Section: Intravenous Therapy	Procedure #: NSG 18-11
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IMPLANTED VENOUS ACCESS PORT: ADMINISTRATION OF MEDICATIONS, FLUIDS, CARE AND MAINTENANCE

PRACTICE STATEMENT: The implanted venous access port is inserted by the provider under local or general anesthesia. The implanted port is usually placed on the chest wall (chest port) and the catheter is tunneled to access the central venous system, with the tip located in the lower half to lower third of the Superior Vena Cava (SVC).

A smaller port with a thinner catheter is used in the upper arm (arm port).

The catheter is inserted into the basilic vein, with the tip of the catheter in the SVC.

The registered nurse shall access the port with a non-coring needle and needleless cap. Use of a standard needle will cause coring of the port septum and loss of its leak-tight integrity. If double lumen port is in place, both septums must be accessed with separate needles to use both lumens of the catheter.

Using aseptic technique, the licensed nurse may administer medications, fluids, and blood components, or collect blood specimens by the implanted venous access as ordered by the provider. It is recommended to use only 10 ml or larger syringes, to avoid pressures of greater than 40 pounds per square inch, which may rupture the silicone based catheter.

NOTE: If coagulation studies are drawn through a port, the port should be flushed with 20 mls Normal Saline prior to the blood draw as heparin may alter the values.

PURPOSE: The implanted port is an internal device consisting of a self-sealing injection port and a silicone catheter. The port provides a long-term access to the superior vena cava for repeated administration of parenteral fluids, antibiotics, chemotherapy, nutritional products, or blood components. The port may also be utilized for blood sampling.

EQUIPMENT: IV fluid and IV tubing (for continuous infusions)

Needleless system connections — 1 injection plug, 1 cannula
Prefilled Normal Saline10-ml syringes
One 5-ml prefilled heparin flush 100 units/ml
Non-coring (Huber) needle: chest port: 19 or 20-gauge, ¾ or 1 inch long arm port: 20-gauge ½ or ¾ inch long
(The length of the needle used depends upon the thickness of subcutaneous tissue.)
1 central line dressing kit,
or; 1 pair sterile gloves
Chlorhexidine or approved antiseptic solution
Antimicrobial dressing for prolonged access

PROCEDURES:

A. ACCESSING PORT

1. Identify patient by name and medical record number if an armband is present. For patients without armbands, identify the patient by name and date of birth. Explain procedure to the patient.

2. Place patient in a comfortable position, either supine or semi-Fowler's.

3. Wash hands.

4. Palpate the implanted port and locate the outer perimeter of the port and center of the septum.

5. When not using central line kit, saturate 4x4 gauze with Chlorhexidine or approved antiseptic solution, using sterile technique.

6. Create sterile field using sterile glove kit or the central line-dressing drape. Maintaining sterility, add to the field non-coring needle, labeled 10-ml Normal Saline syringe with cannula, needleless injection plug and antimicrobial dressing.

7. Don sterile gloves. Prep skin overlying the implanted port with alcohol swabs and/or Chlorhexidine or approved antiseptic solution. Begin cleansing from the center and proceed in a circular motion outward 3 inches toward the periphery. Repeat procedure twice and allow the solution to dry, **or** scrub a 3X3 area over the port with chlorhexidine or approved antiseptic solution.

8. Maintaining sterility, remove cap of non-coring needle tubing and connect needleless injection plug. Using the 10-ml Normal Saline syringe and needleless cannula, prime the tubing and non-coring needle with 1-2 ml of Normal Saline, expelling all the air. Close the tubing clamp.

9. With non-dominant hand, grasp the port with thumb and forefinger to stabilize the device.

10. Locate the center of the port septum by palpation and insert the non-coring needle firmly and perpendicularly through the skin and septum until the bottom of the port chamber is felt.

    a) Always make sure the needle is correctly positioned inside the port chamber and the bottom of the septum is felt before starting an infusion.

    b) Do not tilt or rock the needle once the port chamber has been entered.

    c) The non-coring needle shall be changed **every seven (7) days** or prn as the integrity is disrupted and the date recorded on the Kardex.

11. To ensure proper placement, aspirate for blood return and proceed to flush with the remaining normal saline, while assessing the site for local infiltration. Clamp the tubing. Disconnect the syringe and attach the needleless injection cap.

    a) If resistance is met with flushing, verify correct needle placement. The bottom of the portal chamber can be felt with the non-coring needle tip if the needle is in the port.

    b) If continued resistance is met and needle position is verified, call the provider for further orders.

    c) Never forcefully inject normal saline. This effort may dislodge an intraluminal clot, or rupture the catheter.

    d) If unable to obtain a blood return and the system flushes without resistance, have patient change positions, raise arms, cough, deep breathe, or perform the Valsalva maneuver. These efforts may change the position of a catheter. If unsuccessful, notify provider of inability to obtain a blood return. Verify correct placement and integrity of the catheter with chest X-ray and/or further studies. Never administer vesicant agents without a blood return unless catheter placement and patency is verified.

12. Apply the antimicrobial dressing around the needle insertion site, under the safety disc. The dressing shall remain occlusive and allow for visualization of the needle entry site. Cover with an occlusive dressing. Dressings with antimicrobial dressings in place should be changed **every seven (7) days** or prn as the integrity of the dressing is disrupted. Mark on the dressing and the nursing Kardex the date and time, of dressing change, the needle insertion date and the nurses' initials.

NOTE: If an antimicrobial dressing is not used, the dressing must be changed in 72 **hours.**

13. Tape tubing to the skin/dressing to avoid tugging on the needle and subsequent malposition or dislodgment of the needle.

14. Observe and document condition of insertion site every shift *(without removing the dressing)* for signs of redness, swelling, fluid leakage, or local discomfort/pain.

15. Document the procedure in the Nurses Notes and the fluid or medication administered in the appropriate record.

B. ADMINISTRATION OF CONTINUOUS INFUSION

1. Follow steps noted in Section A, Accessing Port. Verify blood return and lack of signs of infiltration around port and needle.

2. Prime IV tubing with ordered fluid and attach to needleless connection. Insert into needleless injection plug after cleaning plug with alcohol.

3. Monitor fluids carefully for accurate flow rate and examine insertion site every shift.

4. Infusion pump is required for primary IV fluid.

C. ADMINISTRATION OF BOLUS, INTERMITTENT INFUSIONS

1. Follow steps noted in Section A, Accessing Port.

2. Cleanse needleless injection plug with alcohol.

3. Attach 10-ml syringe filled with normal saline and aspirate for blood return and flush with remaining normal saline.

4. Attach primed IV tubing with needleless cannula to needleless injection plug and regulate flow of infusion.

5. Upon completion of bolus injection or infusion, close clamp, detach needleless cannula, and flush port extension tubing with 10 mls normal saline.

6. To establish a heparin lock, following normal saline flush, inject 5 mls heparin solution 100 units/ml. With injection of last 0.5 ml heparin, clamp tubing to maintain heparin lock. Disconnect syringe.

D. BLOOD DRAWING

1. Follow steps noted in Section A, Accessing Port. Continuous infusions must be stopped prior to obtaining the blood sample.

2. Cleanse injection plug with alcohol.

3. Attach 10 ml syringe and withdraw 5 mls of blood and discard the syringe.

4. Attach new syringe for the appropriate volume of blood desired, and withdraw blood. Disconnect the syringe.

5. Transfer blood into appropriately labeled vacutainer tubes.

6. Flush with 10-20 ml normal saline to clear catheter and port of residual blood.

7. To establish a heparin lock, following normal saline flush, inject 5 mls heparin solution 100 units/ml. With injection of last 0.5 ml heparin, clamp tubing to maintain heparin lock. Disconnect syringe.

E. BLOOD ADMINISTRATION

1. Follow steps noted in Section A, Accessing Port.

2. Follow NSG 11-02A Administration of Blood Derivatives http://intranet.pmh.org/home/PP-Index/Nursing/11-02a.pdf and NSG 11-02B Administration of Blood and Blood Components http://intranet.pmh.org/home/PP-Index/Nursing/11-02b.pdf.

3. At the completion of the blood administration, infuse 50 mls normal saline through the line. This ensures all the blood has been cleared from the port and catheter.

4. To establish a heparin lock, following the normal saline flush, inject 5 mls heparin solution 100 units/ml. With injection of last 0.5 ml, clamp tubing to maintain heparin lock. Disconnect syringe.

F. Heparin Lock and Removal of Non-Coring Needle

1. Before removal of non-coring needle, cleanse the injection plug with alcohol and inject 5 mls of heparin solution 100 units/ml to maintain heparin lock. Maintain positive pressure by clamping extension tubing with injection of last 0.5 ml of heparin.

2. Wash hands and put on gloves.

3. Remove transparent dressing.

4. To activate the safety needle device, press down gently on the skin overlying the port and grip the needle, and pull up with a smooth upward motion. Apply pressure with a cotton ball/gauze to the area. Apply a small gauze dressing to needle insertion site.

G. COMPLICATIONS

1. Infection

   Systemic or pocket infections are potential complications when using an implanted port. Aseptic technique should be maintained when accessing the port, dressing changes, and with any line manipulation. An occlusive dressing should be maintained throughout the hospitalization. The port site should be inspected on a regular basis for signs of infection. IV tubing should be changed according to hospital policy.

2. Resistance to Flow or Absent Blood Return

   Resistance to flow may occur as a result of occlusion of the catheter due to intraluminal clots, platelet aggregates, drug precipitates or a malpositioned, kinked catheter. In addition, a fibrin sheath may form at the tip of the catheter, preventing aspiration of blood. Also, the catheter tip may become lodged against the wall of a blood vessel preventing blood return. The nurse should attempt to reposition the patient, instruct the patient to cough and deep breathe, and perform the Valsalva maneuver to change position of the catheter from the vessel wall. If the occlusion is due to an intraluminal clot, a fibrinolytic agent may be indicated, and with a provider's order, may be administered by a nurse familiar with the procedure. Refer to NSG 20-19 “Use of a Thromobolytic Agent for Catheter Clearance.” For effective clearance, 4 mls of Altephase may be required to fill the port and catheter. Never attempt to forcefully inject fluid into the port. Flow studies may be ordered to assess catheter malposition or fibrin sheath.

3. Venous Thrombus

   A thrombus may form in the vessel around the catheter and result in reducing blood flow to the heart. The patient may experience pain/discomfort in the shoulder, neck, or arm region, and a headache. Facial, supraclavicular, neck, or arm swelling may be evident. Venous thrombus is confirmed by venography.

4. Extravasation/Infiltration

Extravasation/Infiltration may occur secondary to inadvertent needle dislodgment, malposition of the needle, or catheter dislodgment. Care should be taken to verify correct needle position with blood aspiration. Also, the needle and tubing should be secured with the dressing and the tubing should be taped to prevent tension on the line.

H. Discharge home with implanted venous access port

Include the following information in the discharge instructions:

- type of implanted port
- last flush date, including medication used, amount and strength
- Implanted ports, should be flushed at least once every month with 5 mls heparin solution 100 units/ml heparin flush, when not in use
- date and location of clinic for follow-up

Related Procedures:
NSG 11-02A Administration of Blood Derivatives (http://intranet.pmh.org/home/PP-Index/Nursing/11-02A.pdf)
NSG 11-02B Administration of Blood and Blood Components (http://intranet.pmh.org/home/PP-Index/Nursing/11-02b.pdf)
NSG 20-19 “Use of a Thromobolytic Agent for Catheter Clearance (http://intranet.pmh.org/home/PP-Index/Nursing/20-19.pdf).

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