

E. PROCEDURES



1. ACCESSING CENTRAL VENOUS CATHETERS AND DEVICES

a) PURPOSE

Accessing a preexisting central venous catheter or device may be required for fluid volume resuscitation and/or medication administration for critically ill/injured patients when peripheral IV access cannot be established.

b) INDICATIONS

Life-Threatening Emergency

A preexisting central venous access catheter or device may be accessed by a paramedic for resuscitation medication administration or fluid volume administration.



A CRT-I may access these devices **WITH MEDICAL CONSULTATION**.



Non-Life-Threatening Emergency

Medical consultation is required for all ALS (CRT-I and paramedic) providers.

c) CONTRAINDICATIONS

None


d) POTENTIAL ADVERSE EFFECTS/COMPLICATIONS

- (1) Infection (local site and in the central bloodstream)
- (2) Air in the catheter line (air embolism)
- (3) Damage to catheter line
- (4) Obstruction in the line
- (5) Dislodge the catheter

e) PROCEDURE: PORTS (e.g., Port-a-Cath®, Mediport®, Bard®, Infuse-a-Port®)

A port (reservoir) is a disc about an inch in diameter that is just under the skin, usually on the upper chest. Under the skin, it is connected to a catheter line that lies in a large vein just above the heart.

- (1) Explain the procedure to the patient whenever possible.
- (2) Obtain assistance as needed.
- (3) Position the patient supine.
- (4) Using a 10 mL syringe or larger, draw up TWO 5 mL flushes with NS/RL.
NOTE: 10 mL syringes are used because they have lower pressure when flushing fluids than smaller volume syringes (1 mL, 3 mL, or 5 mL). The smaller volume syringes may deliver enough pressure to break the catheter.
- (5) Open the right-angle, non-coring (Huber® or Gripper®) needle package and flush with NS/RL. Be sure there are **no air bubbles in the tubing**.
- (6) Clean the skin site at the port with cleaning material from patient/family, or use alcohol or other *approved antibacterial agent* (e.g., *Chloraprep*®), using a circular motion.

- (7) Use sterile latex-safe gloves. Using the non-dominant hand, palpate the area over the port to stabilize the port and locate the center.
- (8) With other hand, insert the non-coring needle into the center of the port with firm, steady pressure until you feel the needle reach the back of the port. Do not rock the non-coring needle back and forth in the port.
- (9) Aspirate 5 mL of blood and/or heparinized solution and discard. If unable to aspirate blood, verify needle position by gently pushing the needle farther against the backstop of the port.
-  If you are still unable to aspirate blood or fluid, contact MEDICAL CONSULTATION prior to use.
- (10) Flush with 5 mL NS/RL while assessing for swelling at the site. **Be sure there are no air bubbles in the syringe or tubing.** Do not force flush if resistance is met. Verify the non-coring needle position by gently pushing the needle further against the backstop of the port, and attempt to flush again.
- (11) After assessing patency, clamp the tubing, and remove the syringe.
- (12) Apply needleless injection cap, if available, and cleanse with alcohol.
- (13) IV fluids, tubing, and connectors must be assembled and primed in the cleanest area possible with **all air eliminated** prior to connecting to the patient.
- (14) Attach the completely flushed IV line, unclamp the needle tubing, and begin infusion of fluid/medication. NOTE: IV fluids may not infuse by gravity.
- (15) Secure the non-coring needle with sterile 2x2 or 4x4 and tape or occlusive dressing, being careful not to tape over the insertion site.
- (16) Tape or loop extension tubing to outside of dressing.

f) **PROCEDURE: TUNNELED AND NON-TUNNELED LINES**

TUNNELED LINES (e.g., Hickman®, Groshong®, Broviac®, Cook®)

A tunneled central line is a catheter that is inserted under the skin of the chest, and the tip of the catheter is in a large vein just above the heart. A tunneled catheter has a cuff below the skin that the soft tissue grows into, reducing the risk of dislodgement and infection. These can be single or multiple-lumen catheters.

NON-TUNNELED LINES: PICC and MLC (e.g., Cook®, Neo-PICC®)

A PICC (Peripherally Inserted Central Catheter) line is a thin catheter that is inserted into one of the large veins, usually in the arm near the bend of the elbow, but may be in the neck or a lower extremity, and is threaded in a large vein just above the heart. A MLC (Mid-Line Catheter) is a thin peripheral catheter that is inserted into a large vein in the elbow and ends in the vein before the shoulder. Both of these catheters have a very small lumen and are considered “low volume lines” and not appropriate for volume resuscitation.

- (1) Explain the procedure to the patient whenever possible.
- (2) Obtain assistance as needed.
- (3) Position the patient supine.
- (4) Using a 10 mL syringe or larger, draw up 5 mL flushes with NS/RL. **Be sure there are no air bubbles in the syringe.** Attach a stopcock if available.
NOTE: 10 mL syringes are used because they have lower pressure when flushing fluids than smaller volume syringes (1 mL, 3 mL, or 5 mL). The smaller volume syringes may deliver enough pressure to break the catheter.
- (5) Use sterile latex-safe gloves.
- (6) If multiple lumens or ports, determine from patient/family which catheter is most appropriate for use, if possible, or refer to the EIF Form. This is usually the **white** port.
- (7) Clean the existing cap on catheter with alcohol for 30 seconds.
- (8) Clamp all lines with special clamps that do not have teeth, which might damage the catheter.
- (9) Access the appropriate catheter port with a 10 mL syringe.
- (10) Unclamp the catheter line to be accessed and aspirate 5 mL of blood/heparinized solution and discard to confirm placement and access patency. Delete this step if less than 2 Fr PICC catheter, as this may damage the catheter (the lumen is very small and the catheter wall may collapse and any blood in the catheter will form a clot).
NOTE: Contact MEDICAL CONSULTATION if unable to aspirate blood/fluid, or less than 2 Fr catheter.
- (11) Reclamp the catheter any time you are changing lines or syringes. Remember that regular clamps may damage the central line tubing.
- (12) Attach the flush syringe and unclamp.
- (13) Flush with 5 mL NS/RL. **Be sure there are no air bubbles in the syringe or tubing.**
- (14) Clamp this line again with the special clamp.