PURPOSE:
To provide guidelines for the insertion of a midline catheter for the purpose of providing a reliable venous access for infusion therapy.

CONSIDERATIONS:
1. The insertion of a midline catheter shall be performed by a nurse meeting the following requirements:
   a. Designated agency IV nurse.
   b. Evidence of knowledge and competency in the care of central venous access devices.
   c. Successful completion of an agency approved class for the insertion of midline catheters.
   d. Observed competence in performing actual insertion in a live subject by a qualified instructor or preceptor.
2. Patients meeting the following criteria may be considered candidates for the insertion of the midline catheter:
   a. Objective Data:
      (1) Lack of short-term peripheral venous access sites, length of therapy, multiple therapies, pain management and hydration.
      (2) Infusion of hyper-osmolar solutions.
      (3) Infusion of non-vesicant chemotherapeutic agents.
      (4) Infusion of potentially sclerosing, concentrated drugs.
      (5) Infusion of blood and/or blood products.
   b. Subjective Data:
      (1) Patient's preference.
      (2) Physician's order.
3. An evaluation visit and patient assessment must be performed by the nurse to:
   a. Assess the need for midline catheter placement.
   b. Assess peripheral vasculature for vein large enough to accommodate the selected/appropriate catheter size.
   c. Recommend dwelling time for a midline catheter, 2 to 4 weeks. If the line is assessed after 4 weeks and it is patent without problems it can remain for a longer period of time (per nurse evaluation).
4. The length of a midline catheter is greater than 3 inches with the tip usually residing below the axilla and insertion site no more than 1.5 inches above or below the antecubital fossa. (See Infusion Therapy-Intravenous Therapy Administration.)
5. An extension set may be added and can be treated as part of the catheter, if added with sterile technique.
6. The insertion of a midline catheter requires adherence to strict sterile technique.
7. A patient may be accessed for a maximum of two attempts, at any given time for the purpose of inserting a midline catheter.
8. Midline catheters are never sutured in place. Steri-Strips may be used to secure catheter.
9. Hemostats or any clamp with teeth or sharp edges should not be used on the catheter.
10. Blood sampling is not recommended, but may be performed on adult patients with a 20-gauge or larger catheter, using a syringe. (DO NOT use vacutainers.)
11. Blood pressure cuffs or tourniquets should not be placed on the arm where the catheter is inserted.
12. A post-insertion evaluation and dressing change is performed within 24 to 48 hours of insertion of a catheter.
13. Prior to insertion, instruct the patient in:
   a. Sterile and aseptic principles.
   b. Purpose of midline catheter insertion.
   c. Procedure for placement/insertion.
   d. Follow-up plan.
14. Per Joint Commission recommendations, all tubes and catheters should be labeled to prevent the possibility of tubing misconnections. Staff should emphasize to all patients the importance of contacting a clinical staff member for assistance when there is an identified need to disconnect or reconnect devices.

EQUIPMENT:
Venous access device (appropriate gauge for specific therapy)
Insertion kit
OR
Sterile gloves (2 pair)
Alcohol applicator (wipe/swab/disk/ampule)
Antimicrobial applicator (wipe/swab/disk/ampule)
Tourniquet
Sterile drapes
Sterile tape or Steri-Strips
Transparent permanent adhesive dressing
Heparin solution (100 units/mL, or as prescribed)
Towel roll, if applicable
Mask (2)
Protective eye wear
Disposable apron, if applicable
Puncture-proof container
Impervious trash bag

PROCEDURE:
1. Adhere to Standard Precautions.
2. Explain the procedure and purpose to the patient/caregiver. Obtain informed consent, if needed.
3. Assemble the equipment on a clean surface close to the patient. Create a sterile field.
4. Place patient in comfortable position, making sure that site is accessible.
5. Ensure adequate lighting.
6. Apply the tourniquet and assess the condition of veins in the selected arm. The insertion site may be just above or below the antecubital fossa or in the basilic region to ensure patient comfort.
7. Remove the tourniquet.
8. Put on a mask, gown and protective eye wear, if indicated. Assist patient with putting on a mask.
9. Open catheter, place it and all supplies on the sterile field.
10. Place the patient in a supine position. Position the patient's arm fully extended with the elbow supported with a rolled towel or sheet.
11. Don sterile gloves.
12. Clean the skin.
   a. If the site is excessively hairy clipping is recommended.
   b. Clean skin with an alcohol applicator (wipe, swab, disk or ampule). Using circular motion, work from the inside out for 3 to 4 minutes. Repeat with new applicator twice. Allow to air dry. DO NOT blot.
   c. Repeat procedure using antimicrobial applicator three times.
13. Remove gloves and apply tourniquet.
15. Drape the arm so that the entire length of the catheter will fall on the drape.
16. Remove the needle guard on midline catheter.
17. Check the position of the bevel (bevel facing upward).
18. Perform venipuncture with needle introducer and observe flashback of blood through the tubing.
19. Carefully advance the needle tip approximately 1/8–1/4 inches further.
20. Release the tourniquet by using a sterile 4x4 or by pulling through the drape. You may ask the patient to release the tourniquet from under the drape.
21. While holding the needle/introducer in place, advance the catheter through the introducer into the patient's vein.
22. Advance the catheter until about 2 inches are remaining.
23. Place two fingers 2 inches proximal to the tip of the needle/introducer and remove needle/introducer by pulling down in a straight line distally.
24. Place gauze over the needle (to prevent splash). Peel the introducer apart, as appropriate. (Discard into sharps container.)
25. Advance the remaining 2 inches into the vein.
26. Remove the guide wire (if one was used in insertion).
27. Attach a saline flushed extension tube with a syringe of saline to the line, if appropriate. If added with sterile technique, the extension may be considered part of the catheter and does not need to be changed.
28. If the extension tube is damaged and needs to be changed, it is not considered part of the catheter and needs to be changed weekly and/or as needed.
29. Aspirate to check for blood returns and flush the catheter with 3 mL of saline (or as ordered).
30. Disconnect the syringe and attach the IV tubing or heparinize as ordered. Add needle less system to extension, as appropriate.
   [Note: Refer to specific manufacturer's instructions for insertion procedure. Procedures may differ.]
31. Secure the catheter with the sterile tape or steri-strips.
32. Apply transparent permeable adhesive dressing. (See Infusion Therapy- Midline Catheter: Maintenance and Management of Potential Complications.)
33. Discard soiled supplies in appropriate containers.

AFTER CARE:
Document in patient's record:
1. Procedure and observations.
   a. Time and date of procedure.
   b. Catheter size, length and brand.
   c. Location of insertion site; vein site.
   d. Site appearance and surrounding skin condition.
   e. Catheter status after insertion: blood return and ease of flushing.
   f. Upper extremity circumference, if appropriate.
2. Patient's response to procedure.
3. Instructions given to patient/caregiver.