Pitfalls and Common Errors of Anaesthetic Monitoring Devices  
Part 1: Pulse oximetry

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1. Pulse Oximetry measures which of the following:
   a) Oxygen saturation of haemoglobin  
   b) Partial pressure of oxygen dissolved in the blood  
   c) End tidal carbon dioxide  
   d) Oxygen perfusion

2. In the McMillan & Darcy, 2016 study how many patients showed significant oxygen desaturation?
   a) 1 in 10  
   b) 1 in 37  
   c) 1 in 54  
   d) 1 in 106

3. Which of the following drugs commonly used in anaesthetic premedication may interfere with perfusion and therefore pulse oximeter readings?
   a) Methadone  
   b) Acepromazine  
   c) Dexmedetomidine  
   d) Buprenorphine

4. Methaemoglobin may be caused by which type of poisoning?
   a) Ethylene Glycol  
   b) Smoke inhalation  
   c) Theobromine  
   d) Paracetamol

5. The two common types of pulse oximetry are:
   a) Reflectance and transmittance  
   b) Transmittance and absorbance  
   c) Reflectance and absorbance  
   d) Reflectance and illuminance
6. What is the ‘penumbra effect’?
   a) Where the pulse oximeter double counts
   b) Where the light from the illuminated LED clearly bypasses the tissue
   c) Interference from fluorescent strip lighting
   d) Elastic recoil from the vessel causing the pulse oximeter to misread

7. Which of the following does NOT typically cause altered absorption when utilising pulse oximetry?
   a) Hyperlipidaemia
   b) Injection of dyes intravascularly such as new methylene blue
   c) Bilirubin in the jaundiced patient
   d) Pigmentation of skin

8. When is measuring SpO₂ most useful?
   a) Induction and recovery of anaesthesia
   b) Monitoring the patient on 100% oxygen
   c) Monitoring during the maintenance period of anaesthesia
   d) Monitoring the conscious patient

9. If SpO₂ is 95% what is the approximate expected PaO₂?
   a) 500mmHg
   b) 100mmHg
   c) 50mmHg
   d) 1000mmHg

10. If an abnormal reading is detected on pulse oximetry, which of the following is the least appropriate action?
    a) Repeatedly move the probe
    b) Assess the pulse rate reading on the monitor with a manual pulse reading
    c) Assess the plethysmographic waveform for clear, visible pulse waveforms
    d) Thoroughly assess the patient