NORTH SHORE MEDICAL CENTER

NURSING PROCEDURE

TITLE: **IMPLANTED VASCULAR ACCESS DEVICE (VAD): DEVICE ACCESS, ADMINISTRATION OF IV FLUID OR MEDICATION, DRAWING BLOOD SPECIMENS AND REMOVAL OF NON-CORING RIGHT ANGLE SAFETY NEEDLES**

ORIGINAL DATE: March 1992

REVIEW/REVISION DATE(S):

2/96	2/97	10/01	12/05	3/09	2/13

APPROVAL:

[original signatures on file in LRC] Anne Barrett RN, MSN, Associate Chief Nurse

DISTRIBUTION: All patient care areas

PURPOSE: To outline nursing procedures related to implanted venous access devices:

- Access of Implanted VAD with Non-Coring safety needle
- Recognizing Implanted VAD as "Power Rated" prior to access with power needle set
- Administration of IV fluids, blood products or intermittent medications
- Drawing blood specimens
- Removal of Non-Coring Right Angle Safety Needles

SUPPORTIVE DATA: Implanted Vascular/Venous access devices are, for the purposes of this procedure, generally referred to as "portacaths" or simply "ports". These devices are most typically found on the chest wall, right or left side, below the clavicle. Their location may be visualized in the thin patient, or the chest area may need to be palpated in order to localize position. Alternatively, ports may be placed in the upper arm, groin, or abdomen.

Ports are central lines and their tips should dwell in the superior or inferior vena cava or the right atrium. On rare occasion, central tip positioning may not be possible and may reside in a suboptimal vessel. In these rare circumstances, there should be documentation of central venous occlusion and an order from the radiologist or treating MD to use. Risks and benefits must be weighed with patient condition and prescribed therapy.

Ports may be single lumen or double lumen. If accessing a double lumen port, consider accessing both lumens to maintain consistent flushing schedules.

POWER PORTS:

The portions of this document relating to "Power Port" designation are intended to outline the process for the IV RN to verify a port as "Power" capable prior to accessing with a corresponding "Power" rated Huber style needle. The use of the power rated needle sets for access of power rated ports should be reserved for the IV RN.

Some, not all, portacath models are designed to allow for "power injection" of contrast media in CT and MRI. Power injection is a rapid infusion of media that may generate very high forces of pressure within the infusion system. Power rated ports and infusion catheters must be able the withstand 300psi and an infusion rate of 5mL per sec. to be rated as "Power" capable. A non-power rated port should not be used for power injection of any kind. A non-power rated port subjected to power injection may result in device malfunction and rupture, catheter embolization, hemorrhage, air embolism, or contrast extravasation into the chest.

A power port may be and will most often be accessed with a non-power needle set to be used for routine therapy. If a CT scan with contrast injection is ordered, and the patient states that s/he has a power port, or there is other indication or charted information to suggest the patient has a power port, then the IV RN will use these guidelines to determine if it is indeed a power port and if access with a power needle set is warranted.

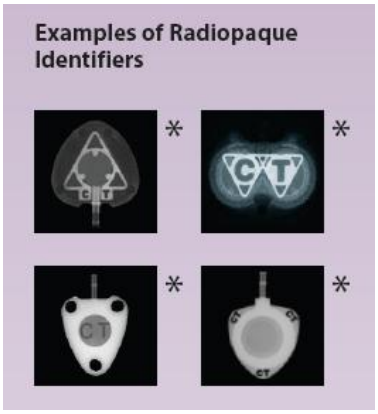
Accessing the port with a power needle set will be performed by the IV RN only when the IV RN is confident beyond a reasonable doubt that the port is intended for power injection. An MD order taking responsibility is not satisfactory substitution for the IV RN assessment.

1. Prior to accessing a port with a power rated needle set, the IV RN will have at least one physically identifiable indicator as to the port's power capability.

A. The Bard brand PowerPort is unique in that the port may palpated to identify three distinct bumps in a triangular configuration indicating that the port is power capable. This is the only circumstance when physical examination of the patient is sufficient evidence to confirm power capability. (See figure A.)

http://www.bardaccess.com/powerPort/assets/pdfs/MC-0475-01_PowerPort_Nursing_Guide_web.pdf

B. From "Bardaccess.com" PowerPort IFU download



A. Bard PowerPort from "Bardaccess.com" device overview.

B. Ports may be visualized radiographically by CXR or CT scout scan. (Figure B. above) The catheter should be seen with the tip in the lower superior or upper inferior vena cava, or right atrium. Following the catheter back should lead to the port body and reservoir. On the port body, either in the center circle or adjacent to the port body/catheter connection, should be a visible marking with the letters CT indicating CT scan/power injection approved. ***A film taken with 30 days*** of request for power access shall be deemed reasonable current evidence in the absence of contradictory patient/family verbal history or physical signs of surgical intervention at the site of the port. If there is any question of relevancy of film accuracy, a new chest film may be requested or the patient may have a scout CT scan prior to access. Scout scan prior to access requires time for review and collaboration with team members and can cause significant delays if patient must remain on the table, and is therefore not recommended. Communication with radiology staff is essential for smooth transitions of patient care. The IV RN performing the actual power port access with power rated needle system must have an opportunity to review the x-ray images personally and be able to clearly identify the "CT" lettering in the image.

A port **without** palpable "bumps" as described above *and* **without** radiographic evidence as described above shall be considered inconclusive as to the power injecting capacity and NOT accessed with a power rated needle infusion set. It may still be accessed with a standard non-power needle set and used for blood sampling and routine infusions.

Patient/family provided identifiers such as booklets, ID cards, key chains, bracelets, or even procedure reports may be helpful but are not sufficient proof of power capability without either A or B as described.

Policy statement: Registered Nurses who have completed medication competency may flush and administer medications/IVs and draw blood from implanted venous access devices (VAD). However, only Registered Nurses who have successfully completed the Clinical Competency Checklist for vascular access devices may access ports. Access of ports with "Power Rated Needle Sets" should be reserved for the IV Therapy RN.

EQUIPMENT FOR ACCESS:

Non-coring right angle safety needle (appropriate size and gauge)
Power Rated non-coring right angle safety needle (If appropriate and intended for CT injection)
CVC dressing kit or sterile towel
10mL sterile prefilled NS syringe
Biopatch (access longer than 24h)

ADDITIONAL EQUIPMENT FOR BLOOD DRAW:

Vacutainer luer Lok Access Device or Blood Transfer device
Blood Bank wristband
Empty 10ml sterile syringes
10ml saline flush
70% alcohol wipes
Unsterile gloves
Culture bottles

EQUIPMENT FOR REMOVAL OF NON-CORING RIGHT ANGLE SAFETY NEEDLE:

10mL syringe
Single dose vial adapter
Unsterile gloves
Pre-filled 10mL normal saline syringe
Heparin per flush chart
Alcohol wipes
Band-aid/gauze and tape

CONTENT:

STEPS	**KEY POINTS**
Accessing VAD and Administration of IV Fluids or Medications	
1. Verify MD order to start infusion.	
2. Identify patient using two identifiers.	Patient identifiers: medical record number, DOB, patient states name and DOB, hospital identification bracelet.
3. Explain procedure to the patient.	
4. Sanitize hands.	
5. Prepare equipment.	
6. Drop one 10mL sterile normal saline syringe, valve, Biopatch (if access is going to be maintained longer than 24h), and non-coring right angle safety needle onto sterile field.	Maintain aseptic technique to reduce risk of patient infection. Biopatch is Not required for single infusion sessions or access less than 24h.
7. Position patient.	
8. Palpate site to locate the implanted venous access device. Place two fingers of the non-dominant hand on either side of the device and locate the center with dominant hand.	
9. Don surgical mask.	

STEPS	KEY POINTS
10. Put on sterile gloves.	
11. Prep site with chlorhexidine swab, clean 3x3 area over device with back and forth motion and friction. Allow to completely dry.	
12. Attach valve to non-coring right angle safety needle and flush with normal saline.	
13. Access the implanted device. Place Biopatch directly over palpated port body. Have center hole of Biopatch over center of port septum and hold in place as one unit with non-dominate hand. With the dominant hand hold the non-coring right angle safety needle firmly. Insert needle perpendicular to skin, through the center hole of Biopatch and through center of port septum until needle meets needle stop at back of port.	Device can only be accessed in the center. Tapping back of port ensures needle placement in the septum. Easier to place Biopatch on skin first than try to maneuver it around the needle after access is complete.
14. Withdraw 3mL of blood and flush with 10mL normal saline in a 10mL syringe.	NEVER ATTEMPT TO FORCE FLUSH. **POLICY: Never use a syringe smaller than 10mL without first ascertaining there is no resistance to flushing with 10mL normal saline syringe.** Smaller syringes create greater psi and could damage or rupture catheter.
15. If patient has double lumen the second port should be accessed in the same way.	Accessing and flushing both port lumens at the same time insures that ports receive their maintenance flush and that they are working properly.
NOTE: If no blood return, reposition patient, encourage deep breathing, cough, arm lifts, etc. If still no blood return, re-access patient to assure that non-coring right angle safety needle is seated properly in the septum. If no blood return persists, the MD consult may be needed as patient may require Cath Flow, chest x-ray, or flow study. Refer to nursing procedure "Using a Thrombolytic Agent to Declot Total or Partial Catheter Occlusion in CVC, PICC or Implanted VAD"	
***If using a power infusion needle for CT injection, there MUST be a brisk blood return and swift flush with no resistance.**	***Device failure may occur if there is any resistance to flushing as power injection can create excessive pressure in an infusion system with small partial occlusions.**
16. If using Gripper Plus, remove white piece at top by pinching wings before placing transparent dressing and label with date of insertion, length, and gauge of needle and your initials.	Non-coring right angle safety needle may remain in place for 7 days if patient is receiving continuous IV fluids or intermittent medication. Change dressing with needle change and when soiled or non-occlusive.
17. When all IV fluids or intermittent medications are finished, flush device with 10mL normal saline.	When not accessed, implanted venous access devices should be routinely accessed and heparinized every 30 days

STEPS	KEY POINTS
	per flush chart unless instructed otherwise by patient's MD.
Drawing Blood Specimens	
1. Check MD order for lab work.	Generally easier to draw labs with 10mL syringes than with vacutainers due to increased control of withdrawal rate, however, vacutainer may be used.
2. Identify patient using two patient identifiers.	At least two patient identifiers are required. Patient identifiers are medical record number, patient stating name or date of birth, or hospital identification bracelet.
3. Explain procedure to patient.	
4. Sanitize hands, put on unsterile gloves.	
5. If line is in use, stop infusion for three minutes before blood is drawn. If there are two ports and second port has meds or fluids running, they must be stopped for three minutes when drawing blood from the remaining port.	Prevents contamination of blood specimens with IV fluid.
6. Valve must be cleansed with alcohol before each access.	
a. TPN lumen not used for lab draws.	Increased infection risk due to dextrose and amino acid concentration.
b. On double port, one should be marked for blood draw.	
7. Using a 10mL syringe, withdraw 5mL of blood in syringe labeled "discard". If you are unable to draw, wait a few seconds and try again. Patient may need to be repositioned on his/her side. Flushing with 5-10mL NS prior to discarding may also be helpful.	Initial blood will be contaminated with IV fluid. If vacutainer is used instead of syringe, then label first vacutainer with 5mL of blood "discard". If drawing blood cultures from Port, as specified by MD, Do Not Waste initial blood.
8. Attach 10mL syringe(s)/vacutainer(s) and draw sufficient amount of blood for tests ordered.	
9. Attach a blood transfer device to syringe(s) and insert device into appropriate tube(s). Let blood fill tube(s).	DO NOT PUSH – This may cause syringe to disconnect from device and spatter blood.
10. When tube(s) is filled, carefully remove syringe and device and place in sharps container.	

STEPS	KEY POINTS
11. Immediately flush catheter with Normal Saline until line and valve are clear of blood residual. Change valve if unable to clear blood sufficiently. If patient has continuous IV, restart infusion.	Clearing all residual blood from valve and tubing greatly decreasing the chances of the device becoming occluded and requiring thrombolytics.
12. Label blood tube(s) per procedure. Place in a leak proof plastic bag labeled "biohazard". Seal bag, attach requisitions and arrange for transport to lab.	
13. Remove gloves and sanitize hands.	
14. If unable to draw labs, reposition, encourage deep breathing, coughing, arm lifts, etc. If still unable to draw blood from line, re-access patient. If inability to draw blood persists, then MD consult may be needed as patient may require Cath Flow, chest x-ray or flow study. Please refer to nursing procedure "Using a Thrombo-lytic Agent to Declot Total or Partial Catheter Occlusion in CVC, PICC or Implanted VAD".	
Removal of Non-Coring Safety Needle	
1. Explain procedure to patient.	
2. Sanitize hands.	
3. Fill syringe with Heparin per flush chart.	
4. Put on unsterile gloves.	
5. If continuous IV shut off, disconnect tubing from valve.	
6. Attach a 10mL syringe with normal saline to valve at end of non-coring safety needle and flush.	To clear catheter and port of medication/ solutions incompatible with heparin.
7. Attach the 10mL syringe with heparin per flush chart to valve and flush.	
8. Remove dressing.	
9. Inspect insertion site for signs of erythema, edema, exudates, discoloration or erosion of skin.	If signs of possible complications are noted: • Notify physician • If infection and/or sepsis at site is noted, obtain culture and notify Infection Control and IV Therapy
10. To remove non-coring right angle safety needle, follow manufacturer's guidelines.	

STEPS	KEY POINTS
11. Cover insertion site with a bandaid or gauze and tape.	

DOCUMENTATION:

Document date and time of access, gauge and length of needle, condition of site, ease of blood return and flush, complications and any patient education or complaints.

Make note if power rated needle set was used and the qualifying factors that were considered prior to access. Note any communication between IV RN and patient, family, radiology staff, and physicians.

REFERENCES:

1. Guidelines for the Prevention of Intravascular Related Infections, CDC, 2011
2. Infusion Nurses Society, Standards of Practice, Jan/Feb 2011
3. Alexander, M et al., Infusion Nursing; An Evidence Based Approach, 3rd ed. 2011
4. Perry and Potter

KEY CHANGES

TITLE: Implanted VAD: Administration of IV Fluid or Medication, Drawing Blood Specimens and Removal of Non-Coring Right Angle Safety Needles
REVISION DATE: February 2013
check one:
[ ] New protocol – Date:
[X] Due for review
[ ] Reviewed prior to review date/practice changes

Check for associated documents: [ ] None

[X] Procedure	[ ] Protocol	[X] Competency
[ ] Structure Standard	[ ] Guidelines	[ ] Nursing Care Plan
[ ] Patient Education Flowsheet	[ ] Pre-printed Discharge Instructions	

Key Changes:

1. Added major rework and process flow for "Power VADs" access
2. Updated equipment to reflect change to luer-lok access device for multiple sample adapter
3. Removed references to heparin flushes where appropriate to reflect saline only flushing, reserving heparin for time of deaccess only.
4. Removed povodine from culture section. Not needed.
5. Reworded post-blood draw flush procedure #11 and B18a.
6. Updated references

Check which Specialty Coordinating Council(s) this document impacts (See "Distribution") and collaborate for their review/approval:

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[ ] Mental Health SCC [ ] Reviewed/Approved
[ ] Surgical Services SCC [ ] Reviewed/Approved
[ ] Women and Children's SCC [ ] Reviewed/Approved

Reviewed/revised by (NPPC Council Member): Peter Fintonis RN Med-Surg SCC
Reviewed in collaboration with: All Councils
Key Word/File under: **I**mplanted