Clinical Practice Procedures: Assessment/Blood analysis – i-STAT®

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<table>
<thead>
<tr>
<th>Date</th>
<th>October, 2017</th>
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<tbody>
<tr>
<td>Purpose</td>
<td>To ensure a consistent procedural approach to Blood analysis - i-STAT®</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 (QGISCF) as UNCLASSIFIED and will be managed according to the requirements of the QGISF.</td>
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Blood analysis – i-STAT®

The i-STAT® is a point of care (POC) portable blood analyser. POC testing enables quantitative and timely reporting without the physical requirements of a clinical laboratory.

The QAS supplies the following cartridges:

- **CG8+**
  - **(2–3 mins)**
  - Reports Sodium, Potassium, Ionised Calcium, Glucose, Haemocrit, Haemoglobin, pH, pCO₂, PO₂, TCO₂, HCO₃, Base Excess and SO₂.

- **PT/INR**
  - **(5 mins)**
  - Reports prothrombin time and International Normalised Ratio.

### Indications
- POC blood analysis

### Contraindications
- Although no actual contraindication exists, it must be remembered that this procedure is invasive and so judgement must be used as to the appropriateness of performing the procedure in the pre-hospital setting.

### Complications
- Air embolism
- Haematoma/haemorrhage/thrombosis
- Infection
**Procedure – Blood analysis – i-STAT®**

**CG8+**

1. Press the On/Off key to turn the i-STAT® on.
2. Press 2 (i-STAT® Cartridge).
3. Scan or enter the relevant Operator ID.
4. Enter Patient ID (QAS case number).
5. Scan the bar code on the cartridge pouch.
6. Remove cartridge from sealed pouch (avoid touching the white label or electrode).
7. Perform arterial/venipuncture and collect sample in an arterial blood gas (ABG) syringe.
8. Mix sample vigorously by rolling the syringe between the palms for 5 seconds, invert and repeat.
9. Discard the first 3 drops of blood.
10. Direct the ABG syringe tip into the cartridge’s sample well.
11. Dispense the sample into the desired cartridge until it reaches the fill mark and the well is half full.
12. Immediately close the cover over the sample well until it snaps into place.
13. Insert the cartridge into the cartridge port on the i-STAT® analyser until it clicks into place.
14. At the end of the countdown, results will be displayed in the display window.
**PT/INR cartridge procedure**

1. Press the On/Off key to turn the i-STAT® on.
2. Press 1 (Continue).
3. Press 2 (i-STAT® Cartridge).
4. Scan or enter the relevant Operator ID.
5. Enter Patient ID (QAS case number).
6. Scan the bar code on the cartridge pouch.
7. Remove cartridge from sealed pouch (avoid touching the white label or electrode).
8. Remove the sterility cap from the Accu-Chek® lancet.
9. Set the desired penetration depth setting (low (1.3 mm), medium (1.8 mm) or high (2.3 mm) depending on skin softness).
10. Press the lancet device firmly against the desired puncture site.
11. Push the lancet release button (lancet needle will automatically retract) and immediately dispose of in ‘sharps container’.
12. Gently squeeze the finger to develop a hanging drop of blood.
13. Using the first sample of blood bring the cartridge’s well into contact with the blood.
14. Immediately close the cover over the sample well until it snaps into place.
15. Insert the cartridge into the cartridge port on the i-STAT® analyser until it clicks into place.
16. At the end of the countdown, results will be displayed in the display window.
Additional information

- Cartridges are sealed in individual pouches and are to be stored at a temperature between 2 to 8 degrees C – DO NOT ALLOW CARTRIDGES TO FREEZE. Once removed from cold storage, cartridges may be stored at room temperature for 14 days. Once removed from cold storage cartridges are unable to be returned.

- The External Electronic Simulator is a stable electronic device that is inserted into the cartridge port to verify the electrical measurement circuits with a PASS or FAIL. An External Electronic Simulator test must be performed every 24 hours and can be completed by pressing MENU, 3 (Quality Test) and 4 (Simulator) and following the prompts.

- Never attempt to remove cartridge whilst the ‘Cartridge Locked’ message is displayed.

- Results outside the i-STAT® reportable ranges are flagged with a < or >, indicating that the result is below the lower limit (<) or above the upper limit (>) of the reportable range respectively.

- The i-STAT® PT/INR test is designed specifically for the monitoring of oral anticoagulants. Use of the PT/INR cartridge in any other clinical scenario (particularly snake bite) constitutes ‘off label use’.