



Clinical Practice Procedures: Drug administration/Blood warmer – °MEQU

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|-----------------------------|---|
| Policy code | CPP_DFA_BW_0221 |
| Date | February, 2021 |
| Purpose | To ensure a consistent procedural approach to for the blood warmer – °MEQU. |
| 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. |
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| Author | Clinical Quality & Patient Safety Unit, QAS |
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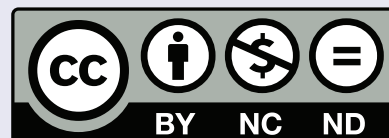
All feedback and suggestions are welcome. Please forward to: Clinical.Guidelines@ambulance.qld.gov.au

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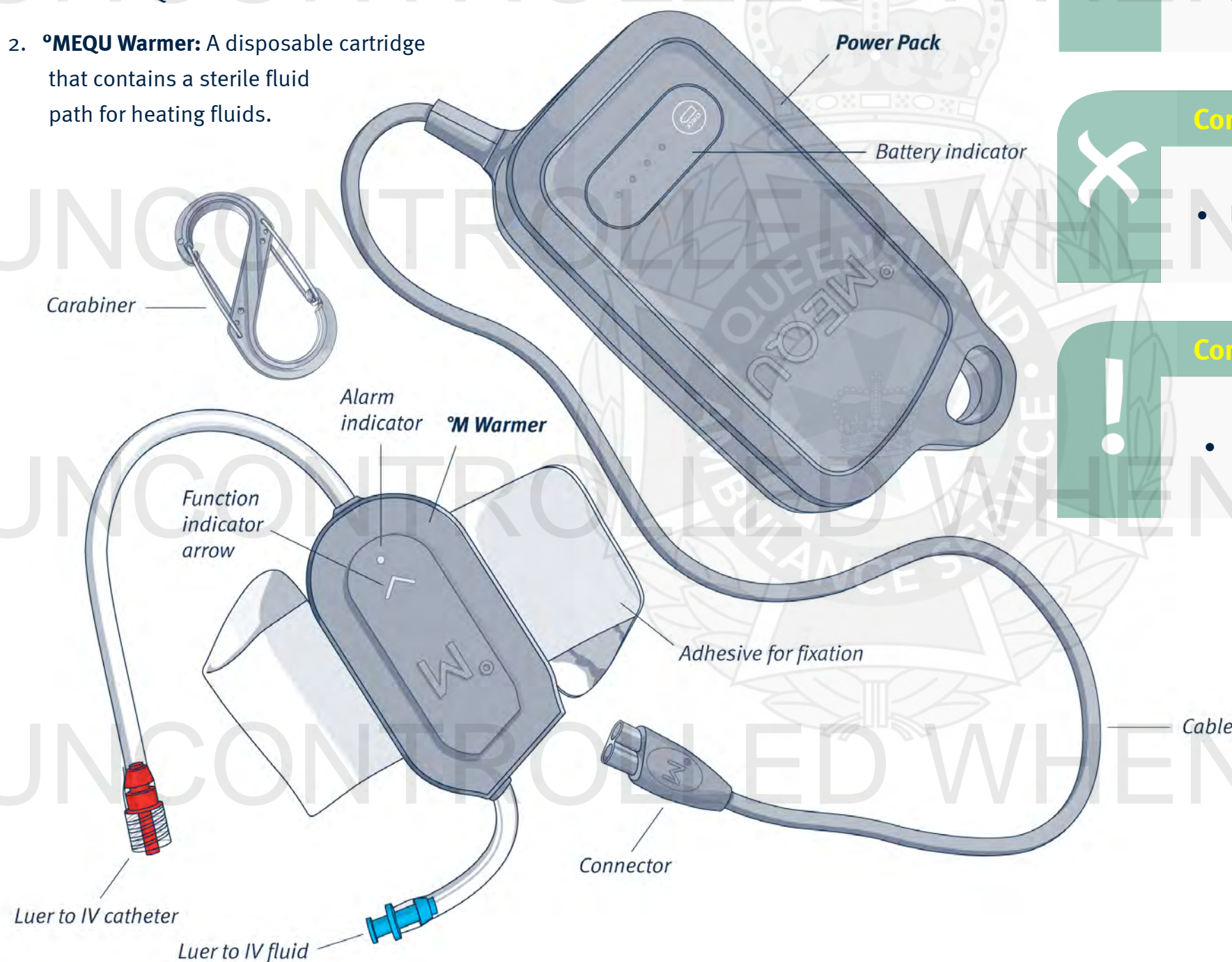
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Blood warmer—°MEQU

February, 2021

The °MEQU is a battery powered portable fluid warming system used to administer warmed blood and blood products. The °MEQU consists of two main components:

1. **°MEQU Power Pack:** A rechargeable battery unit that supplies power to the °MEQU Warmer.
2. **°MEQU Warmer:** A disposable cartridge that contains a sterile fluid path for heating fluids.



Indications

- To prepare the °MEQU prior to the administration of warmed blood and/or blood products.

Contraindications

- Nil in this setting.

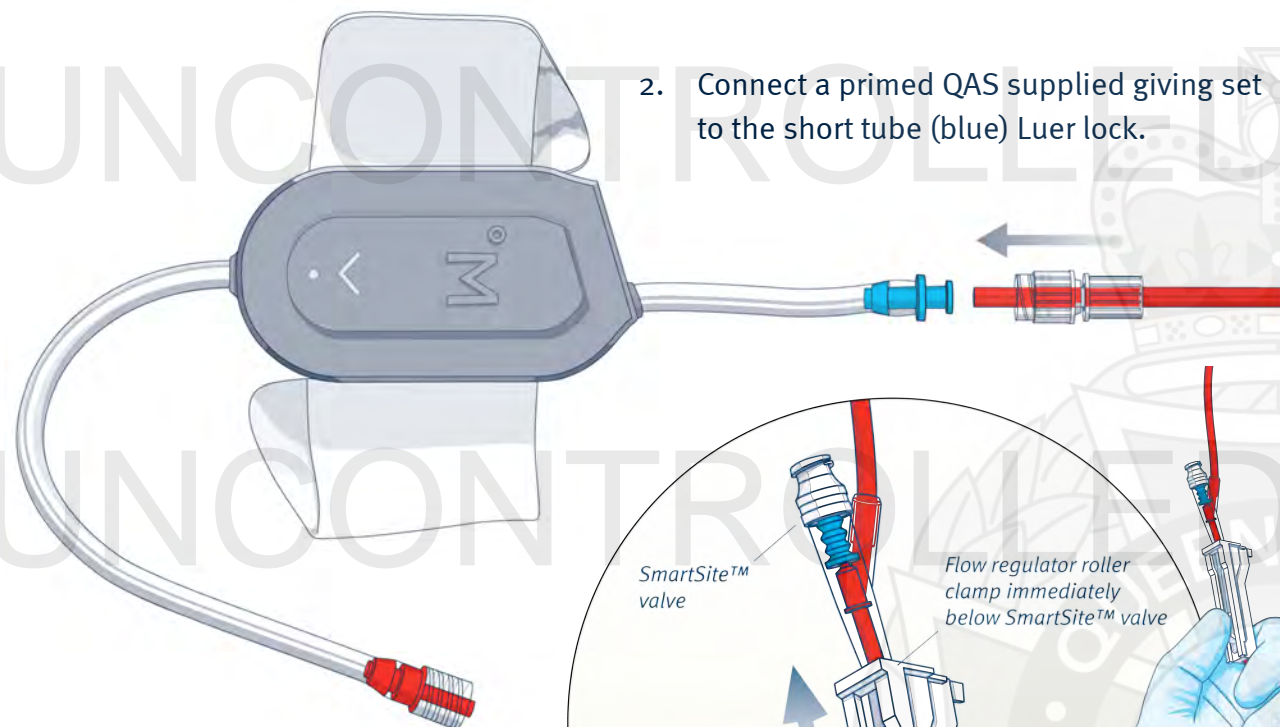
Complications

- Air embolism

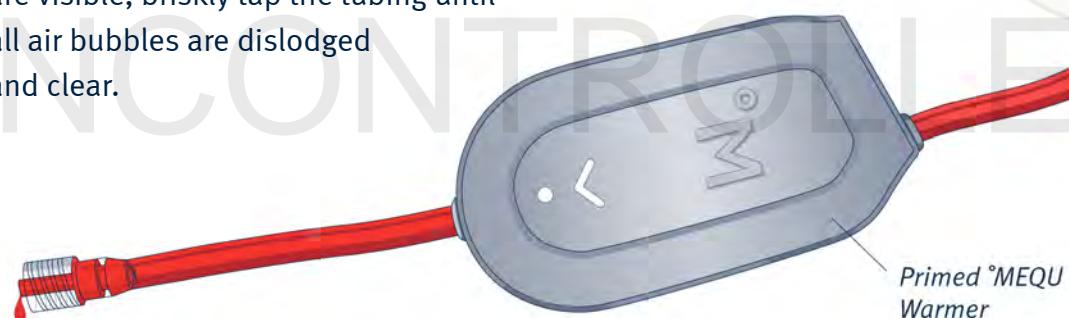
Procedure – Blood warmer – °MEQU^[1]

1. Remove the °MEQU Warmer from the packaging. Remove the tamper proof seals and disconnect the Luer locks.

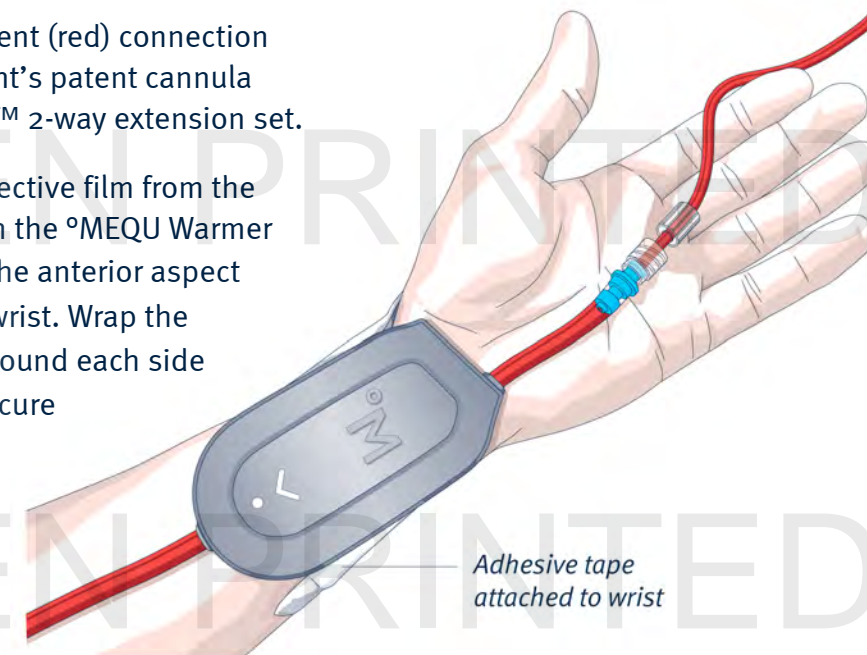
2. Connect a primed QAS supplied giving set to the short tube (blue) Luer lock.



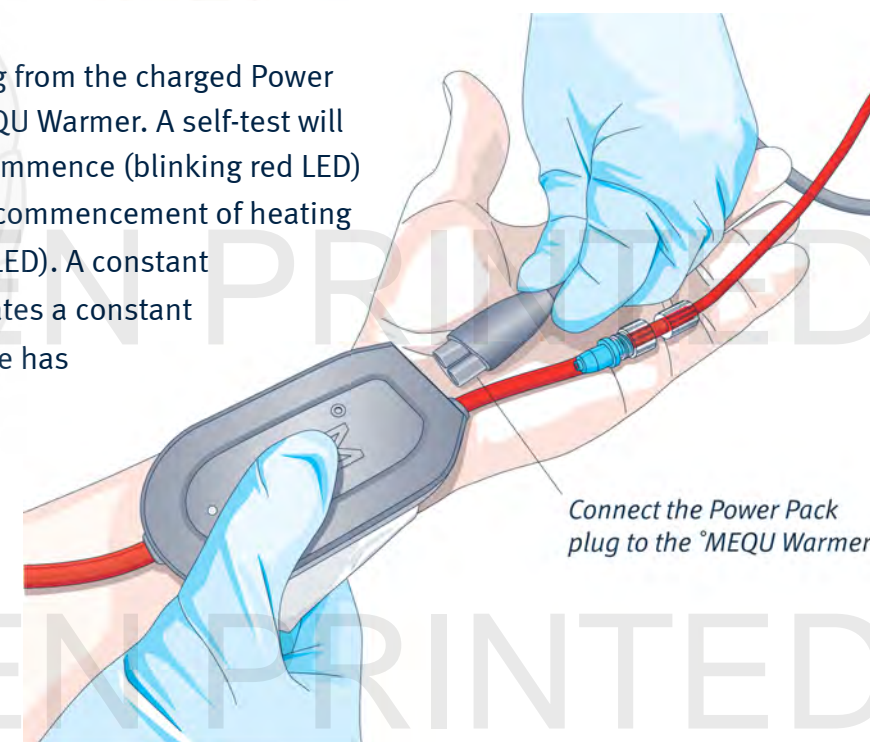
3. Open the giving set's roller clamp and slowly prime the °MEQU Warmer until fluid drips from the patient (red) connection port.
4. Inspect the °MEQU tubing to ensure no air bubbles are visible. If air bubbles are visible, briskly tap the tubing until all air bubbles are dislodged and clear.



5. Close the giving set's roller clamp.
6. Connect the patient (red) connection port to the patient's patent cannula or primed Alaris™ 2-way extension set.
7. Remove the protective film from the adhesive tape on the °MEQU Warmer and attach it to the anterior aspect of the patient's wrist. Wrap the adhesive tape around each side of the wrist to secure the warmer.



8. Connect the plug from the charged Power Pack to the °MEQU Warmer. A self-test will automatically commence (blinking red LED) followed by the commencement of heating (blinking green LED). A constant green LED indicates a constant fluid temperature has been reached.



9. Adjust the blood / blood product infusion rate as required.
10. Frequently monitor the infusion site for extravasation.

Additional information^[1]

- A fully charged power pack will warm 1.5 litres of cold fluids to 39°C when administered at 150 mL/min.
- The state of battery charge can be displayed by pressing the battery LED button.
- When not in use the power pack and warmer must be stored disconnected to prevent the battery from discharging while in storage.
- Disconnecting the power pack from the °MEQU warmer will immediately cease fluid warming but have no effect on the fluid flow.
- The °MEQU device cannot be used during Magnetic Resonance Imaging.
- A flashing red LED on the °MEQU Warmer indicates overheating. Immediately stop use, disconnect the battery pack and arrange for servicing.
- The °MEQU Warmer is a disposable device, suitable for 72 hours of continuous operation on a single patient.
- °MEQU components (excluding the disposable °MEQU Warmer) must be cleaned and disinfected after each use – refer to the *QAS Infection Control Framework*.
- A pinch clamp is supplied the the °MEQU Warmer – not required for QAS use.
- Independent testing by the Danish Technical Institute confirmed there is no detectable concentration of aluminium in the fluid sample after passing through the °MEQU Warmer.^[2]

Charging of the power pack

- The power pack must be fully charged on delivery from the supplier and between each operational/training use. The charging time for a fully discharged battery to full charge is less than 2.5 hours. The power pack is unable to be operated while it is charging.

- In order to optimally maintain the charge between uses, the Power Pack will activate a ‘power save mode’ approximately 25 minutes after the Power Pack has been disconnected from the °MEQU Warmer or charger. If clinicians identify that the Power Pack remains in the ‘power save mode’ and does not commence charging as intended, complete the following procedure:

1. Connect a training/demo °MEQU Warmer to the Power Pack – the Power Pack will immediately exit sleep mode and can be connected to the charger to commence charging; **OR**
2. Leave the charger unplugged from the wall socket for 15 minutes, connect the charger to the Power Pack and then plug in the charger to the wall socket – the Power Pack will then charge normally.

LED indicator interpretation table.

| Green LED | Red LED | Status | Cause | Action |
|-----------|----------|------------------|--|---|
| Off | Off | No heating | No power, or warmer is faulty | Check battery charge state and cable connection between the power pack and warmer |
| Flashing | Off | Warming up | Temp. < 35.5°C | Wait for target temperature to be reached (< 10 seconds) |
| On | Off | Temperature good | Temp. 35.5°C to < 43°C | Monitor infusion and warmer LEDs |
| Off | Flashing | No heating | Warmer has been stored at elevated temperature or the warmer is faulty | If this persists after cold blood and/or blood products are passed through the warmer, replace the warmer |
| N/A | On | No heating | Warmer is faulty | Replace the warmer |