Department of Health Government of Nunavut	NURSING POLICY, PROCEDURE AND PROTOCOLS	
	Community Health Nursing	
TITLE:	**SECTION:**	**POLICY NUMBER:**
Central Venous Access Implanted Ports: Accessing and Discontinuing Infusion	Clinical Procedures	11-003-00
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APPLIES TO:		
Community Health Nurses		

POLICY:

Registered Nurses are responsible for accessing and de-accessing an implanted port. Only nurses who have received additional training with the Nurse Educator or delegate will assume this responsibility. A physician's order is required for the administration of a heparin flush.

The implanted port dressing is completed as per Procedure 11-001-01: *Care of PICC Lines*.

DEFINITIONS:

An **implanted port** is a small reservoir with a silicone septum (injection port) and an attached catheter that is implanted subcutaneously. The tip of the catheter rests in the superior vena cava and is therefore a central venous access device. The implanted port is accessed aseptically through the skin with a Huber point needle.

A **Huber point needle** is a non-coring needle. This permits the implanted port to be accessed approximately 1000 times with a 19-gauge needle before leaking from the septum becomes a possibility.

The **turbulent injection technique** is injecting fluid using a "push/stop/push/stop" motion on the syringe plunger. This technique ensures both laminar and turbulent flow through the Central Venous Access Device (CVAD) thereby optimizing the cleansing of the catheter lumen.

RELATED POLICIES, GUIDELINES AND LEGISLATION:

Procedure 11-001-01	Care of PICC Lines.
Procedure 11-003-01	Central Venous Access Implanted Ports: Accessing and Discontinuing Infusions
Procedure 11-003-02	Implanted Port: Access
Procedure 11-003-03	Implanted Port: De-Access
Procedure 11-003-04	Implanted Port: Changing Injection Caps
Procedure 11-003-05	Implanted Port: Discontinuing an IV Infusion
Policy 11-004-00	Central Venous Access Device: Blood Procurement
Procedure 11-004-01	Central Venous Access Device: Blood Procurement

NURSING CONSIDERATIONS:

1. Select the appropriate size of Huber point needle based on the viscosity of the fluid to be infused:

    - #19 gauge required to administer blood transfusions.
    - # 20 or 22 may be used to administer other intravenous fluids and medications.

2. Select the appropriate length of Huber point needle based on the amount of subcutaneous tissue present over the injection port. The needle hub should rest comfortably on top of the skin once the needle is in place (½", ¾" and 1" lengths are available).

3. Huber point needles are replaced every 7 days. It is important to heparinize the implanted port before the old needle is removed, even if re-needling is immediately imminent. This is to maintain a patent port should re-needling be difficult.

4. Interlink® injection caps are changed every 3 days.

5. Prior to accessing the implanted port, review the port history with the client (e.g. any difficulties encountered in the past). A lack of blood return may indicate:

    - Incorrect needle placement
    - Withdrawal occlusion due to the presence of fibrin at the catheter tip
    - Total occlusion

    Measures such as changing the client's position, lifting the arm, bearing down and coughing may facilitate blood return. If unsuccessful, call the physician for assistance.

6. Avoid placing tape on transparent dressings as this interferes with the product's ability to "breathe". Transparent dressings are changed every 7 days and as needed.

7. Once the Huber point needle is inserted, avoid tilting, rocking or rotating the needle as this may cause fluid leakage or septum damage.

8. Sterile adhesive gauze dressings (e.g. Primapore®) are used if the client is sensitive to transparent dressings or if drainage is present. Gauze dressings are changed every 2 days and as required.

9. Blood samples drawn for coagulation studies from the implanted port may yield erroneous results. This can be due to the heparin flush solution that may leech into the catheter material despite an adequate "discard" sample having been drawn.

10. The turbulent injection technique should always be used when the intention is to thoroughly flush the implanted port. Administering 0.9% sodium chloride via a gravity drip or infusion pump will not clear the catheter lumen effectively.

CLEANSING SOLUTION:

1. Chlorhexidine (CHG) 2% gluconate in alcohol 70%: Total contact time for the cleansing solution will be 30 seconds.

2. Cleansing solutions must be allowed to air dry prior to covering the catheter site with the dressing. This will ensure proper contact time. In addition, if the skin is covered while still moist, a reaction between the cleansing solution and the dressing adhesive can occur and may result in cutaneous reaction.

3. In the event that the client is allergic to chlorhexidine (CHG), the following may be substituted:
    a. Isopropyl alcohol 70% (contact time 30 seconds)

    OR

    b. 10% providone iodine (PI) (contact time 2 minutes).

PROCEDURE 11-003-02

ACCESSING THE IMPLANTED PORT
CLEANSING SOLUTION
✓ Chlorhexidine (CHG) gluconate 2% in 70% alcohol **If allergic to CHG:** ✓ 10% Povidone Iodine (PI) solution or swabsticks **OR** 70% Isopropyl alcohol
EQUIPMENT
✓ Huber point needle with attached extension tubing. (Determine appropriate size) 19GA x ¾"; 19GA x 1"; or 20GA x ¾"; or 20GA x 1"; or 22GA x ¾" (also available in ½" size Huber needle) ✓ Package sterile adhesive strips ½" or ¼" ✓ 20 mL syringe filled with 0.9% sodium chloride and an Interlink® blunt plastic cannula ✓ Dressing tray ✓ (2) Interlink® Injection caps ✓ Tape ✓ Sterile gloves **Dressing:** ✓ High permeable transparent dressing: 10x14 cm (IV3000) **OR** ✓ Sterile adhesive gauze dressing (eg. Mepore/Primapore) (15 cm x 8 cm or 25 cm x 10 cm)
Additional equipment if an IV infusion is to be initiated:
✓ Prescribed IV solution ✓ IV administration tubing and IV tubing label ✓ Interlink® Threaded luer lock cannula ✓ Alcohol swab
Additional Equipment for Heparin Flush / Heparin Lock:
Refer to Procedure 11-003-06 *Heparin Flush & Heparin Lock for Implanted Ports*

PROCEDURE:

1. Cleanse hands with alcohol gel or antimicrobial soap.

2. Open the dressing tray and aseptically add the equipment.

3. Glove.

4. Attach the injection cap to the end of the extension set. Replace the injection cap already present on the extension set, if not "needleless", with another injection cap.

5. Prime the Huber point needle and extension set with the sterile syringe filled with 0.9 % sodium chloride. Leave the syringe attached and clamp the extension tubing.

6. Starting at the centre of the implanted port, scrub the skin with antiseptic solution. Use a circular scrubbing motion and move from the centre, outwards. Ensure that the entire area that will be under the dressing is cleansed. Repeat as required, using a fresh gauze/swab stick each time. Contact time for cleansing solution is 30 seconds. If using providone iodine (PI), contact time is 2 minutes. Allow the area to air dry.

7. Drape the area around the implanted port.

8. Palpate the area of the port with one hand, locating the septum (injection port).

9. Immobilize the septum by holding it in a "V" formed by two fingers of the non-dominant hand. With the other hand, firmly push the Huber point needle perpendicular (90 degrees) through the skin into the centre of the device until the needle meets the base of the reservoir. The syringe and extension set may be placed on the sterile field to allow optimal handling of the needle.

10. Open the extension tubing clamp and slowly aspirate blood to confirm correct needle placement. If blood cannot be aspirated, gently inject some of the 0.9% sodium chloride and assess the site for fluid infiltration.

11. Flush the implanted port with the 0.9% sodium chloride remaining in the syringe. Use the turbulent injection technique.

12. If a "Gripper" brand Huber point needle is used, remove the "clothespin" device by pinching and lifting it up while immobilizing the needle.

13. If necessary, sterile 2x2 gauze may be used to protect fragile skin and/or fill any space between the skin and needle hub.

14. Apply sterile adhesive strips to secure the needle.

15. Apply the transparent dressing.

16. Seal the base of the dressing by pinching it around the extension tubing OR obtain a strip of tape that is approximately the same length as the base of the dressing. Slit the centre of the tape approximately half way through its width. Apply it to the lower edge of the dressing, under the extension set. Bring each slit side up and alongside the extension set. Place another piece of tape on top of this slit tape.

17. Date the dressing.

18. If an intravenous infusion is to be administered, prime the IV tubing and attach an Interlink® threaded luer lock cannula to the end. Cleanse the injection cap at the end of the extension set with an alcohol swab and allow to air dry. Attach the intravenous tubing by twisting the Interlink® threaded luer lock cannula securely in place onto the injection cap. Open all clamps and regulate the infusion rate.

19. If the accessed port will not be used immediately, flush it with heparin lock or heparinized flush solution (See Procedure 11-003-006: *Heparin Flush & Heparin Lock for Implanted Ports*). To ensure that positive pressure remains within the system, close the clamp on the extension tubing as the last millilitre is injected.

PROCEDURE 11-003-03

DE-ACCESSING THE IMPLANTED PORT

Cleansing Solution

Cleansing solution:

Chlorhexidine (CHG) gluconate 2% in 70% alcohol

If allergic to CHG:

10% Povidone Iodine (PI) solution or swabsticks **OR** 70% Isopropyl alcohol

Equipment

- ✓ 20 mL syringe filled with 0.9% sodium chloride and interlink® blunt plastic cannula
- ✓ Non-sterile gloves
- ✓ Alcohol swabs
- ✓ Bandaid

Additional Equipment for Heparin Flush/Lock Solution:

For Heparin flush preparation, add:

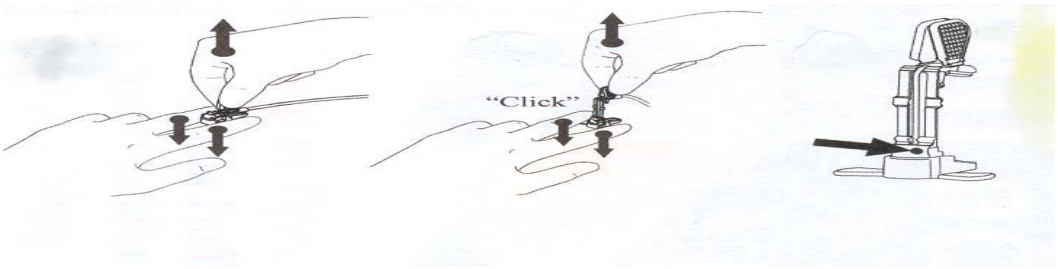
- ✓ 10 mL syringe
- ✓ (1) vial heparin 100 units/mL or 10 units/mL
- ✓ (1) vial of 0.9% sodium chloride and an Interlink® single dose vial access cannula (use needle if access cannula not available) if using the 100 units/mL concentration
- ✓ Interlink® blunt plastic cannula
- ✓ Interlink® single dose vial access cannula
- ✓ Alcohol swab

For Heparin lock preparation, add:

- ✓ 10 mL syringe
- ✓ (1) vial heparin 100 units/mL concentration
- ✓ Interlink® blunt plastic cannula
- ✓ Interlink® single dose vial access cannula
- ✓ alcohol swab

PROCEDURE:

1. Cleanse hands with alcohol gel or antimicrobial soap.
2. Attach an Interlink® blunt plastic cannula to the 20mL syringe filled with 0.9% sodium chloride.
3. Draw 5mL (500 units) heparin into a 10mL syringe.
4. Glove.
5. Shut off the intravenous infusion (if present) and close the clamp on the Huber point needle extension tubing.
6. Cleanse the Interlink® injection port that is found on the extension tubing with an alcohol swab. Allow to air dry.
7. Inject the syringe filled with 0.9% sodium chloride using a turbulent injection technique. Repeat with the heparin. To ensure that positive pressure remains within the system, close the clamp on the extension tubing as the last mL of heparin is injected.
8. Remove the transparent dressing and adhesive strips.
9. Clean the insertion site with the antiseptic. Allow the area to air dry.
10. To de-access:
    a. GripperPlus®; approach the GRIPPER PLUS from behind. Place one or two fingers on the base to stabilize it. Place a finger of your other hand on the tip of the safety arm. Lift the safety arm straight back to the lock position until it clicks.
    b. MiniLoc®: stabilize the port by securely holding the tabs down with 2 fingers; with the other hand, firmly pull the wings up until you hear or feel a “click” and visually observe the orange dot.



11. Apply a band-aid.

PROCEDURE 11-003-04

CHANGING INTERLINK® INJECTION CAP ONLY
Equipment
✓ For priming**:** 3mL syringe filled with 0.9% sodium chloride and Interlink ® blunt plastic cannula ✓ Interlink® injection cap (one for each lumen) ✓ Sterile gloves ✓ Alcohol free 2% chlorhexidine (CHG) swab sticks or swabs ✓ Dressing tray
Additional equipment if an IV infusion is also to be initiated:
✓ Prescribed IV solution ✓ IV administration tubing and IV tubing label ✓ Interlink® Threaded luer lock cannula ✓ Alcohol swab
Additional Equipment for Heparin Flush/Lock Solution:
For Heparin flush preparation, add: ✓ 10 mL syringe ✓ (1) vial heparin 100 units/mL or 10 units/mL ✓ (1) vial of 0.9% sodium chloride and an Interlink® single dose vial access cannula (use needle if access cannula not available) if using the 100 units/mL concentration ✓ Interlink® blunt plastic cannula ✓ Interlink® single dose vial access cannula ✓ Alcohol swab **For Heparin lock preparation, add:** ✓ 10 mL syringe ✓ (1) vial heparin 100 units/mL concentration ✓ Interlink® blunt plastic cannula ✓ Interlink® single dose vial access cannula ✓ alcohol swab

PROCEDURE:

1. Assemble the IV solution and tubing in the usual fashion if indicated.
   - Attach the Interlink® Threaded luer lock cannula to the end of the IV tubing.
   - Prime tubing.

2. Prepare dressing tray.

3. If there is a continuous infusion, stop the infusion, clamp the Huber needle tubing, remove the IV tubing by twisting the threaded luer lock cannula off the lumen's injection cap (avoid removing the injection cap itself) and flush as per 11-003-006: *Heparin Flush & Heparin Lock for Implanted Ports*.

4. Prime caps with the prefilled 0.9% sodium chloride syringe with attached Interlink® blunt plastic cannula.
   - Open the injection cap package(s) and prime the cap(s) without removing them from the package (to maintain sterility).

5. Open the chlorhexidine swabsticks and aseptically place them in the dressing tray.

6. Put on gloves.

7. Lift the Huber needle tubing/cap connection using a 10 cm x 10 cm gauze sponge. Using a swabstick, scrub the junction of the connection. Allow to air dry.

8. Remove the scrubbed injection cap with sterile gauze and discard. Cleanse Huber needle lumen threads if visibly soiled. Allow to air dry.

9. Attach a new injection cap.

10. Repeat with any remaining cap.

11. Wipe caps with an alcohol swab, allow to air dry and flush as per procedure 11-003-006: *Heparin Flush & Heparin Lock for Implanted Ports* if indicated.

12. If there is a continuous infusion, restart the IV infusion, using the new container, tubing and Interlink® Threaded luer lock cannula.

    i. Cleanse the injection cap with an alcohol swab and allow to air dry. Attach the new IV tubing by pushing and twisting the threaded luer lock cannula or the tubing luer lock onto the injection cap.

    ii. Re-establish flow and secure the tubing to the client using a piece of tape or special attachment device.

PROCEDURE 11-003-05

DISCONTINUING AN IV INFUSION
Equipment
✓ 20 mL syringe filled with 0.9% sodium chloride and interlink® blunt plastic cannula ✓ non-sterile gloves ✓ alcohol swabs ✓ tape
Additional Equipment for Heparin Flush / Lock Solution:
For Heparin flush preparation, add: ✓ 10 mL syringe ✓ (1) vial heparin 100 units/mL or 10 units/mL ✓ (1) vial of 0.9% sodium chloride and an Interlink® single dose vial access cannula (use needle if access cannula not available) if using the 100 units/mL concentration ✓ Interlink® blunt plastic cannula ✓ Interlink® single dose vial access cannula ✓ Alcohol swab **For Heparin lock preparation, add:** ✓ 10 mL syringe ✓ (1) vial heparin 100 units/mL concentration ✓ Interlink® blunt plastic cannula ✓ Interlink® single dose vial access cannula ✓ alcohol swab

PROCEDURE:

1. Cleanse hands with alcohol gel or antimicrobial soap.

2. Attach an Interlink® blunt plastic cannula to the syringe filled with 0.9% sodium chloride.

3. Prepare heparin flush or lock solution, as appropriate (See Procedure 11-003-006: *Heparin Flush & Heparin Lock for Implanted Ports*). Equip syringe with a blunt plastic cannula.

4. Glove.

5. Shut off the intravenous infusion.

6. Remove the IV administration tubing by grasping the threaded lock cannula and twisting it off the injection cap located at the end of the extension set.

7. Cleanse this injection cap with an alcohol swab. Allow to air dry.

8. Inject the 0.9% sodium chloride solution using the turbulent injection technique. Repeat with the prepared heparin flush or lock solution. To ensure that positive pressure remains within the system, close the clamp on the extension tubing as the last mL is injected.

9. Secure the end of the extension set to the client's chest with a piece of tape.

PROCEDURE 11-003-06

HEPARIN FLUSH AND HEPARIN LOCK PROTOCOL:

Use of a heparin "lock" versus a heparin "flush" solution is dictated by the following two clinical situations:	
HEPARIN "LOCK" Course of IV therapy/blood sampling has been completed and the Huber point needle is to be removed (or immediately replaced).	**HEPARIN "FLUSH"** IV therapy/blood sampling is carried out intermittently (e.g. Q12hr or Q24hr) with the Huber point needle remaining in situ.
FREQUENCY "Lock" the implanted port every 4 weeks (monthly) when the port is not being used and just prior to de-accessing	**FREQUENCY** "Flush" the implanted port after each use
PROCEDURE "Lock" the implanted port by: 1. Injecting 20ml of 0.9% sodium chloride 2. Followed by an injection of 5 mL heparin (100 units/mL) into the port.	**PROCEDURE** "Flush" the implanted port by: 1. Injecting 20ml of 0.9% sodium chloride 2. Followed by an injection of 10 mL heparinized saline (10 units/mL) into port **<u>If using Heparin 100 Units/ml:</u>** ▪ Draw 1 mL heparin (100 units) into 10mL syringe ▪ Add 9 ml 0.9% sodium chloride into same syringe (final concentration is 10 units/ml)
	<u>If using Heparin 10 Units/ml:</u> ▪ Draw 10 ml into a syringe. Additional mixing is not required.

Approved by:	Effective Date:
11 FEB 2011 **Chief Nursing Officer** **Date**	April 1, 2011
February 11, 2011 **Deputy Minister of Health and Social Services** **Date**	