:

**Life-long Learning — PH  
Hospital Pharmacist  
1 Lambeth High Street  
London SE1 7JN**

Entries must be received by Monday, 27 February. 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 fourth 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/noticeboard/lifelong](http://www.pjonline.com/noticeboard/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 presentation and specialist assessment of pulmonary hypertension
- ◆ To have an appreciation of the different treatment options for the condition

#### Act

- ◆ Read the articles in this issue
- ◆ Test your knowledge by answering the multiple-choice questions on pulmonary hypertension 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 pulmonary hypertension 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 pulmonary arterial hypertension:</b>			<b>6. Epoprostenol:</b>		
a) It is estimated to affect 3-5 cases per million			a) Is the only prostaglandin licensed in the UK for use through a central line		
b) It is more commonly found in women			b) Is proven to be effective in patients with mild symptoms (NYHA class II)		
c) In the absence of treatment, average survival is 5-10 years			c) Improves both functional and haemodynamic parameters		
d) Average 5-year survival may be doubled with appropriate intervention			d) Is stable at room temperature, once reconstituted, for over 24 hours		
e) There are 5 centres in the UK designated as specialist centres			e) Has been shown to be as effective as transplantation in terms of mortality		
<b>2. Concerning pulmonary hypertension:</b>			<b>7. Iloprost:</b>		
a) The WHO classification was set out in 2004			a) Is only licensed in the UK for administration via a nebuliser		
b) Idiopathic pulmonary hypertension may occur as a result of exposure to appetite suppressants			b) Nebulised iloprost should be given at least 8 times daily		
c) Idiopathic pulmonary hypertension responds well to treatment			c) Is the most commonly prescribed prostaglandin at the Sheffield centre		
d) The only type of pulmonary hypertension where pulmonary endarterectomy is indicated is CTEPH			d) Side effects include ankle swelling and constipation		
e) Pulmonary embolism is a risk factor for CTEPH			e) Is more stable in solution than prostacyclin		
<b>3. Investigations:</b>			<b>8. Bosentan:</b>		
a) Haemodynamics are measured more accurately by TTE than right heart catheterisation			a) Is the only licensed endothelin receptor antagonist currently licensed in the UK		
b) Dilated left-sided chambers on TTE are a strong indicator of pulmonary arterial hypertension			b) Requires monthly LFT monitoring		
c) The most established exercise test for patients with pulmonary hypertension is the 6-minute walk test			c) Is shown to have a significant impact on survival at both two and three years		
d) Inhaled nitric oxide can be used as a short acting vasodilator during the right heart catheter test			d) Is used at 250mg bd with no increased incidence of adverse events		
e) Calcium channel blockers are appropriate treatment if a vasodilator response is not seen at right heart catheterisation			e) Causes hepatic abnormalities in the majority of patients		
<b>4. Signs and symptoms:</b>			<b>9. Sildenafil:</b>		
a) Many of the signs and symptoms of IPAH are specific and distinctive			a) Has recently been licensed in the US for treatment of PAH		
b) Many pulmonary hypertension patients have been erroneously diagnosed with asthma			b) Adverse effects, notably jaw pain have limited its unlicensed use		
c) Ascites and peripheral oedema occur as the right heart fails			c) The dose of sildenafil in PAH is the same as that for erectile dysfunction		
d) Syncope indicates severe disease			d) Is the first phosphodiesterase inhibitor used in the UK to treat pulmonary hypertension (PH)		
e) Unstable angina is a common sign of PAH			e) Has been shown to be cost effective in combination with prostaglandin		
<b>5. Treatments:</b>			<b>10. Treatment options:</b>		
a) Central funding is available to fund the expensive treatment options			a) Loop diuretics are more commonly prescribed than thiazides to relieve symptoms of peripheral oedema in PH patients		
b) It is appropriate for patients receiving targeted treatments to be followed up at one of the specialist centres			b) Statistically, most PH patients need diuretic therapy		
c) None of the targeted treatments require ongoing monitoring of renal function			c) Patients with PH undergo standard warfarin treatment		
d) Treatment options have advanced over the past 20 years			d) INR should be maintained between 2.5 and 3.5 when used in CTEPH		
e) Pulmonary endarterectomy carries a 20% mortality risk			e) High dose calcium channel blockers are safe and effective, with a low incidence of adverse affects		

Answers will appear in the March 2006 issue

