

MIDLINE CATHETER SAMPLE PILOT PROTOCOL

PURPOSE: To describe the clinical indications for, insertion practices, care, and maintenance of the midline catheter.

SUPPORTIVE DATA:

- Midline catheters are peripheral intravenous catheters (8 cm or 10 cm in length) that can remain in place for up to 29 days.¹
- **A midline catheter is NOT a central venous catheter.**

EXPECTED OUTCOMES:

- Patients will have a safely inserted and properly maintained midline catheter.

POLICY

1. Midline catheters are peripheral lines and do not require physician order or consent.
2. Criteria for using midlines in the inpatient setting:
 - Patients anticipated to have IV therapy likely to exceed 4 days.
 - Patients who have poor access requiring multiple sticks.
 - Patients with a diagnosis that most likely will require an extended intravenous dwell time.
 - Patients likely to require frequent blood draws for labs.
3. Criteria for midlines in patients who will receive IV infusions after discharge from the hospital:
 - Patients receiving daily intravenous infusions
 - Patients receiving a short course of intravenous medications (up to 4 weeks)
4. **ASSESSMENT AND INFUSIONS:** Refer to the “Peripheral Venous Access Protocol”
5. **FOR CULTURING THE MIDLINE CATHETER TIP:** Refer to the Central Venous Catheter (CVC) Policy/Procedure (procedure 5)
6. **FLUSHING:**¹
 1. Midline catheters are to be flushed with 10mL normal saline every 8 hours and before and after each use
 2. Always flush the midline catheter using a turbulent “push-pause” technique and be sure to leave the last 0.5ml of NS in the syringe before disconnecting
7. **BLOOD DRAWS:** Your patient’s **POWERWAND** **MAY** be able to provide lab draws; however, please remember that this is an added benefit, not a guarantee. Use these tips, in addition to your nursing judgment, to increase the possibility of lab draws.
 1. Prior to lab draws, flush the **POWERWAND** with 10mL utilizing the push-pause method, turbulently push 2mL, pause, 2mL, pause.
 2. Dangle arm in gravity-dependent position with palm of hand facing upward and place tourniquet at least 10cm above the insertion site (in axilla).

3. Pull back to the 0.5mL mark on your syringe and hold. Be prepared to maintain this negative pressure for 60 to 90 seconds. This catheter is located within a peripheral vessel; if you pull too hard, the vessel walls may collapse over the tip of the catheter—preventing blood return.
4. Following lab draw, please flush the POWERWAND with 20 mLs utilizing the push-pause method, turbulently push 2mL, pause, 2mL, pause and clamp before bottoming out the syringe.
5. When line is not infusing, please flush every 8 hours using 10mL syringe.

If no blood returns:

If you are unable to obtain labs, attempt the following steps. If you are still not able to get blood, this does not mean the line is no longer patent. If you have questions as to whether the line is still in place or functioning, please contact the PICC team.

1. Gently apply traction to extension tubing—being careful not to loosen the dressing or catheter securement device.

INSERTION PROCEDURE

Midline catheters can only be inserted by RNs who have been trained and proven competency with inserting midline catheters.²

Strict aseptic technique is used during midline catheter insertions, including hand washing and the use of sterile gloves, sterile drape, and sterile ultrasound probe cover.

Always use ultrasound guidance to confirm that the bevel of the needle is in the center of the vein before advancing the guidewire and catheter.

If resistance is met when advancing the catheter, immediately stop advancing the catheter and verify needle bevel with ultrasound.

After the midline catheter has been safely advanced into the vein, secure the midline in place while maintaining sterility.

DRESSING CHANGE PROCEDURE

Equipment:

- Non-sterile gloves
- Central Line Dressing Change Kit
- Securement (see picture below)



STEPS	KEY POINTS
<ol style="list-style-type: none"> 1. Explain the procedure to the patient and have the patient turn his/her head away from the catheter insertion site. 2. Wash hands and don non-sterile gloves. 3. Open Central Line Dressing Change Kit. 4. Apply mask. 5. Remove old dressing, including securement device. 6. Remove non-sterile gloves and apply sterile gloves. 7. Inspect catheter insertion site. 8. Scrub the skin around the insertion site with the chlorhexidine applicator for 30 seconds. Let dry for 30 seconds. (It is also optional to cleanse the skin with sterile alcohol swabs, starting at the insertion site and moving outward in a circular motion). 9. Apply securement device. 10. Apply a chlorhexidine disc, followed by the sterile, transparent dressing. 11. Label dressing with the date. 12. Secure the j-loop to the patient's skin. 	<p>Decreases the risk for site contamination.</p> <p>Use 3-4 alcohol pads to lift the corner edges of the anchor pad, then continue to stroke the under surface of the pad with generous amounts of alcohol to dissolve the anchor pad away from the skin. Take care not to dislodge the catheter when removing the dressing.</p> <p>Cleanse the area around the insertion site and out to a 3-inch diameter. Use a friction scrub and back-and-forth motion. Use alcohol if it is necessary to remove debris from the insertion site, skin, or catheter. Allow the agent to dry.</p> <p>Ensure the chlorhexidine disc surrounds the insertion site. Ensure the transparent dressing is occlusive.</p> <p>This action prevents direct tension on the catheter.</p>

DISCONTINUING THE MIDLINE

- Primary nurses at the bedside can discontinue midline catheters when the midline is no longer needed or if there are complications with the midline catheter.
- To discontinue, apply straight, downward pressure and remove line while applying digital pressure until hemostasis is achieved. Then, apply petroleum-based ointment and sterile dressing.

REPORTABLE CONDITIONS

Report to physician any complications with inserting the midline catheter that result in patient harm.

Report to physician evidence of local complications:

- Venous thrombosis
- Phlebitis
- Extravasation/Infiltration
- Occlusion or non-patent catheter

Report to physician evidence of systemic complications:

- Infection/septicemia
- Circulatory overload (imbalance in fluid intake vs. fluid output)
- Air embolus

SAFETY

- Note the date the midline catheter is supposed to be removed (midline catheters are FDA cleared for 29 days)¹ However, INS and CDC state midlines can remain in place unless or until a complication occurs.
- Report complications with the midline catheter to the PICC team.
- Infuse intravenous solutions that are appropriate for a peripheral intravenous catheter through a midline catheter.⁴

INFECTION CONTROL

Refer to the “Peripheral Venous Access” Protocol.

PATIENT EDUCATION

Instruct patients and family members to report the following to the nurse:

- IV tubing and catheter disconnected.
- Infusing device alarm is beeping.
- Blood is backed up in catheter and/or IV tubing.
- Dressing is not intact or is soiled.

- Pain, burning, discomfort, redness, swelling, or leakage at the insertion site.

DOCUMENTATION

Document in electronic medical record the following information:

- Date of midline catheter insertion
- Size of midline catheter (17 gauge; 8 cm or 10 cm in length)
- Assessments of the insertion site, dressing, and catheter
- Dressing changes
- Discontinuation of the midline catheter as well as whether or not the catheter was intact
- Notifications made to a physician regarding the midline catheter

REFERENCES

1. Access Scientific. <http://accessscientific.com/the-powerwand/>
2. O’Grady N.P., et al.: Guidelines for the Prevention of Intravascular Catheter-Related Infections, 2011. <http://www.cdc.gov/hicpac/pdf/guidelines/bsi-guidelines-2011.pdf> (accessed Apr. 4, 2014).
3. Alexander M.: *Core Curriculum for Infusion Nursing*, 4th edition. Philadelphia: Lippincott, Williams, and Wilkins, 2013.
4. Infusion Nursing Society: Vascular access device selection and placement in Infusion Nursing Standards of Practice. *Journal of Infusion Nursing* 34(15):S37-S38, Jan./Feb. 2011.

APPROVAL:

REVIEW DATE:

NEXT REVIEW DATE:

REVISION DATE:

DISTRIBUTION: