

Vascular Access via Central Catheters

6.8

PARAMEDIC – ADULT & PEDIATRIC

PROVIDER LEVEL:

- Paramedic who has taken the NH Bureau of EMS and Medical Control Board approved training module.

INDICATIONS

- In the presence of a life threatening condition, with clear indications for immediate use of medication or fluid bolus. (Not for prophylactic IV access.)

CONTRAINDICATIONS

- Suspected infection at skin site.

PROCEDURE

Determine the type of catheter present: PICC, Broviac, Hickman, Groshong, Mediport, etc.

Procedure for peripherally inserted Central Catheter (Cook, Neo-PICC, etc.) and Tunneled Catheter (Broviac, Hickman, Groshong, etc.)

- Utilize good hand-hygiene with either alcohol gel based cleanser or soap and water.
- Utilize respiratory precautions if indication of respiratory infection in provider or patient:
 - Mask the provider and/or the patient.
- Prepare equipment:
 - 2 - 3 10 ml prefilled syringes of 0.9% NaCl.
 - Sterile gloves (if available).
- If more than one lumen is available (PICCs, Hickmans and Broviacs can have one, two, or three lumens), select the largest lumen available.
- Vigorously cleanse the cap of the lumen with chlorhexidine or 70% alcohol prep pad.
 - Allow to dry.
- Unclamp the selected catheter lumen and using a prefilled 10 ml syringe.
 - Vigorously flush the catheter using a pulsating technique and maintaining pressure at the end of the flush to prevent reflux of fluid or blood.
 - If catheter does not flush easily (note that a PICC line will generally flush more slowly and with greater resistance than a typical intravenous catheter), re-clamp the selected lumen and attempt to use another lumen (if present).
 - If unable to flush any of the lumens, the catheter is unable to be used.
- Attach primed IV administration set and observe for free flow of IV fluid.
 - Utilizing an IV pump, set the flow rate based on the patient condition and in accordance to NH Protocols.

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- Do not exceed recommended flow rates.
- Avoid taking a blood pressure reading in the same arm as the PICC.

CATHETER	SIZE	MAX FLOW RATE
PICC	Less than 2.0 fr	125 mL/hr
PICC	Greater than 2.0 fr	250 mL/hr
Groshong PICC	3 fr	240 mL/hr
Groshong PICC NXT	4 fr	540 mL/hr
Groshong PICC NXT	5 fr	200 mL/hr
Hickman/Broviac		
Hickman/Broviac – Power Port	8 – 9.5 fr	3000 mL/hr

PEARLS:

- There are many peripherally inserted, tunneled and/or implanted ports options. Providers should do their best to discern what option the patient has. Patient may be carrying a reference/wallet card about their device.
- PICC lines will not tolerate rapid infusions or infusions under pressure.

Procedure Continues

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Procedure for implanted catheter (Port-a-Cath, P.A.S. port, Medi-port)

1. Utilize good hand-hygiene with either alcohol gel based cleanser or soap and water.
2. Utilize respiratory precautions if indication of respiratory infection in provider or patient.
 - Mask the provider and/or the patient.
3. Prepare all necessary equipment:
 - Non-coring, right angle needle specific for implanted vascular access ports.
 - 2 - 3 10 ml prefilled syringes of 0.9% NaCl.
 - Sterile infusion port cap.
 - Sterile gloves (if available).
 - Sterile occlusive dressing large enough to completely cover the insertion site
4. Identify the access site; usually located in the chest.
5. Vigorously cleanse the access site with chlorhexidine or 70% alcohol prep pad.
 - Allow to dry.
6. Attach the infusion port cap to the end of the non-coring, right angle needle tubing.
7. Prime the non-coring needle with attached tubing with saline using one of the prefilled 10 ml syringes.
 - Leave the syringe attached to the tubing.
8. Palpate the port to determine the size and center of the device.
 - If not utilizing sterile gloves, re-clean the skin and apply new gloves.
9. Secure the access point port firmly between two fingers and firmly insert the non-coring needle into the port, entering at a direct 90° angle.
10. Aspirate 3 – 5 ml of blood with the syringe.
 - If unable to aspirate blood, re-clamp the catheter and do not attempt further use.
 - Dispose of aspirated blood in bio hazard container.
 - Asking the patient to cough may facilitate access of the port.
11. Flush the catheter with 3 – 5 ml 0.9% NaCl using a prefilled 10ml syringe.
 - If catheter does not flush easily, do not attempt further use.
12. Attach IV administration set and observe for free flow of IV fluid.
 - Utilizing an IV pump, set the flow rate based on the patient condition and in accordance with NH Protocols.
13. Cover the needle and insertion site with the sterile occlusive dressing.



- Only non-coring, right angle needles specific for implanted ports are to be used for vascular access devices that are implanted in the patient. These are generally not carried by EMS units but may be provided by the patient.
- Priming the tubing of the non-coring needle is essential to prevent air embolism.

PEARLS:

- Many of the newer implanted ports are double lumen ports. Providers should ask the patient or family if they have a double lumen port or palpate carefully to discern this.
- Newer non-coring, right angle insertion needles have a hard plastic top which later serves as a safety device, housing the needle when the port is de-accessed.