



Clinical Practice Procedures: Assessment/Electrolytes and blood gas – i-STAT®

Policy code	CPP_AS_BAI_0722
Date	July, 2022
Purpose	To ensure a consistent procedural approach to electrolytes and blood gas – I-STAT®.
Scope	Applies to Queensland Ambulance Service (QAS) clinical staff.
Health care setting	Pre-hospital assessment and treatment.
Population	Applies to all ages unless stated otherwise.
Source of funding	Internal – 100%
Author	Clinical Quality & Patient Safety Unit, QAS
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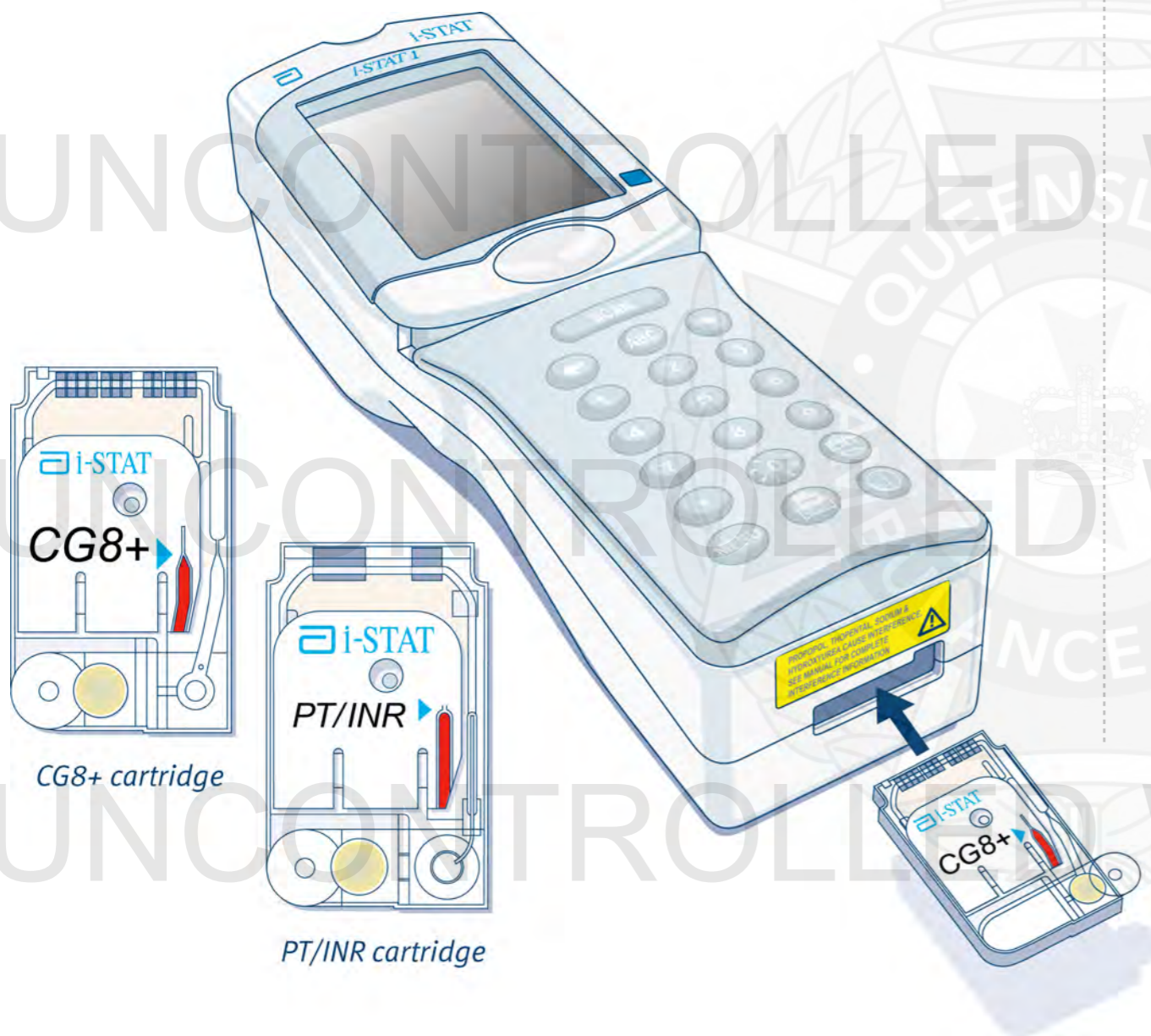
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Electrolytes and blood gas – i-STAT®

July, 2022

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.^[1]

i-STAT® portable blood analyser



The QAS supplies the following cartridges:

CG4+
(2–3 mins)

Reports lactate, pH, pCO₂, PO₂, TCO₂, HCO₃, base excess and SO₂.

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



- Nil in this setting

Complications

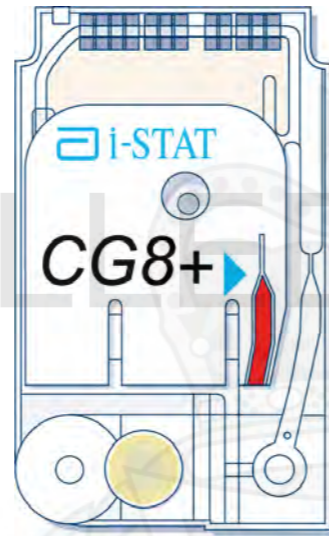


- Air embolism
- Haematoma/haemorrhage/thrombosis
- Infection

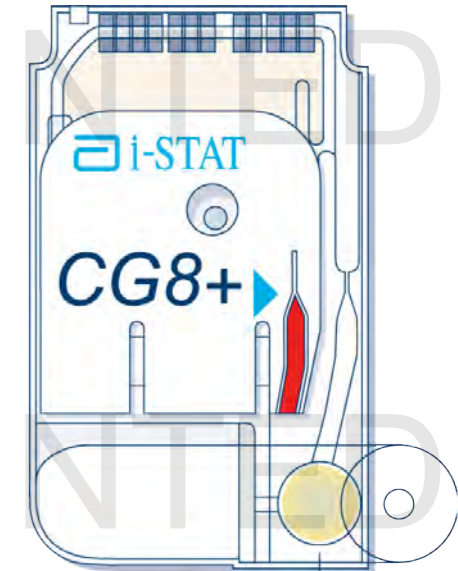
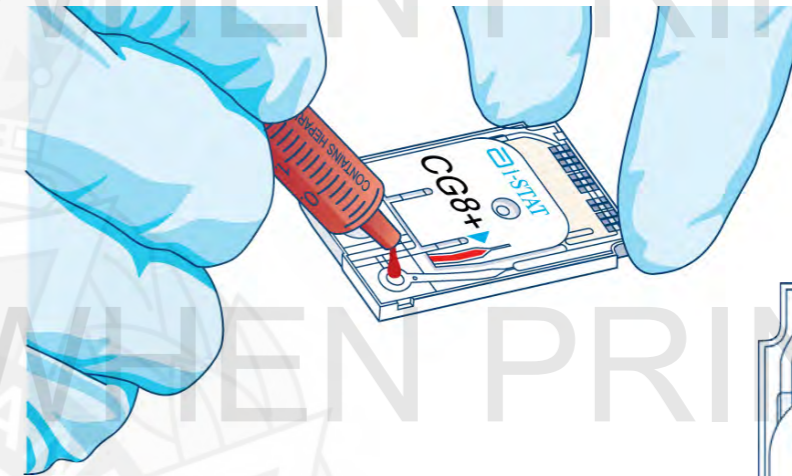
CG8+/CG4+

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 the cartridge from the sealed pouch (avoid touching the white label or electrode).
7. Perform arterial/venipuncture and collect the sample in an arterial blood gas (ABG) syringe.
8. Mix the sample vigorously by rolling the syringe between the palms for 5 seconds, invert and repeat.

9. Discard the first 3 drops of blood.

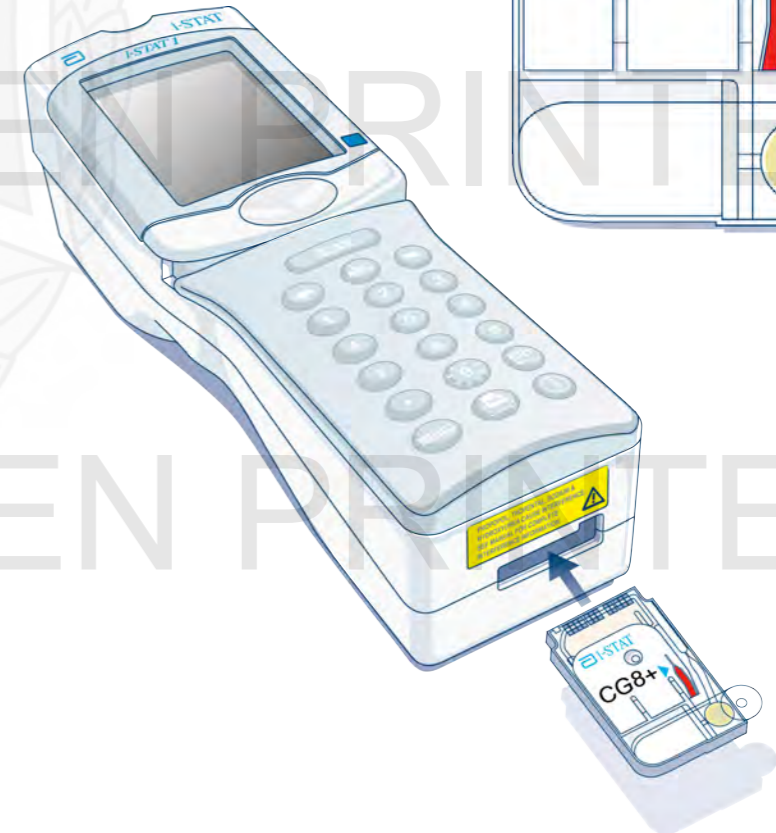
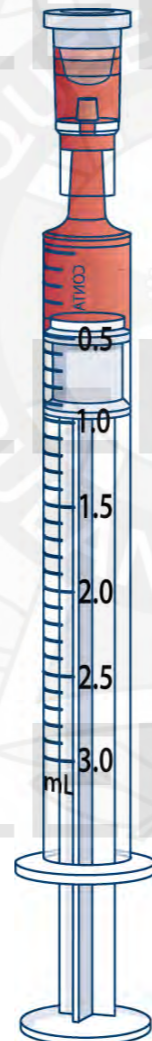
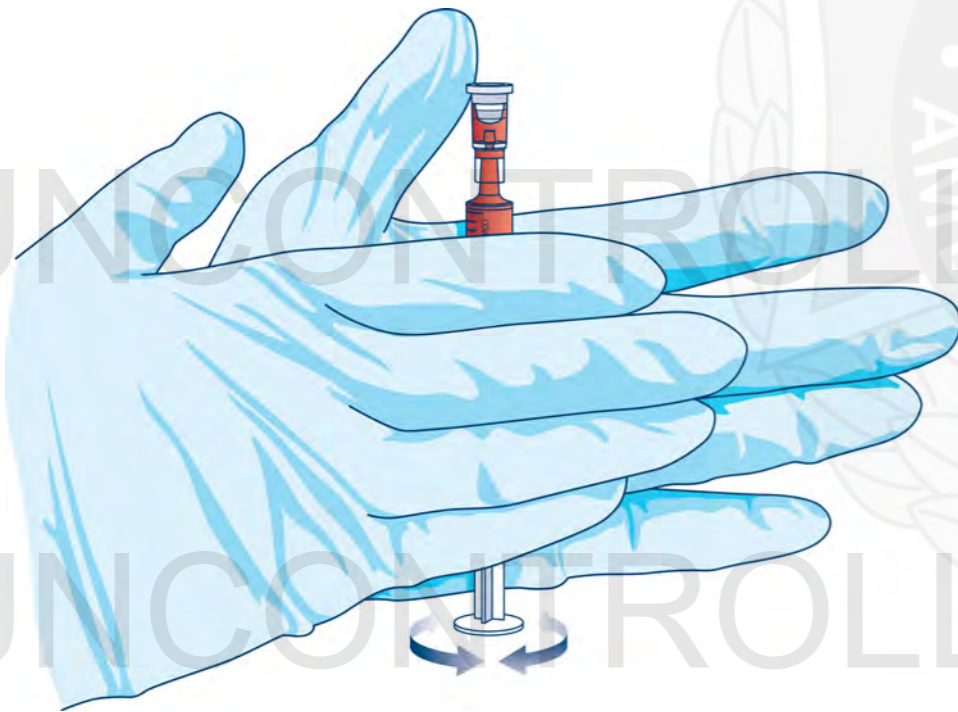


10. Direct the ABG syringe tip into the cartridge's sample well.
11. Dispense the sample into the desired cartridge by gently twisting and pushing the syringe plunger until it reaches the fill mark and the well is half full.



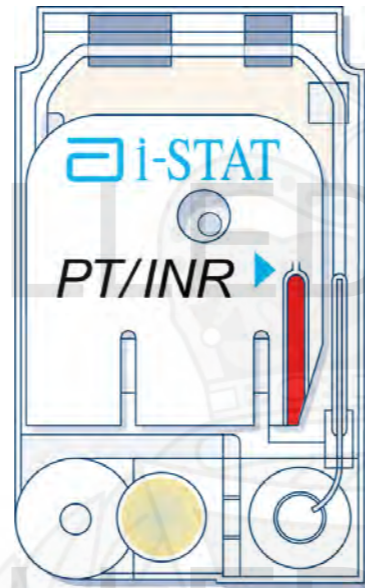
Cover flips to right

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.

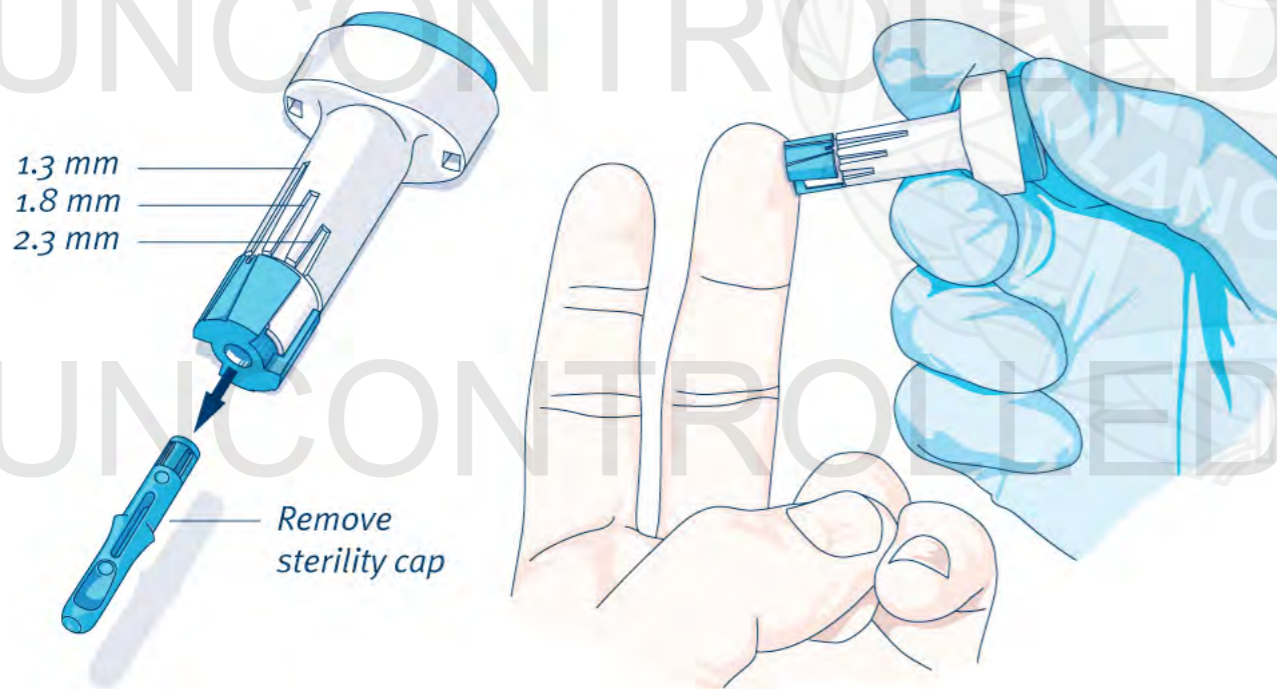
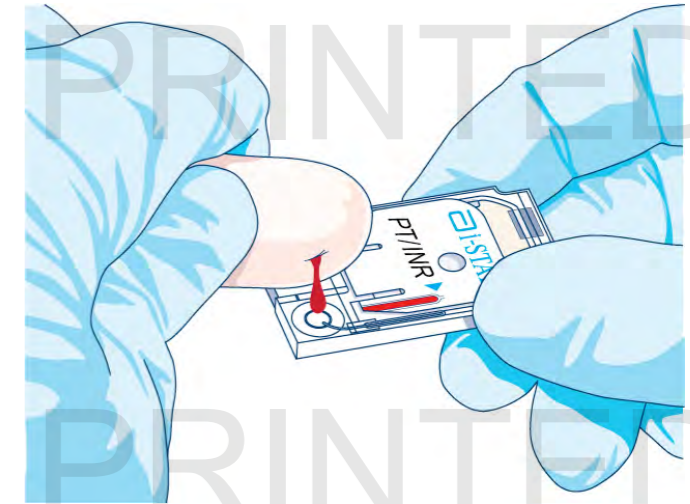


PT/INR cartridge procedure

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 the cartridge from the 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 a 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.



i-STAT analyser handset

+ Additional information^[1]

- CG4+, CG8+ and PT/INR cartridges are sealed in individual pouches and must be stored at a temperature between 2 to 8 degrees C – DO NOT ALLOW CARTRIDGES TO FREEZE. Once removed from cold storage:
 - PT/INR cartridges may be stored at room temperature for 14 days.
 - CG4+ and CG8+ cartridges may be stored at room temperature for two months.
- Once removed from cold storage cartridges cannot be returned to cold storage.
- Discard unused cartridges when the relevant time period has elapsed.
- 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 then following the prompts.
- Never attempt to remove the cartridge while 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'.

