

## CENTRAL VENOUS CATHETER & MIDLINE PERIPHERAL VENOUS CATHETER CARE - Part 2

CATHETERS	CATHETER FLUSHING *	DRESSING	REFLUX VALVE/ ALCOHOL PORT PROTECTOR CAPS	BLOOD WITHDRAWAL *
<p><b>Catheters without valve, with external clamp</b> (PICC &amp; Tunneled) Examples:</p> <ul style="list-style-type: none"> <li>• Cook ®</li> <li>• Broviac ®</li> <li>• Hickman ®</li> <li>• Triple lumen dialysis catheter (e.g. Trialysis®) (Nurses may access or change valve on “pigtail” lumen only. Only dialysis nurses may access dialysis lumens</li> </ul>	<ul style="list-style-type: none"> <li>• Use push-pause flush technique</li> <li>• When lumen used intermittently (once or more per day), flush with each use as follows: S – Saline: 10 mL A - Antibiotic (all medications) S – Saline: 10 mL <b>H - Pediatric ONLY:</b> Heparin 10 units/mL - (3mL) Maximum daily heparin dose: 50 units/kg</li> <li>• When lumen not in use, flush daily as follows: Adult: 10mL NS followed by 1mL heparin 100 unit/mL Pediatric: 3 mL of heparin 10 units/mL: Maximum daily heparin dose: 50 units/kg</li> <li>• After administration of viscous fluid flush with NS: Adult: 20 mL Pediatric: 10 mL Note: Viscous fluid includes TPN, chemotherapy, blood/ blood products, phenytoin, rifampin)</li> <li>• Use separate sterile syringe for each lumen</li> <li>• <b>ALWAYS use 10 mL syringe or greater to flush the catheter. If no resistance is felt with flushing, use the appropriate sized syringe for medication administration.</b></li> </ul>	<p><b>CHANGE</b> as follows:</p> <ul style="list-style-type: none"> <li>• Gauze – every 48 hours</li> <li>• Transparent, Biopatch® and Statlock® every 7 days</li> <li>• Post-bathing or when soiled/wet/ non-occlusive</li> <li>• Use transparent dressing unless patient is diaphoretic, site is oozing, or skin is excoriated</li> <li>• Use Biopatch® with all transparent dressings (unless patient has hypersensitivity to chlorhexidine)</li> </ul>	<p><b>CHANGE REFLUX VALVE</b> as follows:</p> <ul style="list-style-type: none"> <li>• Inpatients: Every 96 hours (4 days) (coordinate with tubing change and flush) Exception: A minimum of every day if blood is drawn frequently (e.g. at least 3-4 times per day)</li> <li>• Outpatients: Every 7 days</li> <li>• When valve becomes ineffective (e.g., leaking, soiled, cracked, blood is visible, sluggish)</li> <li>• Every time it is disconnected from catheter hub</li> <li>• Before sending patient home</li> <li>• Propofol <ul style="list-style-type: none"> <li>- Post administration</li> <li>- Every 12 hours with tubing change during infusion</li> </ul> </li> </ul> <p><b>ALCOHOL PORT PROTECTOR CAP</b> as follows:</p> <ul style="list-style-type: none"> <li>• Use <b>green</b> alcohol port protector caps on all ports (inpatients only)</li> </ul>	<ul style="list-style-type: none"> <li>• Use only ≥10 mL syringes</li> <li>• For continuous infusions, keep stopcock between port and infusion for use during blood draw</li> <li>• Place fluids running into other ports on hold prior to withdrawing blood for multi-lumen catheters (Exception: vasoactive drugs)</li> <li>• Adult: <ul style="list-style-type: none"> <li>- Discard 4-6 mL blood</li> <li>- Withdraw required amount of blood</li> <li>- Flush with 20 mL NS</li> <li>- Followed by 1 mL heparin 100 unit/mL if used intermittently</li> </ul> </li> <li>• Pediatric: <ul style="list-style-type: none"> <li>- Use 3-way stopcock method</li> <li>- Withdraw blood (amount needed to clear the line)</li> <li>- Withdraw required amount of blood</li> <li>- Reinsert initial blood withdrawn</li> <li>- Flush 10 mL NS</li> <li>- Follow with flush of 3 mL Heparin 10 units/mL if used intermittently Maximum daily heparin dose: 50 units/kg</li> </ul> </li> <li>• Withdrawal of drug levels <ul style="list-style-type: none"> <li>- Flush with 3 mL NS prior to withdrawing blood</li> </ul> </li> <li>• Withdrawal of blood during or immediately after a TPN infusion</li> </ul>

\* Flushing Requires Provider’s order

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			<ul style="list-style-type: none"> <li>• Use <b>red</b> alcohol port protector caps on the ends of dialysis catheter lumens</li> <li>• EXCEPTION: DO NOT use alcohol port protector cap on any lines that have closed system transfer device attached. Scrub hub for 15-30 second with chlorhexidine before accessing port</li> </ul> Change cap: <ul style="list-style-type: none"> <li>• With every tubing change</li> <li>• When received in a new unit</li> <li>• Every time cap is removed (e.g. for administering medications)</li> </ul>	<ul style="list-style-type: none"> <li>- Adult: Flush with 20 mL NS before drawing blood specimen</li> <li>- Pediatric: Flush with 10 mL NS</li> <li>• Do not draw blood out of any PICC smaller than Gauge 20 (Fr 3)</li> </ul>
<p><b>Catheters with valve, without external clamp</b> (PICC &amp; Tunneled) Examples:</p> <ul style="list-style-type: none"> <li>• Groshong®</li> <li>• <b>Power PICC Solo</b> catheter</li> </ul>	<p>The use of Heparin is not necessary:</p> <ul style="list-style-type: none"> <li>• Use push-pause flush technique</li> <li>• When used intermittently, follow <b>SAS</b>: S - Saline A - Antibiotic (all medications) S – Saline</li> <li>• Flush with NS: 10 mL Frequency:</li> <li>• With administration of I.V. medications/solutions</li> <li>• Every 7 days when not in use</li> <li>• Every valve change</li> <li>• Post-insertion after verifying with</li> </ul>	See catheters without valve	See catheters without valve	<ul style="list-style-type: none"> <li>• Use only <u>≥</u>10 mL syringes</li> <li>• For continuous infusions, keep stopcock between port and infusion for use during blood draw</li> <li>• Place fluids running into other ports on hold prior to withdrawing blood for multi-lumen catheters (Exception: vasoactive drugs)</li> <li>• Adult:               <ul style="list-style-type: none"> <li>- Discard 4-6 mL blood</li> <li>- Withdraw required amount of blood</li> </ul> </li> </ul>

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CATHETERS	CATHETER FLUSHING *	DRESSING	REFLUX VALVE/ ALCOHOL PORT PROTECTOR CAPS	BLOOD WITHDRAWAL *
	<p>physician correct placement by chest X-ray</p> <ul style="list-style-type: none"> <li>• If blood reflux is present in the tubing</li> <li>• After administration of viscous fluid flush with NS</li> <li>• Adult: 20 mL</li> <li>• Pediatric: 10 mL                      Note: Viscous fluid includes TPN, chemotherapy, blood/blood products, phenytoin, rifampin)</li> <li>• Use separate sterile syringe for each lumen</li> <li>• <b>ALWAYS use 10 mL syringe or greater to flush the catheter. If no resistance is felt with flushing, use the appropriate sized syringe for medication administration.</b></li> </ul>			<ul style="list-style-type: none"> <li>- Flush with 20 mL NS</li> <li>• Pediatric:                     <ul style="list-style-type: none"> <li>- Use 3-way stopcock method</li> <li>- Withdraw blood (amount needed to clear line)</li> <li>- Withdraw required amount of blood</li> <li>- Reinsert initial blood withdrawn</li> <li>- Flush with 10 mL NS</li> </ul> </li> <li>• Withdrawal of drug levels                     <ul style="list-style-type: none"> <li>- Flush with 3 mL NS prior to withdrawing blood</li> </ul> </li> <li>• Withdrawal of blood during or immediately after a TPN infusion                     <ul style="list-style-type: none"> <li>- Adult: Flush with 20 mL NS before drawing blood specimen</li> <li>- Pediatric: Flush with 10 mL NS</li> </ul> </li> <li>• Do not draw blood out of any PICC smaller than Gauge 20 (Fr 3)</li> </ul>
<p><b>Implantable Ports</b> <i>Without valve</i> Single chamber or Dual chamber</p>	<p>Flush both ports for dual chamber devices</p> <ul style="list-style-type: none"> <li>• Use push-pause flush technique</li> <li>• When used intermittently follow <b>SASH</b>:                      S – Saline: 10 mL                      A - Antibiotic (all medications)                      S – Saline: 10 mL                      H – Heparin:                      Adult: 3mL of 100 units/mL                      Pediatric:                      &lt; 12 kg – 3 mL of 10 units/mL                      ≥12 kg – 3 ml of 100 units/mL</li> <li>• When port is not accessed with needle</li> </ul>	<ul style="list-style-type: none"> <li>• Use a non-coring needle to access implanted port. It may be left in place for continuous or intermittent use as a heplock.</li> <li>• Change needle and dressing                     <ul style="list-style-type: none"> <li>- Inpatients: every 4 days</li> <li>Outpatients: every 7 days</li> </ul> </li> </ul>	<p>See catheters without valves</p>	<p>Adult:</p> <ul style="list-style-type: none"> <li>• Discard 10 mL blood</li> <li>• Withdraw required amount of blood</li> <li>• Flush with 20 mL NS</li> <li>• Flush with heparin 3 mL of 100 units/mL</li> </ul> <p>Pediatric:</p> <ul style="list-style-type: none"> <li>• Use - way stopcock method</li> <li>• Withdraw 5 mL blood</li> </ul>

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	<p>(e.g. outpatients) ensure patency and flush once per month with 10 mL NS followed by:                      Adult: 100 units/mL 3 mL                      Pediatric:                      &lt; 12 kg - 10 units/mL 3mL                      &gt;12 kg - 100 units/mL 3 mL</p> <ul style="list-style-type: none"> <li>After administration of viscous fluid flush with NS:                              Adult: 20 mL                              Pediatric: 10 mL</li> </ul> <p>Note: Viscous fluid includes TPN, chemotherapy, blood/ blood products, phenytoin, rifampin)</p> <ul style="list-style-type: none"> <li>Use separate syringe for each lumen</li> </ul>	<ul style="list-style-type: none"> <li>Secure needle to port with dressing (transparent preferred) if using intermittently or continuously</li> </ul>		<ul style="list-style-type: none"> <li>Withdraw required amount of blood</li> <li>Reinsert initial blood withdrawn</li> <li>Flush with 10 mL NS</li> <li>Flush with heparin:                              &lt; 12 kg – 3 mL of 10 units/mL                              &gt;12 kg – 3 mL of 100 units/mL</li> </ul>
<p><b>Implantable Ports with valve</b></p> <p><b>If it is unknown whether the port is with valve or without valve, treat as Implantable Port without valve (above) which includes the use of heparin</b></p> <p>Single chamber or Dual chamber</p>	<p>Flush both ports for dual chamber devices                      The use of Heparin is not necessary:</p> <ul style="list-style-type: none"> <li>Use push-pause flush technique</li> <li>When used intermittently, follow <b>SAS</b>:                              S - Saline                              A - Antibiotic (all medications)                              S – Saline</li> <li>Flush with NS                              Amount: 10 mL                              Frequency:                             <ul style="list-style-type: none"> <li>With administration of I.V. medications/solutions</li> <li>Every 30 days when not in use</li> </ul> </li> <li>With administration of viscous fluid flush with NS                             <ul style="list-style-type: none"> <li>Adult: 20 mL</li> <li>Pediatric: 10 mL</li> </ul>                             Note: Viscous fluid includes TPN, chemotherapy, blood/blood products, phenytoin, rifampin)                         </li> <li>Use separate sterile syringe for each lumen</li> </ul>	<ul style="list-style-type: none"> <li>Use a non-coring needle to access implanted port. It may be left in place for continuous or intermittent use as a heplock.</li> <li>Secure needle to port with dressing (transparent preferred) if using intermittently or continuously</li> </ul>	<p>See catheters without valve</p>	<p>Adult:</p> <ul style="list-style-type: none"> <li>Discard 10 mL blood</li> <li>Withdraw required amount of blood</li> <li>Flush with 20 mL NS</li> </ul> <p>Pediatric:</p> <ul style="list-style-type: none"> <li>Use 3-way stopcock method</li> <li>Withdraw 5 mL blood</li> <li>Withdraw required amount of blood</li> <li>Reinsert initial blood withdrawn</li> <li>Flush with 10 mL NS</li> </ul>

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CATHETERS	CATHETER FLUSHING *	DRESSING	REFLUX VALVE/ ALCOHOL PORT PROTECTOR CAPS	BLOOD WITHDRAWAL *
<ul style="list-style-type: none"> <li>• PowerPICC ®</li> <li>• Triple lumen</li> <li>• Midline catheters</li> </ul>	<ul style="list-style-type: none"> <li>• Use push-pause flush technique</li> <li>• Follow <b>SAS</b> when used intermittently</li> <li>• When not in use, flush a minimum of every 8 hours with NS 3-10 mL</li> <li>• Use separate sterile syringe for each lumen</li> <li>• Flush with NS: 10 mL                             <ul style="list-style-type: none"> <li>- After verifying with physician correct placement by x-ray</li> <li>- After blood withdrawal or blood/ blood product transfusion</li> </ul> </li> <li>• <b>ALWAYS use 10 mL syringe or greater to flush the catheter. If no resistance is felt with flushing, use the appropriate sized syringe for medication administration</b></li> </ul>	See catheters without valve	See catheters without valve	See tunneled catheter <u>with</u> valve
Introducer Sheath Restricted to the ICU & ED	<ul style="list-style-type: none"> <li>• Start a continuous I.V. infusion at a minimum of 10 mL/hr immediate post insertion in each lumen</li> </ul>	See catheters without valve	<p>REFLUX VALVE NEVER CAP Always ensure that an I.V. solution is continuously infusing at a minimum rate of 10 mL/hour in each lumen to avoid clotting.</p> <p>ALCOHOL PORT PROTECTOR CAPS: See catheters without valves</p>	<ul style="list-style-type: none"> <li>• Place fluids running into all ports on hold prior to withdrawing blood (Exception: vasoactive drugs)</li> <li>• Discard 5 mL of blood</li> <li>• Withdraw required amount of blood</li> <li>• Flush with 5 mL NS</li> <li>• Restart I.V. infusion</li> </ul>
NICU Central Lines	PICCs are always connected to continuous IV infusion – flushing is not required	<ul style="list-style-type: none"> <li>• Gauze – every 24 hours</li> <li>• Transparent - when soiled, wet or non-occlusive</li> <li>• Broviac ® only M-W-F</li> <li>• PICC dressing changes done by Fellow/Nurse Practitioner/PICC Resource Nurse</li> </ul>	Reflux valve is not removed or changed.	<p>Nurses may draw labs from PICC only with written physician’s order</p> <ul style="list-style-type: none"> <li>• Use 3 mL syringe for withdrawing blood and flushing</li> <li>• Withdraw 0.2-0.5 mL of blood to clear the line and discard.</li> <li>• Withdraw required amount of blood as ordered</li> <li>• Flush line with 0.5 mL heparin flush (heparin 0.5 units/mL)</li> </ul>

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		<ul style="list-style-type: none"><li>• Steristrips are used to secure line</li></ul>		

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