Clinical Practice Procedures: Drug administration/ Syringe infusion pump – Perfusor® Space

<table>
<thead>
<tr>
<th>Policy code</th>
<th>CPP_DFA_SYP_0120</th>
</tr>
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<tbody>
<tr>
<td>Date</td>
<td>January, 2020</td>
</tr>
<tr>
<td>Purpose</td>
<td>To ensure a consistent procedural approach for syringe infusion pump – Perfusor® Space.</td>
</tr>
<tr>
<td>Scope</td>
<td>Applies to Queensland Ambulance Service (QAS) clinical staff.</td>
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<tr>
<td>Health care setting</td>
<td>Pre-hospital assessment and treatment.</td>
</tr>
<tr>
<td>Population</td>
<td>Applies to all ages unless stated otherwise.</td>
</tr>
<tr>
<td>Source of funding</td>
<td>Internal – 100%</td>
</tr>
<tr>
<td>Author</td>
<td>Clinical Quality &amp; Patient Safety Unit, QAS</td>
</tr>
<tr>
<td>Review date</td>
<td>January, 2023</td>
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</table>

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All feedback and suggestions are welcome. Please forward to: Clinical.Guidelines@ambulance.qld.gov.au

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The B. Braun Perfusor® Space is a lightweight and portable syringe infusion pump used for the accurate and safe administration of infusions.

Due to the built-in error reduction software, customised medication library and intuitive navigation menu the Perfusor® Space is widely used in hospital and pre-hospital environments.

**Arrow up and down:** Scroll through menus, change setting of numbers from 0–9, answer Yes/No questions.

**Arrow left and right:** Select data from a scale and switch between digits when numbers are entered. Open a function while pump is running or stopped with the left arrow key.

**Blue LED:** Currently connected to SpaceControl

**Green/Red LED:** Infusion occurring / device alarm, operating alarm

**Orange LED:** Pre-alarm, reminder alarm

- Press to initiate bolus
- Press to turn pump on/off
- Drive head with claws to hold the syringe plunger plate

Open certain functions and press to confirm values/settings/alarms.

Press to link the pump to SpaceControl and to assign a barcode after scanning

Syringe holder
Indications

- Administration of intravenous (IV) or intraosseous (IO) infusions

Contraindications

- Evidence of an incorrectly positioned or dislodged cannula or IO needle

Complications

- Pain or discomfort from medication infusion
- Air embolism
- Infection
- Extravasation and possible tissue necrosis

Commencing an infusion using the pre-programmed QAS drug library

1. Prepare a compatible syringe and primed Minibore IV Extension Set with Antisyphon Valve with the required medication in the correct concentration.
2. Press \( \text{on} \) to switch the unit on – an automatic self-test will commence. At the completion of the self-test the drive head will be extended in preparation for syringe insertion.
3. Open the front cover.
4. Open the syringe holder by gently pulling and turning to the right.
5. Insert an appropriately labelled syringe with the syringe wings positioned in the slot to the right of the housing – ensure that the syringe graduated markings are facing outwards.
6. Gently close the syringe holder and front cover.
7. Select the correct syringe (brand and volume) by pressing \( \text{left} \) or \( \text{right} \). Press \( \text{confirm} \) to confirm, the drive head will advance and grip the syringe’s pressure plate.
8. When asked “Use drug library?” – select ‘Yes’ by pressing .
9. Navigate through the alphabetical drug list by pressing .
10. Select the appropriate drug by pressing .
11. Check the dosing protocol (concentration and rate) is correct and press to commence the infusion.
12. Running arrows on the display and a green LED above the screen will indicate the pump is infusing.
13. The infusion may be ceased at any time by pressing .

**Administering a bolus on an infusion pump**

**Manual Bolus:**

1. Press .
2. Press .
3. Confirm bolus dose and press .

**Ending an infusion**

1. Press to cease the infusion – the green LED will disappear.
2. Disconnect the extension tubing from the patient’s intravenous access.
3. Open the front cover.
4. Open the syringe holder by gently pulling and turning right.
5. Remove the syringe, close the syringe holder and close the front cover.
6. Press for 3 seconds to switch the pump off – the driver will move into the park position.
**Commencing a simple mL/hr infusion**

1. Prepare a compatible syringe and Minibore IV Extension Set with Antisyphon Valve with required medication.
2. Press \( \text{↓} \) to switch the unit on – an automatic self-test will commence. At the completion of the self-test the drive head will be extended in preparation for syringe insertion.
3. Open the front cover.
4. Open the syringe holder by gently pulling and turning to the right.
5. Insert an appropriately labelled syringe with the syringe wings positioned in the slot to the right of the housing – ensure that the syringe graduated markings are facing outwards.
6. Gently close the syringe holder and front cover.
7. Select the correct syringe (brand and volume) by pressing \( \text{↑} \) or \( \text{↓} \). Press \( \text{↓} \) to confirm, the drive head will advance and grip the syringe’s pressure plate.
8. When asked ‘Use drug library?’ – select ‘No’ by pressing \( \text{↓} \).
9. Enter the required information in the Start Up Menu with \( \text{↑} \) and \( \text{↓} \), until ‘rate’ is displayed in the main menu.

**Adjusting the administration pressure (e.g. for IO infusions)**

1. If adjusting the pressure prior to commencing an infusion proceed to step 2. If an infusion is running, press \( \text{↓} \) to enter the main menu.
2. Scroll down to ‘options’ buy using the \( \text{↑} \) and \( \text{↓} \) buttons.
3. Press \( \text{↓} \) to confirm selected.
4. Press \( \text{↓} \) to enter the **Pressure** menu.
5. Adjust the pressure setting to 5 and press \( \text{OK} \) to confirm. If required increase to a maximum pressure setting of 9 to achieve required infusion pressure.
**Additional information**

- Battery capacity is displayed on the screen during all pump administrations.
- During use, the device is to be securely fixed in accordance with QAS Fleet & Equipment requirements. Positioning changes and severe shock may lead to minor changes in delivery accuracy.
- A fully charged battery can provide 6–16 hours of operation. Connecting the supplied 240 volt power supply cables enables continuous operation.
- To avoid incorrect dosing, always disconnect the pump from the patient before changing the syringe.
- Never leave the pump unattended during a syringe change.
- Users will be prompted to conduct a battery reconditioning process every 6 months. This can be completed by following the instructional prompts displayed on the screen.
- If the syringe is unable to be removed (claws are in a locked position) the syringe can be freed by removing the drive head’s cover and pressing the Emergency Release Button with a pointed pen or similar device.

The Perfusor® Space has been programmed with a QAS Drug Library with the following default settings:

<table>
<thead>
<tr>
<th>Drug Name</th>
<th>Syringe required (mL)</th>
<th>Concentration</th>
<th>Default dose</th>
<th>Bolus enabled</th>
<th>Default bolus amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adrenaline-Adult (E-CPR)*</td>
<td>50</td>
<td>3 mg/50 mL</td>
<td>50 microg/min</td>
<td>Y</td>
<td>20 microg</td>
</tr>
<tr>
<td>Adrenaline-Adult (shock)</td>
<td>50</td>
<td>3 mg/50 mL</td>
<td>10 microg/min</td>
<td>Y</td>
<td>20 microg</td>
</tr>
<tr>
<td>Adrenaline-Paed (shock)</td>
<td>50</td>
<td>3 mg/50 mL</td>
<td>0.2 microg/kg/min</td>
<td>Y</td>
<td>0.5 microg/kg</td>
</tr>
<tr>
<td>Amiodarone load-Adult</td>
<td>50</td>
<td>300 mg/50 mL</td>
<td>100 mL/hr</td>
<td>N</td>
<td>N/A</td>
</tr>
<tr>
<td>Fent 200/Midaz 20-Adult</td>
<td>20</td>
<td>200 microg: 20 mg/20 mL</td>
<td>5 mL/hr</td>
<td>Y</td>
<td>20 microg: 2 mg</td>
</tr>
<tr>
<td>Fent 200/Midaz 20-Paed</td>
<td>20</td>
<td>200 microg: 20 mg/20 mL</td>
<td>0.8 microg/kg/hr</td>
<td>Y</td>
<td>0.25 microg/kg (fixed)</td>
</tr>
<tr>
<td>Glyceryl Trinitrate-Adult*</td>
<td>50</td>
<td>5 mg/50 mL</td>
<td>3 mL/hr</td>
<td>N</td>
<td>N/A</td>
</tr>
<tr>
<td>Levetiracetam-Paed &lt; 3yrs</td>
<td>20</td>
<td>30 mg/kg/10 mL</td>
<td>60 mL/hr</td>
<td>N</td>
<td>N/A</td>
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<tr>
<td>Morph 20/Midaz 20-Adult</td>
<td>20</td>
<td>20 mg: 20 mg/20 mL</td>
<td>5 mL/hr</td>
<td>Y</td>
<td>2 mg: 2 mg</td>
</tr>
<tr>
<td>Morph 20/Midaz 20-Paed</td>
<td>20</td>
<td>20 mg: 20 mg/20 mL</td>
<td>0.08 mg/kg/hr</td>
<td>Y</td>
<td>0.025 mg/kg (fixed)</td>
</tr>
<tr>
<td>Propofol-Adult</td>
<td>20</td>
<td>200 mg/20 mL</td>
<td>50 mg/hr</td>
<td>Y</td>
<td>10 mg</td>
</tr>
<tr>
<td>Vasopressin-Adult*</td>
<td>50</td>
<td>20 units/50 mL</td>
<td>0.02 units/min</td>
<td>N</td>
<td>N/A</td>
</tr>
</tbody>
</table>

* Not currently in use