Clinical Practice Procedures:
Assessment/Oximetry – pulse

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<tr>
<th>Date</th>
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<tr>
<td>Purpose</td>
<td>To ensure a consistent procedural approach to undertaking Oximetry – pulse.</td>
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<td>Scope</td>
<td>Applies to all QAS clinical staff.</td>
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<td>Information security</td>
<td>This document has been security classified using the Queensland Government Information Security Classification Framework (QGISC) as UNCLASSIFIED and will be managed according to the requirements of the QGISF.</td>
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Pulse oximetry estimates the oxygen saturation in arterial blood (SaO₂), by directing both red and infrared light from two LEDs through a patient's translucent fleshy body site (usually a finger, toe or earlobe). The absorption of the two wavelengths differs significantly dependant on the level of haemoglobin oxygenation and the pulse oximeter translates this ratio into a percentage (SpO₂).[1]

It is important to consider the relationship between blood oxygenation and measurable haemoglobin saturation when interpreting pulse oximetry.

**Indications**
- To determine patient oxygen saturation

**Contraindications**
- Nil in this setting

**Complications**

The reliability of SpO₂ readings depends on the following factors:
- correct sensor size and placement
- adequate arterial blood pulsation through the sensor site

Inaccurate pulse oximetry readings may occur when the following factors are present:
- excessive patient movement
- exposure to ambient light
- dirt or nail polish under the sensor site
- methaemoglobinaemia
- carbon monoxide
- insufficient amplitude on the pulsing pleth wave
**Procedure – Oximetry – pulse**

1. Ensure SpO₂ cable is connected (excludes FERNO Fingertip Pulse Oximeter) and the sensor is placed on the patient.
2. Observe the pulse bar/pleth wave for amplitude; this indicates relative signal strength.
3. Note the SpO₂ reading and document accordingly.

**Additional information**

- Any digit (finger or toe) may be used to obtain an SpO₂ reading.
- The SpO₂ of arterial blood is usually 94–100%.

**Additional information (cont.)**

- QAS oxygen saturation monitors are unable to differentiate between carboxyhaemoglobin and oxyhaemoglobin[1] therefore patients with carbon monoxide poisoning are to be administered the maximum oxygen dose irrespective of SpO₂. (See DTP: Oxygen)
- Pulse oximetry is not a complete measure of respiratory or circulatory sufficiency.
- A small change in saturations (e.g. a drop in SpO₂ 97% to 90%) represents a large change in blood oxygenation (PaO₂ 100 to 60 mmHg).

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[1] Oxygen dissociation curve [2,3]