What is a midline?

It is a small, flexible tube inserted into a vein in your arm. The midline is approximately 6-8 inches long, but trimmed so the tip of the midline rests inside a vein at or below your armpit.

Why are midlines used?

A midline is used to give medications or fluids through a vein. It may also be used for drawing blood.

How is a midline inserted?

The midline will be inserted at your bedside or in a radiology department and should take about 30-60 minutes. The nurse or other practitioner will insert the midline and thread it into a large vein in your upper arm. The midline may be secured to your skin with steri-strips or tape.

What is a lumen?

The word lumen means the opening or path that is inside the midline. It is through this opening that you give medications through your vein (intravenous).
How Will I Care for the Catheter?

There are several things you will need to know in order to care for your midline. Below are the steps you must take to prevent infection and ensure it will continue to work well for as long as you need it:

- Properly store, check and handle supplies.
- Prepare your work area and clean your hands.
- Flush your catheter with heparin every 12 hours.
- Change your catheter dressing, regularly.
- Change your caps weekly.

This booklet details these skills, then lists ways you can protect your catheter and includes a table for troubleshooting problems. Your nurse will make sure you understand the procedures and provide time for you and your family to practice.

Storing Your Supplies

- Keep items away from children and pets.
- Store supplies in an area that is dry and free from dirt, dust, and clutter.
- Choose a place as close to your work area as possible.

Checking Your Supplies

Check your syringes and do not use if:

- Leaks are present.
- Fluid is cloudy or discolored.
- Particles or specks appear in the fluid.
- The expiration date has passed.

Check all packaging and do not use if:

- Seal is broken.
- Package is torn.
- Any part of the package is wet.
**Selecting Your Work Area**

Work on a table, laminate mat, counter top, or tray that can be cleaned with a household disinfectant or rubbing alcohol in an area:

- Free from drafts, dirt, dust, and clutter.
- With enough space and good lighting.
- Near your supplies.

**Do not** work in the bathroom since most of the germs in your house are located there. Also, avoid working in your kitchen where you prepare food.

**Preparing Your Work Area**

1. Place a trash can next to your work area.
2. Clean your work surface or laminate mat with household disinfectant or rubbing alcohol. Let the area air dry.

**Cleaning Your Hands**

Although your hands may look and feel clean, it is always important to wash your hands in order to remove germs you can’t see. Your hands should always be washed before any midline care. You must wash your hands again if you touch anything that might be considered dirty.

There are two ways to properly clean your hands: Washing with antibacterial soap or using an instant hand sanitizer (containing 60-90% ethyl alcohol). Do not use an instant hand sanitizer if your hands are visibly dirty or you have a C. difficile infection.
**Washing Your Hands with Soap**

1. Wet your hands and wrists under warm running water.
2. Apply soap and scrub **vigorously** for 15 seconds.
3. Work lather between fingers, under nails, over the palms and back of your hands.
4. Rinse your hands well. Make sure to keep your hands up so the dirty water runs toward your elbows.
5. Dry your hands with a clean paper or cloth towel.
6. Turn off the faucet with a clean towel.

**Using an Instant Hand Sanitizer**

1. Place a dime-size amount of instant hand sanitizer in one hand.
2. Gently rub the gel into palms and backside of hands and between fingers.
3. Allow your hands to air dry.

**Handling Sterile Supplies**

- Some of the supplies are sterile. Sterile means that all germs have been removed by a special cleaning process.
- Parts of supplies that must be kept sterile are protected with a cover.
- Never touch sterile parts with your hands or allow a sterile item to touch a non-sterile surface.
Flushing Your Midline

Your midline lumen must be flushed to prevent infection and keep blood from clotting. **Flush twice a day with heparin if not in use.**

**Supply list:**
- Prefilled heparin flush syringe (10 units/mL)
- Alcohol pads

**Key Points**
- The heparin syringes do not need to be refrigerated.
- **Do not** use force when flushing your catheter. If you cannot flush your catheter easily, call your clinician.
- Check your IV catheter cap to make sure it is on securely (always hold your catheter cap while connecting/disconnecting syringes to prevent accidental removal).
- Never reuse a syringe.

**Follow these steps:**

1. **Vigorously** scrub the end of the cap on your catheter with an alcohol pad for 15 seconds.
2. Remove the prefilled heparin syringe from the package and hold upright.
3. **Do not** remove the cap from the end of the prefilled syringe. Press forward on the plunger to break the seal. Do not pull back on the plunger.
4. Gently tap the sides of the syringe so the bubbles rise to the top. Remove the cap and push the plunger to remove all the air.
5. Push and twist the heparin syringe into your IV catheter cap to the right until secure.
6. Unclamp your catheter.
7. Push the heparin flush into your midline until 0.5 mls of solution remains. Clamp your midline, remove the syringe and discard in your trash.
Changing the Midline Dressing

Supply list:
- Central Line Dressing Kit
  - Sterile drape
  - Sterile gloves
  - Skin protectant pad
  - ChloraPrep®
  - Gauze sponge
- Grip-Lok®

Key Points
- Clean the skin and change the dressing 3 times a week for gauze and tape dressing.
- Clean the skin and change the dressing every 7 days if you have a clear dressing.
- Change the dressing if it becomes dirty, wet or loose as soon as possible.
- Never use scissors near the midline.
- Do not pull, bend or kink the midline.

Follow these steps:
1. Place a trash can next to your work area.
2. Clean your work surface.
3. Wash your hands for 15 seconds or use an instant hand sanitizer.
4. Gather your supplies and place on your work area.
   - Open the dressing kit.
   - Remove the sterile drape.
   - Open the drape and place on your work surface.
   - Place contents of the kit on the sterile drape.
5. Carefully remove the old dressing:
   - Pull the dressing one corner at a time toward the catheter exit site.
• After all the corners are loosened, hold the catheter down and pull the dressing up and off.

6. Throw the old dressing away.

7. Do not touch the midline site while the dressing is off.

8. Look around the midline insertion site and surrounding area for swelling, redness, tenderness or drainage. These could be signs of an infection. If present, call your nurse or clinician after finishing the dressing change procedure.


10. Carefully clean the area around the midline:
    • Remove swabstick from package.
    • Completely clean at least 2 inches around the midline exit site using a back-and-forth motion for 30 seconds.
    • Discard the swabstick.
    • Clean the area again with the remaining swabsticks, discarding after each use.
    • Allow the area to air-dry completely. Do not blot or wipe away.

11. Apply the skin prep to the area around the catheter exit site, starting 1 inch away from the catheter working outward. Let dry until smooth and shiny.

12. Apply the dressing.
    • Remove the protective backing from the dressing.
    • Apply dressing over the exit site by placing the center of the transparent window over the catheter exit site.
    • Slowly remove the frame on the dressing while smoothing down the dressing edges.
    • Take one steri-strip from the frame of the dressing and crisscross or “butterfly” it around the catheter and attach it over the dressing.
    • Place the other steri-strip over the butterfly to hold it in place.
14. Peel the paper backing from the Grip-loc® and place under the catheter on the split area of the midline dressing.
15. Lift the top flap and remove the paper backing where it says “peel”.
16. Place catheter tubing on bottom adhesive strip.
17. Place top flap over the tubing so that the tubing is placed between adhesive strips and top flap is secured.
Changing the Midline Catheter Cap

**Supply list:**
- IV catheter cap
- Alcohol swabs

**Key Point**
- Change each cap every 7 days.

**Follow these steps:**

1. Clean work area.
2. Gather supplies.
3. Wash hands for 15 seconds or use instant hand sanitizer.
4. Open the sterile midline cap package carefully and leave the cap in the package without touching it.
5. Clamp your midline.
6. While holding the midline lumen with an alcohol swab in one hand, vigorously clean the midline/cap connection with a second alcohol swab for 15 seconds.
7. Carefully remove the old midline cap and throw away. If you cannot get the cap off, try using rubber gloves or tape to get a better grip. **Do not** use pliers. Once the cap is off, be very careful not to touch the open end of the midline.
8. Unscrew the protective covering from the new midline cap making sure that you do not touch the protected area.
How Will I Protect the Catheter?

You may participate in most normal activities including work, school and exercise. The following precautions will help prevent damage and infection:

- Avoid swimming, use of hot tubs and getting your midline wet.
- Keep the dressing and catheter clean and dry when you shower or bathe.
  - Cover the dressing and catheter with plastic and tape the edges of the plastic onto your skin.
  - If the dressing gets wet, change the dressing as soon as possible.
  - Never let the catheter ends get wet.
- Avoid golfing, bowling, weight lifting, archery or activities requiring vigorous or repetitive motion of the arms.
- Avoid any contact sports where the catheter might be pulled or grabbed.
- Limit any activity such as pulling, pushing, or lifting.
- Use caution when walking with crutches.

If you have any questions about activities while your midline is in place, please contact your clinician.
### Troubleshooting MIDLINE Problems

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>What to Do</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Infection</strong></td>
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</tbody>
</table>
| • Fever and/or chills.  
• Redness, swelling, tenderness, and/or drainage at the exit site. | • Infection in or around the midline. | • Call your clinician immediately.  
• If pus or drainage is present, note the color, odor, and amount. Give this information to your clinician. |
| **MIDLINE Damage** | | |
| • Break  
• Puncture | • Repeated clamping, excessive pulling the midline, or contact with a sharp object.  
• Rupture from attempt to flush a blocked midline: higher risk when using small syringes. | • Clamp your midline above the damaged area. This will prevent bleeding and keep air from entering the midline.  
• Call your clinician immediately. |
| **Blocked MIDLINE** | | |
| • Cannot flush.  
• Cannot withdraw blood.  
• Cannot infuse medication. | • Midline is clamped, kinked, curled, clotted, or positioned against the wall of your vein. | • Visually check the midline for kinks and make sure that the midline is unclamped.  
• Move your arms, shoulders, and head to see if a change in position helps.  
• If still unable to flush the midline, call your clinician. |
| **Movement of the MIDLINE** | | |
| • Length of exposed line is increased. | • Catheter is flexible and in rare cases may move out of position. | • Call your clinician immediately. |
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<tr>
<td><strong>MIDLINE Comes out of body</strong></td>
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<tr>
<td>• Midline comes out of the body.</td>
<td>• Excessive pulling on midline.</td>
<td>• Immediately apply pressure over the midline site to stop any bleeding.</td>
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<tr>
<td></td>
<td></td>
<td>• Call your clinician immediately.</td>
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<tr>
<td><strong>Thrombosis</strong></td>
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<tr>
<td>• Arm with midline becomes swollen and cool to the touch.</td>
<td>• Blood clot</td>
<td>• Call your clinician immediately.</td>
</tr>
<tr>
<td><strong>Skin Irritation</strong></td>
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<tr>
<td>• Redness</td>
<td>• Irritation from the dressing or tape.</td>
<td>• Call your clinician</td>
</tr>
<tr>
<td>• Tenderness</td>
<td></td>
<td>• You may need to use another type of dressing or change the areas of the skin you are taping the midline to.</td>
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<tr>
<td>• Blistering of the skin.</td>
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<tr>
<td><strong>Fluid Leakage or Blood Back-up</strong></td>
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<tr>
<td>• Fluid leakage from:</td>
<td>• Connection between the midline and cap is loose or disconnected.</td>
<td>• Check midline and cap connection. Be sure they are tight.</td>
</tr>
<tr>
<td>o End of the midline</td>
<td>• Midline is damaged from a puncture or rupture.</td>
<td>• Flush midline and observe exit site for signs of fluid leakage. Notify your clinician.</td>
</tr>
<tr>
<td>o Along the midline</td>
<td></td>
<td>• Check for midline damage. If found, clamp the midline above the damaged area and call your clinician immediately.</td>
</tr>
<tr>
<td>• Blood seen in midline.</td>
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