Clinical Practice Procedures:
Access/Peripheral intravenous cannulation

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<table>
<thead>
<tr>
<th>Date</th>
<th>October, 2016</th>
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<tbody>
<tr>
<td>Purpose</td>
<td>To ensure a consistent approach to Peripheral intravenous cannulation</td>
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<tr>
<td>Scope</td>
<td>Applies to all QAS clinical staff.</td>
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<tr>
<td>Author</td>
<td>Clinical Quality &amp; Patient Safety Unit, QAS</td>
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<tr>
<td>Review date</td>
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Peripheral intravenous cannulation

**Indications**
- The IV administration of medications and/or fluid.

**Contraindications**
- Whenever possible avoid sites of burn, infection or localised cellulitis.

**Complications**
- Drug/fluid extravasation
- Haematoma or haemorrhage from site
- Infection or phlebitis
- Venous air embolus
- Arterial puncture

**Intravenous (IV) cannulation** involves the insertion of a catheter into the vein to enable the administration of medications and/or fluid.

IV access is an invasive procedure, therefore appropriate consideration must be given to its requirement in the pre-hospital setting.

BD Insyte™ Autogaurd™[i] IV catheters used by QAS have a unique push-button shielding mechanism that allows the clinician to retract the needle into the safety barrel reducing the risk of needlestick injury.

**Before retraction**
- Safety barrel
- Activation button
- Push off tab
- Flash chamber
- Retracted flash chamber

**After retraction**
- Retracted needle
- Spring
- Finger grip
1. Identify appropriate insertion site. Options include:

**Metacarpal & forearm veins**
- Easily accessible in the pre-hospital environment.
- Self splinted by metacarpal or radius and ulna bones.
- Preferred veins for the non-emergent administration of medications and/or fluids.

**Antecubital fossa (ACF) veins**
- Preferred veins for rapid administration of fluids.
- Large veins allowing for increased cannula gauge.
- Flow may be compromised with catheter occlusion due to flexion/extension.

**Foot & ankle veins**
- Only to be considered as a last resort.
- Increased infection risk.

2. Identify appropriate size cannula.
3. Apply tourniquet to promote venous distention.
4. Palpate vessel to exclude the possibility that it is an artery (e.g. brachial artery when cannulating the ACF).
5. Clean the intended insertion site with a 2% Chlorhexidine/70% Isopropyl Alcohol swab using a ‘back and forth’ motion in two different directions (cross hatch method) for 15 seconds in each direction (total 30 seconds). A risk benefit analysis in view of the patient’s condition is appropriate.
6. If clinically appropriate, allow insertion site to completely dry.
**Procedure – Peripheral intravenous cannulation**

7. Hold the catheter hub and rotate barrel 360°, ensure catheter is seated back in the notch.

8. Stabilise vein by placing a thumb below the cannulation site.

9. Whilst holding the cannula bevel up, swiftly enter the vein at a 30° angle (or less) and observe flashback along the catheter (20, 22, 24 gauge) or behind the white button (16 and 18 gauge).

10. Upon flashback visualisation, lower catheter and slightly advance entire unit before threading the catheter.

11. Thread the catheter into the vein whilst maintaining skin traction.

12. Release and remove tourniquet.

13. Apply gentle pressure distal to the catheter tip.

14. Press white button and dispose of shielded needle immediately into sharps container.

15. Attach SmartSite® Needle-Free Valve.

16. Secure catheter and apply dressing.

17. Flush with sodium chloride 0.9% to ensure patency.

18. Administer medications and/or fluids as necessary.

19. Frequently monitor insertion site for extravasation.
**Additional information**

- The potential for exposure to blood and body fluids during this procedure is **HIGH**. All precautions that serve to minimise risk to the clinician and patient are to be applied.
- IV access should always be attempted at the most appropriate peripheral vein possible (*unless indicated for major resuscitation*).
- IV access should only be implemented after all basic cares.
- The following sites are not to be used for IV access:
  - ACF when primary percutaneous coronary intervention (pPCI) is anticipated
  - Lower limbs when pelvic, abdominal or thoracic trauma is suspected
  - Distal to a complex limb injury
  - Limb with a fistula present
  - An area of phlebitis or cellulitis
  - When a limb has potential or existing lymphodema (e.g. the same side as lymph node clearance).
- All IV cannulae should be re-sited every 48 hours to reduce the risk of phlebitis.
- Cannula selection is based on the following considerations:
  - minimising discomfort to the patient, ease of insertion
  - smallest appropriate size required to achieve desired therapeutic effect.

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Gauge</th>
<th>Length (mm)</th>
<th>Flow rate (mL/min)</th>
<th>Colour</th>
<th>Common uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>45</td>
<td>330</td>
<td>Orange</td>
<td>Adult chest decompression</td>
</tr>
<tr>
<td>16</td>
<td>30</td>
<td>220</td>
<td>Grey</td>
<td>Rapid volume replacement and paediatric chest decompression</td>
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<tr>
<td>18</td>
<td>30</td>
<td>105</td>
<td>Green</td>
<td>General medication and/or fluid administration</td>
</tr>
<tr>
<td>20</td>
<td>30</td>
<td>60</td>
<td>Pink</td>
<td>General medication and/or fluid administration</td>
</tr>
<tr>
<td>22</td>
<td>25</td>
<td>35</td>
<td>Blue</td>
<td>Difficult access/paediatric</td>
</tr>
<tr>
<td>24</td>
<td>19</td>
<td>20</td>
<td>Yellow</td>
<td>Paediatric</td>
</tr>
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**NUMBER OF ATTEMPTS**

- Cannulation attempts are limited to three, unless the urgency of the case demands more.