DEFINITIONS

Client - term used to refer to a client, patient or resident

Implanted Port - a port that is surgically placed in the chest or arm. It is used for long-term venous access for infusion of medications, parenteral nutrition, IV solutions, administering blood and blood sampling. It is accessed with a non-coring needle.

ROLES

Graduate Nurses (GNs): GNs who have been identified by their manager in targeted practice settings may be certified in this RN Specialty Practice: RN Procedure: Central Venous Catheters - Implanted Ports (central and peripheral) Accessing and Discontinuing Access. The GN may only access and discontinue access of implanted ports under the direct supervision of a certified RN.

Registered Nurses (RNs): RNs identified by their manager in targeted practice settings will be certified in this RN Specialty Practice: RN Procedure: Central Venous Catheters - Implanted Ports (central and peripheral) Accessing and Discontinuing Access.

1. PURPOSE

1.1 To maintain patency and minimize the risks of infiltration, infection, septal damage and other complications associated with the care and use of implanted ports.

2. POLICY

2.1 The RN/Grad Nurse certified in this RNSP will have first completed the following learning modules/activities prior to accessing and discontinuing access to implanted ports independently.
• Complete the required learning module and quiz (teaching and learning methods may vary e.g. classroom and/or self-study using paper module or online)

• Complete a skills checklist with a certified RN during simulation or during first access, to ensure safety checks are followed appropriately.

• Provide documentation of learning module quiz and skills checklist to educator-supervisor

2.2 Use only non-coring needles to access the port. Non-coring needles have a deflected point that avoids damage to the septum.

   **Note**: Regular needles will damage the septum.

   See appendix D for instructions on using the non-coring safety needles
   Click here for access to brochure on line
   Click here for Gripper Plus instruction video on line
   Click here for Gripper Micro instruction video on line

2.3 Once the port is accessed, the needle may remain in the port up to 7 days. Needleless adapter if used is changed every 7 days, with the needle and extension tubing.

2.4 To prevent peripheral port occlusion and/or damage, avoid using an arm that has an implanted port for BPs or venipuncture.

2.5 If implanted port is accessed for continuous use, dress with a transparent semi permeable dressing

2.6 Implanted ports can be used for all types of intravenous therapy, including infusion of blood products, parenteral nutrition, and infusion of chemotherapy agents as well as for blood sampling.

3. **PROCEDURE**

3.1 **Accessing**:

   3.1.1 If ordered, apply anaesthetic cream to the skin over the port, 15 minutes in advance of procedure.

   3.1.2 Supplies:
   • anaesthetic cream (optional)
   • dressing tray/set
   • sterile gloves
   • Chlorhexidine/alcohol - swab or swabstick
   • 2 - 10mL syringes prefilled with 0.9% Sodium Chloride
   • appropriately sized non-coring needle with extension tubing
   • transparent semi permeable dressing
   • Needleless adapter (if not included with non-coring needle set)
   • Alcohol based hand sanitizer

   3.1.3 Prior to accessing CVCs for any reason, nurses must perform hand hygiene for at least 15 seconds with alcohol-based hand rub or antiseptic soap and water.
3.1.4 Palpate the port to identify the septum. Report to physician any rotation or migration of port or any abnormal skin condition.

3.1.5 Open dressing tray. Add non-coring needle.

Note: Choose non-coring needle length (3/4 – 1 1/2) depending on the size of the port and the amount of subcutaneous tissue overlying the port. Ideally the bend in the needle rests on the skin when the port is accessed.

3.1.6 Disinfect skin over port with 2% Chlorhexidine/Alcohol 70% swab stick applicator. Using friction clean using a back and forth motion for 15 seconds. Flip the swab stick and moving in opposite direction clean area using a back and forth motion for another 15 seconds. For patients less than 2 months old wipe off chlorhexidine after 30 seconds with sterile 0.9% Sodium Chloride. Allow to dry completely.

3.1.7 While being careful not to contaminate the non-coring needle, attach saline filled syringe and prime with saline. Leave syringe attached to tubing.

Note: Acute Care Pediatrics attaches a needleless adapter for all IV infusions

3.1.8 Don sterile gloves.

3.1.9 Remove needle cover.

3.1.10 With non-dominant hand, locate port by palpation and secure between thumb and index finger.

3.1.11 Insert non-coring needle perpendicular to the port septum and push it firmly through the skin and septum until needle touches the bottom of the port.

Note: Once the septum is punctured, the needle should not be tilted or rocked; these actions may cause fluid leakage, extravasation and damage to the septum.

See Appendix D for manufacturers’ instructions for use of Gripper Plus or Gripper Micro needles (activation of safety component on insertion or removal of needle is different for each type). Please see online links in 2.2.
3.1.12 Verify correct needle placement by gently withdrawing on the syringe to assess for blood return.

**Note:** If unable to withdraw blood:
- make sure needle is at the bottom of the port
- reposition patient or ask to cough
- flush gently with saline
- if still unable to aspirate, remove needle and reattempt access using a new non-coring needle – a longer needle may be required
- if still unable to aspirate, report to physician (a referral may be made to Medical Imaging for a port contrast injection under fluoroscopy)

3.1.13 Flush with saline (See Appendix A, B, C for flush amounts) using a stop and start motion to create a turbulent flow to clear all blood from the extension tubing, port and catheter. Observe for ease of flushing and any sign of subcutaneous infiltration. Clamp extension tubing, leaving syringe attached.

3.1.13.1 For continuous use of port, apply transparent dressing to cover the access site and to stabilize the needle in the port.

3.1.13.2 For blood withdrawal, or other intermittent use, attach needleless adapter.

3.1.13.3 For continuous medication/fluid administration attach appropriate tubing.

**Note:** Acute Care Pediatrics attaches a needleless adapter for all IV infusions

**Note:** Clamp extension tubing during tubing or adapter changes to prevent air embolism or blood loss.

3.2 Blood Withdrawal

3.2.1 Refer to policy: Central Venous Catheters – Blood Withdrawal #1042

3.3 Flushing and Heparin Locking

3.3.1 Refer to policy: Central Venous Catheters – Care of #1086. See attached Adult/Pediatric Standards (Appendix A, B & C) for amounts of flush.

3.4 Discontinuing Access

3.4.1 Ensure port is locked with heparin prior to removal of the needle.

3.4.2 Perform hand hygiene and don clean gloves.

3.4.3 Remove dressing.

3.4.4 Remove needle according to manufacturer’s instructions (see Appendix D).

**Note:** Please see online links in 2.2

3.4.5 Cleanse the site with Chlorhexidine and allow to dry.

3.4.6 Apply a bandaid if required.
3.5 **Documentation**

3.5.1 Record Heparin administration on appropriate record.

3.5.2 Record fluid volumes as appropriate on In/Out Record

4. **RELATED POLICIES**

Other CVC policies:
- #1086 Central Venous Catheters - Short Term, Tunneled, Implanted - Care of
- #1042 Central Venous Catheters - PICC, Short Term, Tunneled, Implanted - Blood Withdrawal

5. **REFERENCES**


Technical Services - MicroClave® Neutral Displacement Connector Change Recommendations. ICU Medical Inc.


**CENTRAL VENOUS CATHETERS - Adult Standards**  
November 2017

Prior to accessing CVC for any reason perform **Hand Hygiene** for at least 15 seconds with alcohol-based hand rub or antiseptic soap and water.

<table>
<thead>
<tr>
<th>CENTRAL VENOUS CATHETERS</th>
<th>Type</th>
<th>Accessing</th>
<th>Check Placement</th>
<th>Frequency of Flushing and Locking</th>
<th>Flush Volume (0.9% sodium chloride)</th>
<th>Heparin Lock (100 units/mL)</th>
<th>Heparin Lock Syringe Size</th>
<th>Dressing changes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PICC</td>
<td>Syringe or IV tubing via needleless adapter</td>
<td>Gently aspirate to visualize blood return then flush with 0.9% Sodium Chloride</td>
<td>Flush after each access or Q 24 h if unused</td>
<td>10mLs before &amp; after medication administration, 20mLs after blood administration or withdrawal</td>
<td>N/A</td>
<td>N/A</td>
<td>Transparent semipermeable q 5-7 days and PRN when dressing soiled, wet or non-occlusive</td>
</tr>
<tr>
<td></td>
<td>PICC</td>
<td>Non coring safety needle primed with 0.9% Sodium Chloride</td>
<td></td>
<td>Flush after each access or Q 12 h if unused</td>
<td></td>
<td>3mL (300 units)</td>
<td>N/A</td>
<td>Transparent semipermeable with gauze or gauze alone q 2 days</td>
</tr>
<tr>
<td></td>
<td>Tunneled</td>
<td>Non coring safety needle primed with 0.9% Sodium Chloride</td>
<td></td>
<td>Flush &amp; lock after each access or Once a week if unused</td>
<td>20mL</td>
<td>N/A</td>
<td>12mL</td>
<td>Clean skin with saline pm, then for skin antisepsis use Chlorhexidine 2%/alcohol 70% swab stick.</td>
</tr>
<tr>
<td></td>
<td>Implanted Port</td>
<td>Non coring safety needle primed with 0.9% Sodium Chloride</td>
<td></td>
<td>Flush &amp; lock after each access or Once a month if unused</td>
<td></td>
<td>5mL (500 units)</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

- **Flush Volume (0.9% sodium chloride)**
  - 10mLs before & after medication administration.
  - 20mLs after blood administration or withdrawal

- **Heparin Lock (100 units/mL)**
  - N/A

- **Heparin Lock Syringe Size**
  - 3mL
  - 5mL

- **Dressing changes**
  - Transparent semipermeable q 5-7 days and PRN when dressing soiled, wet or non-occlusive
  - Transparent semipermeable with gauze or gauze alone q 2 days
  - Clean skin with saline pm, then for skin antisepsis use Chlorhexidine 2%/alcohol 70% swab stick.

- **Needleless Adapter Change**
  - Once a week for unused lumens. Change every 96 hours if tubing is connected.
  - Once a week if port accessed

- **Blood Sampling Discard Volume**
  - 1 tube or 5mL
  - 2 tubes or 7mL

  **Gripper Micro Safety Needle**: 20G X ¾ - 200939 22G X ¾ - 200941 22G X 1 - 200942
Prior to accessing CVC for any reason perform **Hand Hygiene** for at least 15 seconds with alcohol-based hand rub or antiseptic soap and water.

<table>
<thead>
<tr>
<th>Accessing</th>
<th>PICC (under 3 Fr)</th>
<th>PICC (3 Fr &amp; over)</th>
<th>Short Term</th>
<th>Tunneled</th>
<th>Implanted Port</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Syringe or IV tubing via needleless adapter</td>
<td>Non coring safety needle primed with 0.9% Sodium Chloride</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Check Placement</th>
<th>PICC (under 3 Fr)</th>
<th>PICC (3 Fr &amp; over)</th>
<th>Short Term</th>
<th>Tunneled</th>
<th>Implanted Port</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Flush with 5 - 10mLs 0.9% Sodium Chloride</td>
<td>Gently aspirate to visualize blood return then flush with 0.9% Sodium Chloride</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Frequency of Flushing (0.9% sodium chloride)</th>
<th>PICC (under 3 Fr)</th>
<th>PICC (3 Fr &amp; over)</th>
<th>Short Term</th>
<th>Tunneled</th>
<th>Implanted Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flushing NOT required for continuous IV infusion</td>
<td>Before &amp; after medication administration</td>
<td>After each intermittent access</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flush Volume (0.9% sodium chloride)</th>
<th>PICC (under 3 Fr)</th>
<th>PICC (3 Fr &amp; over)</th>
<th>Short Term</th>
<th>Tunneled</th>
<th>Implanted Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>5mL</td>
<td>Volume weight based: less than 10 kgs: 5mL greater than 10 kgs: 10 - 20mL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Frequency of Heparin Locking</th>
<th>PICC (under 3 Fr)</th>
<th>PICC (3 Fr &amp; over)</th>
<th>Short Term</th>
<th>Tunneled</th>
<th>Implanted Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locking NOT required for continuous IV infusion</td>
<td>N/A</td>
<td>N/A</td>
<td>After each intermittent access Q 24h to unused lumen</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Heparin Lock Volume (100 units/mL)</th>
<th>PICC (under 3 Fr)</th>
<th>PICC (3 Fr &amp; over)</th>
<th>Short Term</th>
<th>Tunneled</th>
<th>Implanted Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>wt. greater than 10 kgs or accessed 5 times or less/24 hrs.</td>
<td>N/A</td>
<td>N/A</td>
<td>1.5mL (150 units)</td>
<td>2.5mL (250 units)</td>
<td></td>
</tr>
<tr>
<td>wt. less than 10 kgs or accessed 6 times or more/24 hrs.</td>
<td>N/A</td>
<td>N/A</td>
<td>0.2mL heparin (100 units/mL) added to 1.8 mLs 0.9% sodium chloride (20 units)</td>
<td>De-access ONLY: 2.5mL (250 units) (Heparin 100 units/mL)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Heparin Lock Syringe Size</th>
<th>PICC (under 3 Fr)</th>
<th>PICC (3 Fr &amp; over)</th>
<th>Short Term</th>
<th>Tunneled</th>
<th>Implanted Port</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12mL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dressing Change</th>
<th>PICC (under 3 Fr)</th>
<th>PICC (3 Fr &amp; over)</th>
<th>Short Term</th>
<th>Tunneled</th>
<th>Implanted Port</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Transparent semipermeable with gauze or gauze alone <strong>q2days</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Transparent semipermeable <strong>q 5-7 days</strong> and PRN when dressing soiled, wet or non-occlusive</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Clean skin with saline pm, for skin antisepsis use 2% Chlorhexidine swabstick</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Note: ages 2 months &amp; under – <strong>clean skin with chlorhexidine, let the skin dry then wipe off chlorhexidine with 0.9% sodium chloride</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Needleless Adapter Change</th>
<th>PICC (under 3 Fr)</th>
<th>PICC (3 Fr &amp; over)</th>
<th>Short Term</th>
<th>Tunneled</th>
<th>Implanted Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>use adapter on all CVC lumens</td>
<td>Once a week on unused lumens Change every 96 hours if tubing connected.</td>
<td>Once a week if ACCESSED</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blood Sampling Discard Volume</td>
<td>No blood sampling</td>
<td>No blood transfusions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-------------------</td>
<td>----------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>use discard tube or 12 mL syringe</td>
<td></td>
<td>3mL</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PICU Central Venous Care Guidelines 2016**

<table>
<thead>
<tr>
<th>PICC under 3 French</th>
<th>PICC 3 French &amp; over</th>
<th>Percutaneous CVL/CVP</th>
<th>Long Term Tunneled Silicone</th>
<th>Long Term Implanted port</th>
<th>Umbilical Venous (Argyle)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lumen Volume</td>
<td>1.9Fr=0.105mL</td>
<td>3 Fr=0.145mL</td>
<td>Per pkg or lumen instruction</td>
<td>2.7Fr=0.15mL</td>
<td>Port-0.2-0.7mL Needle system-0.5-0.7 mL</td>
</tr>
</tbody>
</table>

**Flush & Locking**

- **Saline Flush/Lock**
  - Before and after meds or bloodwork
  - Unused: q 24 hr.
  - Amount to clear lumen (at least 0.5 mL)
- **Before and after meds or bloodwork**
- **Amount to clear lumen (at least 0.5 mL)**

- **Heparin Lock** (Physician Order required)
  - 25 units/mL 0.5-1mL q 8 hrs. and prn
  - No-Saline Lock at least q 24 hrs.
  - **Note**: consider Heparin lock if patency problematic. Order required.
  - 0.5-1.5mL of 25 units/mL q 8 hr. & prn
  - **Non Accessed**: 1.5 mL of 100 u/mL q 24 hrs.
  - **Intermittent Access**: 1.5 mL of 10 units/mL q 8hrs & prn

**Blood work draw**

- No
- Yes
- Yes
- Yes
- Yes-use port closest to patient.

**Blood Discard**

- n/a
- 2x lumen volume
- 2x lumen volume
- 3-5mL
- 2-5mL
- n/a

**CVP Monitoring**

- No, unless ordered
- No, unless ordered
- Yes, Distal lumen
- No, unless ordered
- No, unless ordered
- As ordered
<table>
<thead>
<tr>
<th>Acceptable Meds</th>
<th>PICC under 3 French</th>
<th>PICC 3 French &amp; over</th>
<th>Percutaneous CVL/CVP</th>
<th>Long Term Tunneled Silicone</th>
<th>Long Term Implanted port</th>
<th>Umbilical Venous (Argyle)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(CVL dilution if fluid restricted)</td>
<td>ALL IV meds</td>
<td>ALL IV meds</td>
<td>ALL IV meds</td>
<td>ALL IV meds</td>
<td>ALL IV meds</td>
<td>ALL IV meds</td>
</tr>
<tr>
<td>Parenteral Nutrition</td>
<td>Dextrose (\leq 30%), amino acids, lipids. Consider heparin in PN at low rates</td>
<td>Yes-all</td>
<td>Yes-all</td>
<td>Yes-all</td>
<td>Yes-all</td>
<td>Dextrose (\leq 50%), amino acids, lipids</td>
</tr>
<tr>
<td>Blood administration</td>
<td>NO</td>
<td>NO unless no other site</td>
<td>NO-unless no other site</td>
<td>NO-unless no other site</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Routine Care</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tubing Change (including stop cocks and caps not put on with sterile field)</td>
<td>TPN-q 24 hrs. IV-q 96 hr.</td>
<td>TPN-q 24 hrs. IV-q 96 hr.</td>
<td>TPN-q 24 hrs. IV/CVP-q 96 hr.</td>
<td>TPN-q 24 hrs. IV-q 96 hr.</td>
<td>TPN-q 24 hrs. IV-q 96 hr.</td>
<td>Q 24 hours</td>
</tr>
<tr>
<td>Dressing</td>
<td>Transparent-q 7 days &amp; prn Gauze-q 24 &amp; prn</td>
<td>Transparent-q 7 days &amp; prn Gauze-q 24 &amp; prn</td>
<td>Transparent-q 7 days &amp; prn Gauze-q 24 &amp; prn</td>
<td>Transparent-q 7 days &amp; prn Gauze-q 24 &amp; prn</td>
<td>Transparent-q 7 days &amp; prn Gauze-q 24 &amp; prn</td>
<td>Transparent-q 7 days &amp; prn Gauze-q 24 &amp; prn</td>
</tr>
</tbody>
</table>
Gripper Micro Instructions for Use

GRIPPER® Micro
Blunt Cannula, Non-Coring Safety Needle

Access a port
• Prepare the site according to facility protocol. Holding on to the inserter as shown, insert the needle into the port.

Remove the needle
• From the back of the inserter, place fingers on each side of the inserter’s base to stabilize it.
• With the other hand, place a finger on the tip of the inserter’s safety arm.
• Press the tab and lift the safety arm straight back until the needle CLICKS into the locked position.
✓ The sharp is now removed.

Dispose in sharps container
• Dispose of the inserter in a sharps container.
• Apply a semi-permeable dressing over the infusion site, ensuring that a minimum 4cm area surrounding the site is covered.

Removal

Remove infusion site
Place fingers on each side of the infusion site. Stabilize the port with the other hand. Lift the infusion site straight up and discard per facility protocol.
Gripper Plus Instructions for Use

**Access port**
Access a port with the GRIPPER PLUS® safety needle at a 90° angle.

**Remove clip**
Remove the clip by sliding it towards the end of the needle arm and lifting.

**De-access with two fingers on base**
To de-access the port, approach the GRIPPER PLUS® safety needle from behind. Place fingers on the base to stabilize it.

**Lift safety arm**
With the other hand, place a finger on the tip of the safety arm. Lift the safety arm straight back. Notice that the needle comes out nicely straight.

**“Click” needle into locked position**
Continue lifting until the needle “clicks” into the locked position. The GRIPPER PLUS® safety needle is now ready for disposal into a sharps container. It's that easy.