Clinical Performance Improvement

CLABSI Caregiver Toolkit

CLABSI Caregiver Toolkit: Table of Contents

*Permanent document owners are indicated. If changes are required to this toolkit, the IP HPT should be contacted.

(Note: Click on the document name in the Table of Contents for a direct hyperlink to that document or click on the small "bookmark" on left to view and navigate the contents.)

CLABSI Caregiver Toolkit: Revision History

Revision Date	Revision Description	Revised by
January 2016	Initial release of toolkit.	2015 Clinical PI CLABSI Steering Team
March 2017	Added new/revised policies, updated 360 links, updated content for 2016 INS Standards.	2016 Clinical PI CLABSI Steering Team

CLABSI Prevention Introduction

Introduction

The CLABSI Caregiver Toolkit was developed during the 2015 Clinical Performance Improvement effort to help prevent deadly blood stream infections at Sentara. The Toolkit is a compilation of resources produced or updated by the CLABSI Clinical PI team to reflect national best practices. The Toolkit is intended to serve as a reference to all Sentara clinicians who access lines and contains reference documents such as algorithms, policies and procedures, and line removal guides to ensure the proper care and maintenance of all lines at Sentara.

Talking Points

1) Lives are On the Line

- Every time a line is accessed, a risk for serious infection exists.
- Central Line Blood Stream Infections (or CLABSI) are serious and preventable Healthcare Associated Infections (HAIs).
- An estimated 41,000 CLABSIs occur in hospitals each year; 18,000 of those occur in ICUs. [1]

2) At Sentara, our greatest risk for CLABSI includes:

- Lines located in IJ and femoral vessels due to sterility challenges.
- Catheters with increased lumen size and multiple lumens.
- Quad lumen catheters, triple lumen catheters, and single and dual lumen PICCs.

3) All physicians have a leadership role in preventing CLABSIs by:

- Challenging the need for central lines daily.
- Using the fewest lumens possible. Don't be a SQUARE! A patient's risk of CLABSI is increased by the square of the lumen count. A quad lumen catheter is 16 times more likely to result in a CLABSI than a single lumen catheter.
- Using midline insertion teams available at Sentara hospitals.

4) Additional Venous Access Tool:

- Midline catheters are less likely to cause blood stream infections than central lines. Knowing this, if a midline can be used, it is a better option for qualified patients.

- Final midline product selection and growth of bedside midline insertion teams allows more robust use of midline catheters than ever before.

- The power-rated, single-lumen Medcomp® midline catheter was selected. With this midline catheter, we expect a much broader population of patients to be candidates.

- The Adult Elective IV Catheter Selection Algorithm is available through Epic for hospitals with access. Non-epic hospitals have electronic access to a document with links to the algorithms and updated irritant and vesicant list.

- In Epic, a midline incidental order is LIVE at SNVMC, SCH, SOH, SWRMC, SVBGH, SPAH, SLH, SRMH, SMJH, & SNGH.

- Refer to the Vesicants and Irritants Drug List for guidance. It is linked here and available via intranets, Epic, and WaveNet.

Appropriate Uses for Medcomp Midlines

- All antibiotics can be administered through the Medcomp midline.
- Power- injectable CTs are appropriate for the Medcomp midline.

Inappropriate Uses for Midlines

- The following drugs are NOT appropriate for administration via ANY midline catheter:
  -Continuous vesicant therapies
  -Total Parenteral Nutrition
  -Continuous infusion of solutions with a final dextrose concentration greater than 10%

Midline Team Availability

FACILITY	BEDSIDE MIDLINE TEAM ROLL-OUT TIMELINE
SCH	Bedside Midline Team ACTIVE
SOH	Bedside Midline Team ACTIVE
SRMH	Bedside Midline Team ACTIVE
SLH	Bedside Midline Team ACTIVE
SVBGH	Bedside Midline Team ACTIVE
SPAH	Bedside Midline Team ACTIVE
SNVMC	Bedside Midline Team ACTIVE
SMJH	Bedside Midline Team ACTIVE
SWRMC	Bedside Midline Team ACTIVE
SNGH	Bedside Midline Team ACTIVE
HomeHealth*	Bedside Midline Team ACTIVE
SHRH	No team planned at this time
SAMC	Bedside Midline Team ACTIVE

[1] Vital Signs: Central line-associated bloodstream infections -- United States, 2001, 2008, and 2009. MMWR March 4, 2011

Preventing CLABSI

Learn How You Can Reduce Your Risk of Infection

CLABSI stands for central line associated blood stream infection. These infections are serious and can be life threatening. The good news is that CLABSIs can be prevented. With your caregiver, you can help reduce your risk.

Why should I be concerned about CLABSI?

- Patients with central line catheters are at higher risk for developing blood stream infections.
- For cancer patients, an infection could delay care.

What role can I play in reducing my risk?

At Sentara, we are committed to *always keeping you safe*. We urge all patients with central line catheters to take a daily Chlorhexidine, or CHG, bath. CHG kills and prevents growth of "germs" on the skin.

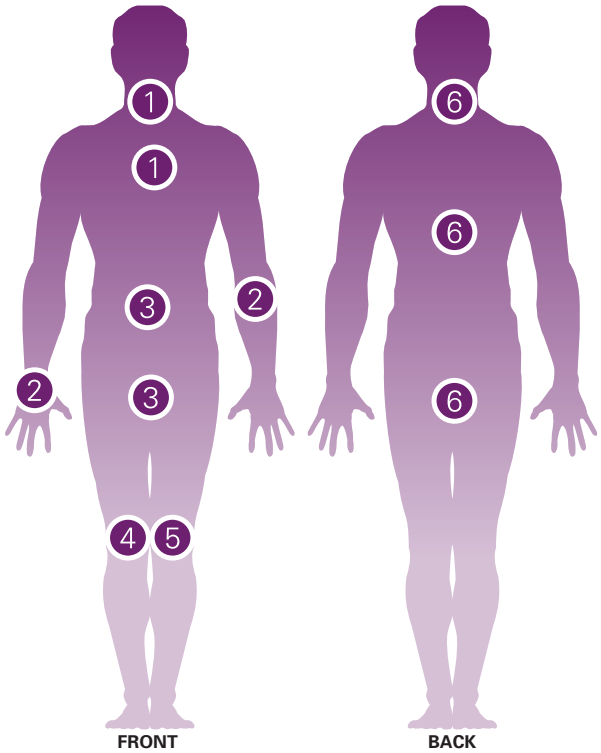
Studies show patients bathed with CHG cloths are three times less likely to develop a CLABSI than patients bathed with soap and water.

What's the proper CHG bathing method?

- Before starting a CHG bath, wash your face, scalp and hair with soap or body wash/shampoo and water. Do not use soap below the neckline. If a soap and water bath is preferred allow one prior to use of CHG bathing cloth.
- Firmly rub the areas of your body in this order using the CHG cloth:
  1. Neck shoulders, chest
  2. Both arms and hands
  3. Abdomen and groin
  4. Right leg and foot
  5. Left leg and foot
  6. Back of neck, back and buttocks

Note: skin may feel sticky for a few minutes

- Do not wipe off or dry with another cloth. Let air-dry.
- Place each washcloth in the trash.



What NOT to do

- Do NOT bathe with soap and water AFTER using CHG.
- Do NOT save, reheat or reuse CHG wipes.
- Do NOT flush CHG cloths down the toilet.
- Do Not use lotions and soaps from home as they may stop CHG bathing cloths from working

Please ask your nurse or care partner for assistance.

THANK YOU for playing a role in reducing your CLABSI risk.

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Your community not-for-profit health partner

8/2015

CLABSI

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***** The following clinical guidance document is located on the Sentara Media Server, and is available for viewing from all internet access points. Click on the diagram below to be rerouted. *****

Adult Elective IV Catheter Selection Algorithm:

CLABSI

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***** The following clinical guidance document is located on the Sentara Media Server, and is available for viewing from all internet access points. Click on the diagram below to be rerouted. *****

Oncology Line Selection Algorithm:

CLABSI

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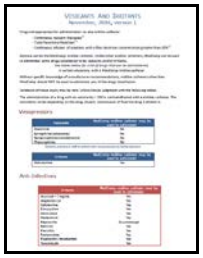
***** The following clinical guidance document is located on the Sentara Media Server, and is available for viewing from all internet access points. Click on the diagram below to be rerouted. *****

Vesicants and Irritants Drug List:



SENTARA
eCare Health Network

Patient Label

Outpatient Venous Access Order Set

MDORD

Date: _____

Patient Name: _____ DOB: _____

*******Best Practice*****

Lumens: Use the fewest # of lumens possible to lessen risk of infection

Priority: ☐ Routine ☐ ASAP ☐ Other: _____

Procedure:

☐ **PICC Line:**

Location:	☐ Right Arm	☐ Left Arm	☐ Not Site Specific
Lumen:	☐ Single	☐ Dual	
Type:	☐ Power Injectable (preferred)		☐ Non-Power Injectable (if no contrast anticipated)

☐ **Implanted Port:**

Location:	☐ Right	☐ Left	☐ Not Site Specific
Lumen:	☐ Single	☐ Dual	
Type:	☐ Power Injectable (preferred)		☐ Non-Power Injectable (if no contrast anticipated)

☐ **Cuffed Central Catheter:**

Location:	☐ Right	☐ Left	☐ Not Site Specific
Lumen:	☐ Single	☐ Dual	
Type:	☐ Power Injectable (preferred)		☐ Non-Power Injectable (if no contrast anticipated)

☐ **Other (Be specific) :** _____

Duration of Therapy:

☐ Short Term Therapy (2-4 weeks)
☐ Long Term (> 4 weeks)
☐ Other: _____

Indications:

☐ Infusion or Vesicant Drug Administration (i.e. Antibiotics, Chemotherapy)
☐ Administration of Total Parenteral Nutrition
☐ Administration of Blood Products
☐ Administration of fluids
☐ Other: _____

Special Instructions / Additional Pertinent Clinical Information: _____

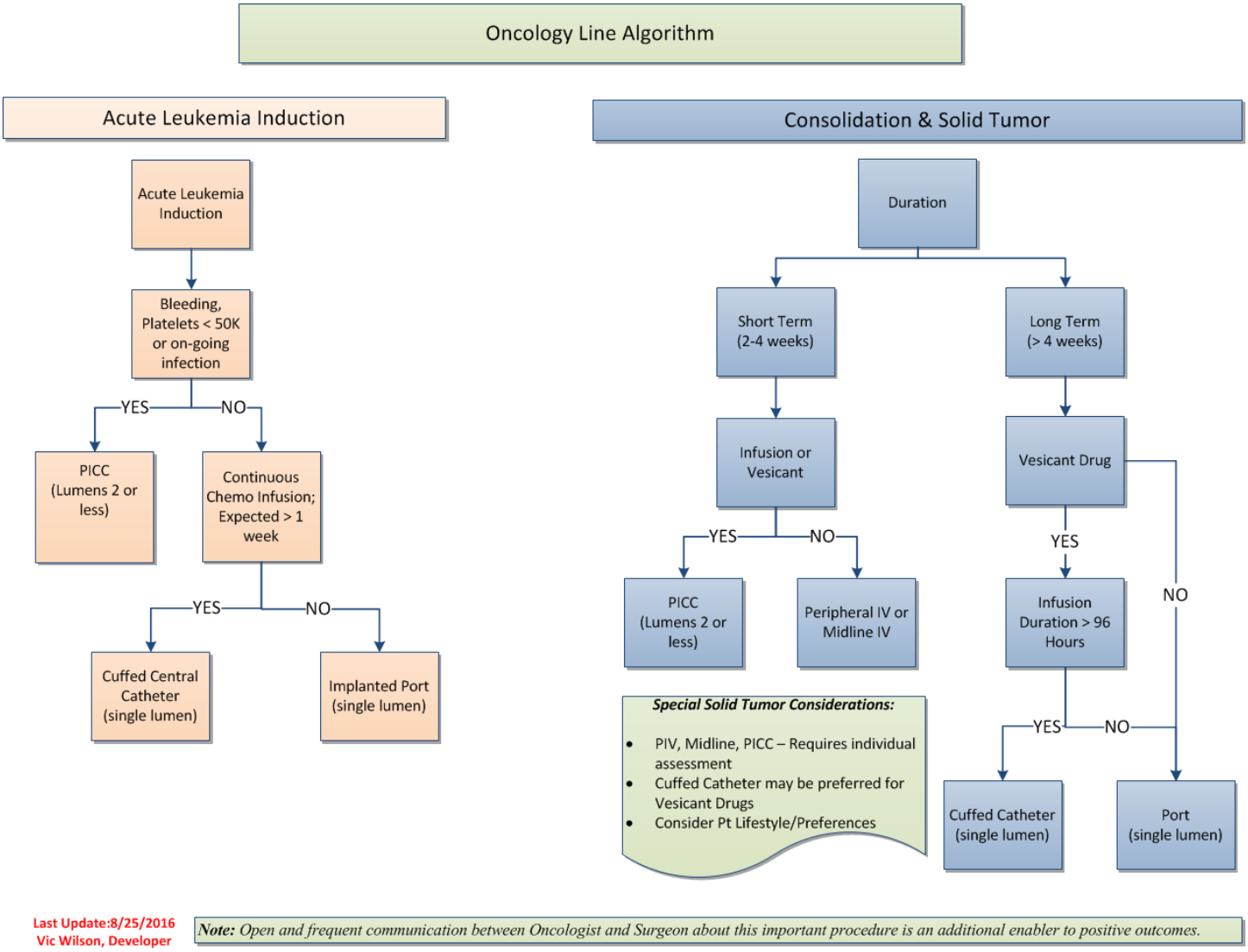
_____

Ordering Provider: _____ D**ate:** _____
(Signature)

Ordering Provider: _____
(Print Name)

Refer to back for Oncology Line Algorithm Guidelines and Contraindications for PICC Line Placement

Oncology Line Algorithm



Last Update:8/25/2016
Vic Wilson, Developer

Note: *Open and frequent communication between Oncologist and Surgeon about this important procedure is an additional enabler to positive outcomes.*

PICC Line Considerations and Contraindications

- For patients with a GFR < 45 a nephrologist consultation is recommended, unless patient is not a dialysis candidate. A PICC may be placed if clearance is obtained from a nephrologist, vascular surgeon, or intensivist. The clearing physician must document appropriately in the EMR.
- Existing or future need for Hemodialysis.
- Contracted upper extremities

Note: Refer to the web location below for detailed information on Vesicants and Irritants.
http://media.sentara.com/MediaManager/sentaradotcom/VesicantsIrritants9-14.pdf

Clinical PI: CLABSI Glossary of Terms

Acute Hemodialysis Central Vascular Access Device

Both options for short and long term. Are not accessed except by specially-trained staff and/or Dialysis staff. This catheter is primarily used for dialysis and/or apheresis and maintained by those personnel. (see Dialysis Job Aid)

Examples:
Uldall
Triple Lumen Dialysis Cath with pigtail (short-term, power/non-power injectable BARD/ Teleflex Arrow)
Ash Split Catheter (long-term with dual lumens)
PermCath (long-term with dual lumen)

Long –term Dialysis Catheters – Single Cuff

Examples:
Hemostar (Bard)
Glidepath (Bard)
Palindrome (Covidien)
Duroflo (Angiodynamics)

Add-On Device

Any additional component that is added to the administration set or vascular access device.

Examples:
Bifuse
Trifuse
Extension Sets/Tubing
Inline filter
Stopcock
Y-Site
Needleless connector
Mechanical Valve devices (PPV, Clave)
Caps

Caps

Secure the ends of IV tubing or extension devices for infection prevention purposes

Example:
Alcohol Impregnated IV Disinfection Cap (AKA – Curos)
Sterile luer lock

Catheter Stabilization Device/Dressing

A device/dressing system specifically designed and engineered to control movement at the catheter hub, thereby decreasing catheter movement within the vessel and risk of catheter malposition.

Examples:
Bard Stat-Lock
3M IV Securement Dressing

Clinical PI: CLABSI Glossary of Terms

Central Vascular Access Device (CVAD)

Device which permits access to the central vascular system. Catheter tip is residing either in the lower one-third of the superior vena cava, or above the level of the diaphragm in the inferior vena cava.

CVAD –"Cuffed" (Tunneled)

A vascular access device whose proximal end is tunneled subcutaneously from the insertion site and brought out through the skin at an exit site. "Long-term."
A "Cuffed" catheter includes a Dacron cuff built into the line which promotes tissue growth for a natural barrier of bacteria to develop.

Examples:
Broviac
Groshong
Hickman
Quinton
Hohn

CVAD – "Non-Cuffed" (Non-Tunneled)

A vascular access device inserted by puncture directly through the skin and to the intended location without passing through subcutaneous tissue. " Short Term"
A "Non-Cuffed" catheter lacks the Dacron cuff in the line and therefore lacks a means to develop a barrier for bacteria, causing a higher risk for bacteria migration to be likely.

Examples:
Central Vascular Acute Access Single/Double/Triple/Quad Lumen Catheters (Teleflex Arrow/ Edwards)
Peripherally Inserted Central Catheter (PICC)
Acute Dialysis Catheters (see below)
Swan Ganz Introducer Sheaths and Catheters
Hohn
Powerline (Bard)

Implanted Vascular Access Device (Also known as Port/ Mediport)

"Long-term" Implanted device – Surgically placed catheter into a vessel, body cavity, or organ and is attached to a reservoir located under the skin.

Examples:
Vortex by Angiodynamics
Groshong by Bard
XPort
P Port
Powerport (Power Injectable)
Port-a-Cath
P.A.S Port Cath

"Non-coring" needles - A 90 Degree Implanted Port Access Needle.

Examples:
Huber
PowerLOC (only used with Powerport)
Gripper

Clinical PI: CLABSI Glossary of Terms

Mechanical Valve Device - (Also known as "Valve")

A needleless connector with an internal mechanical device that provides a fluid pathway capable of infusion and aspiration

Examples:
Neutral pressure valves
Positive pressure valves (PPV)

Midline Catheter

A vascular access device measuring 8 inches or less with the distal tip dwelling in the basilic, cephalic, or brachial vein at or below the level of the axilla and distal to the shoulder.

Example:
MedComp ML

Needleless System

Umbrella term to accommodate all types of needleless devices:

Needleless Connector

A device designed to accommodate needleless devices for the administration of solutions into the vascular system

Examples:
See Mechanical Valve Device
Clave Valve
MaxPlus Valve
ClearSite Valve

Peripherally Inserted Central Catheter (PICC) Line

Central vascular access device inserted into an extremity and advanced until the tip is positioned in the vena cava. At Sentara Healthcare, PICC lines are inserted only by physicians, VIR physician assistants and/or nursing staff who are credentialed to place CVADs. A consent form must be signed prior to insertion.

Examples:
Bard PolyRad PICC
Perc-u-cath PICC

Power-Injectable Line vs. Non-Power Injectable Line

Power Injectable line:

Use if patient is likely to have contrast studies ordered, is in ICU or unlikely to require IV line therapy post discharge.

Non-Power Injectable Line:

Use if patient is receiving prolonged IV medications or TPN; or unlikely to have contrast studies or if they are contraindicated.

Transparent Semipermeable Membrane Dressing

A sterile dressing that allows moisture to pass through the dressing away from the skin while preventing external moisture from contacting the insertion site of the vascular access device

Examples:
Tegaderm
3M CHG impregnated dressing
3M PIV Tegaderm Securement Dressing
3M Tegaderm CHG impregnated dressing

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FAQs
CHG Bathing

1) ***When will Surgical Services be implementing Pre-op CHG Bathing?*** The only determination the Sentara Infection Prevention Committee (SHIP-C) has made for CHG bathing in the surgical population is for inpatients that require surgery *following* admission (e.g. hip fractures).

Ship-C MDRO Subcommittee Recommendations:

- SHIP-C has not endorsed routine pre-operative bathing with CHG as there is no proven benefit of its use decreasing post-operative infections.
- Because pre-operative bathing with CHG is endorsed by some professional organizations, it may be used for specific procedures according to local preference. When pre-operative bathing with CHG is used routinely for a specific procedure, the SHIP-C requests supporting evidence be provided from the literature or professional society recommendations.

2) ***What about patients who are having invasive procedures (i.e. Cardiac Caths), OB patients having a C Section, or ED patients?*** CHG bathing is not needed for these patients.

3) ***How do we address patients who refuse CHG baths?*** An approved patient education brochure is available to help all patients with central lines understand their role in CLABSI prevention including CHG bathing. If a patient refuses, engage Infection Preventionists as a resource to help educate patients. Document patient/family refusal according to the current facility guidelines for a patient who refuses treatment.

4) ***Is it safe for radiation oncology patients?*** The following protocol has been developed by the radiation oncology team:
   - For patients with central venous lines who are receiving radiation therapy, the nurse will consult the radiation oncologist for orders regarding the use of CHG bath cloths in the radiation treatment field.
   - CHG bath cloths shall not be used in the radiation field unless an order is received by the radiation oncologist to do so.
   - CHG bathing may be used on all other body parts (as outlined in the procedure) outside of the radiation field.
   - If nursing staff members are unclear about the location of the radiation treatment area, they should call the radiation oncologist for clarification and clearly document the limitations.

5) ***Should CHG cloths be used for foley care?*** CHG bathing cloths should not be used for routine foley care. Follow the normal foley care bundle or protocol. Note: CHG does not inactivate the current agent Sentara uses for foley care. CHG is safe to use on perineal areas, including external mucosa. If

FAQs CHG Bathing (continued)

a patient has a foley and requires a CHG bath for an approved indication, it is recommended to clean the external perineal area and the catheter itself with the CHG cloth within six (6) inches from point of insertion or connection. CHG is also safe for superficial wounds, including stage 1 and stage 2 decubitus ulcers. Therefore, any patient with a central line should receive the CHG bath once per day per protocol whether or not they have a foley catheter.

6) ***Do we re-bathe patients who are incontinent? Is a CHG cloth used every time or something CHG compatible?*** CHG cloths are used one time daily for patients with central lines, following recommendations. Sage Comfort Shield Wipes are in stock and recommended for incontinence.

7) ***How many baths should be administered for inpatients going to surgery?*** For inpatients with central lines going to surgery, a CHG bath is recommended one time daily preoperatively. If an inpatient is scheduled for surgery following admission, a CHG bath should be given daily until the surgery is performed.

8) ***What about skin issues for patients with psoriasis or Eczema, etc.?*** We have posed this question to the SAGE technical team and are awaiting their response. Patients with skin issues (psoriasis, eczema etc.) should not be bathed with the CHG cloths in any areas where skin is irritated or not intact. Consult a physician with additional questions regarding that patient. Placing a central line in the area with any skin irritation should be avoided unless it is absolutely imperative to place in that area. We will provide updates, as new information is available.

9) ***Is there a standardized place for documenting and care plan?*** Document daily CHG bathing under the Adult Patient Care Summary in the Skin Interventions Section, which includes a specific component for CHG Bathing. For new nurses your preceptor should be checking this off as part of your orientation to central line care.

10) ***Is this going to be included with the CVL education?*** Yes. CHG bathing is part of the central venous line care education.

11) ***What is the recognized guideline/recommendation for CHG bathing?*** Sentara consulted two resources to arrive at its protocol. We have referenced the AHRQ tool kit and SAGE clinical resources.

Line Stickers & Labeling Issue Key Messages
Align with Recommendation Last updated Sept. 11, 2015

Situation: A subteam met July 29, 2015, to discuss resolution to the current issue with stickers and line labeling.

Assumptions: Dialysis Lines are out of the scope of these recommendations. As a specialty line, they require additional input from dialysis experts. A decision is expected shortly

Key messages here for consideration

- As of October 31, 2015, Sentara will stop using stickers to identify any lines (central lines, midlines, and peripheral lines) since residue left by stickers increases the risk of infection.
- Following nursing best practice, nurses should check catheter connections and trace all catheters to the point of origin to identify each line ***before*** it is accessed or maintained.
- Nurses who receive a patient from another setting should also follow this process as part of good handoffs.
- All nurses are accountable for identifying/confirming line type for patients in their care.
- If there is a question regarding line type, consult electronic medical record for procedure details about device placement.
- If line type cannot be verified, nurses are directed to call the attending physician for help assessing the line or pursuing other points of access for the patient.
- All reference materials (policies/procedure and training documents) have been updated to reflect the guidance to eliminate the use of stickers to identify all lines.
- Labels will continue to be used on dressings.
- As we continue to learn and review our standards, we will continue to refine our guidance.
- *Note: Midline teams are NOT to use any stickers within the midline insertion kit.*

Attributes of Dialysis Catheters for Reference

- Dialysis catheters are large bore catheters.
- They can be either cuffed or non-cuffed catheters.
- Dialysis catheters are generally located in the chest.
- The dialysis catheter lumens are color-coded to identify the venous and arterial connections for dialysis.
- Occasionally, non-cuffed dialysis catheters will have a third lumen for medication administration.

CLABSI Approved Product and Vendor List

Last updated: February 24, 2017
Document Owner: Materials Management

Product	Vendor	Contact	Phone Numbers	Email
IV Start Kits Line Removal Kits	Cardinal Nursing Products	Chuck Grey	800-234-8502 Ext. 4907 (work) 757-831-7893 (mobile)	Chuck.Grey@cardinalhealth.com
Chloraprep One Step Applicator	Carefusion	Tiffany Spiva	804-937-5005 (mobile)	Tiffany.Spiva@carefusion.com
CHG & Tegaderm dressings and Curos Caps	3M	Jeffrey Snipes	804-205-2567 (mobile)	jmsnipes@mmm.com
CHG Bath Cloths	Sage Products	Matt Nelson	757-270-0452 (mobile)	mnelson@sageproducts.com
Vein Viewer	Christie Medical	Sue Greenhause	610-390-2032 (mobile)	Sue.Greenhause@christiedigital.com
Midline	Medcomp (aka Medical Components)	Andrew Shin	804-519-2556 (mobile)	ashin@medcompir.com
IV caths, Syringes & Needles…	Becton Dickinson	Jay Costello	804-314-7850 (mobile)	jay.costello@bd.com
Bard PICCs	Bard Access Systems	Skip Seagraves	919-200-2718 (mobile)	skip.seagraves@crbard.com
QuikClot	Z-Medica	Sherri Hobbs-Groenland	757-270-4389 (mobile)	SHobbs-Groenland@z-medica.com

A Sentara STUDY IN SUCCESS
CLABSI Prevention at Sentara CarePlex Hospital

Executive Summary: Central line associated blood stream infections, known as CLABSIs, are a major concern for healthcare providers everywhere. Once expected, CLABSIs are now classified as preventable hospital acquired conditions, which come at sizable costs to patients. Some costs include increased lengths of stay, added healthcare related to fighting infection, and even loss of life. Reducing all blood stream infections is better for patients and helps reduce healthcare costs.

Some hospitals are reducing these infections to nearly zero or zero—a goal for Sentara Healthcare. Sentara CarePlex Hospital (SCH) in Hampton, Va. reduced its CLABSIs from 14 in 2014 to zero for the last six months.

These results speak to the focused and deliberate effort to engage hospital leadership, staff and physicians. Detailed action plans addressed every aspect of central line care, with checks and balances along the way. Focused efforts have paid off for SCH, and the lessons are being applied across all Sentara hospitals in hopes of duplicating this success.

Previous Situation: In 2013, SCH exceeded its CLABSI limit of 7 with 5 additional CLABSIs. The trend deepened in 2014 when SCH exceeded its limit of 4 CLABSIs with 10 additional CLABSIs. In that year, SCH had 250 percent more CLABSI cases than it expected.

Solution: The SCH leadership team created action plans to spur collaboration among all parties who shared responsibility for the issue – hospital leadership, staff and physicians.

Results: SCH has had no CLABSIs since December 2014, and SCH achieved the 100 percent staff re-education goal within two months.

Detailed Action Steps

1) **Physician engagement. SCH leadership relied on existing positive rapport with all practicing physicians—especially those managing patients with central lines—as a basis for candid conversations. Physician engagement included:**
   - Involving physicians in candid discussions about CLABSIs.
   - Educating physicians in best practices related to central lines to achieve fewer device days, fewer central lines, fewer lumens, and fewer powered devices.
   - Informing physicians they would be increasingly asked about medical necessity of all central lines.
   - Creating an atmosphere where all physicians were encouraged to remove central lines as soon as no longer medically necessary.
   - Communicating that dialysis ports were "owned" by nephrologists. At SCH, a nephrologist's order was required to access dialysis ports.

Solutions:

- Physician Engagement
- Daily Discipline (7 day/week Line Call)
- Central Line Guru
- Daily Central Line Surveillance
- Escalation Process
- Staff Engagement and Re-education
- Ongoing Leadership Involvement
- Maintain a CLABSI Prevention Culture
- Forum Dedicated to IV Action

2) **Daily discipline about central lines. SCH established a "Line Call" (7 days per week) to ensure every central line was discussed daily.** For all femoral lines, a plan was made for removal, and SCH Vice President of Medical Affairs (VPMA) led any physician discussions. These steps ensured efficient dialogue and follow through:
   – Designating nurse/role on each unit responsible for reporting on all central lines on that unit.
   – Requiring advance preparations to discuss:
      - type of central line
      - location of the line
      - number of lumens
      - medical necessity/purpose

3) **Central line guru. The IV Team Manager served as a facility expert and available resource to answer staff questions and resolve central line issues.** In these ways she helped make CLABSI prevention a habit**:**
   – Managing IV Team, which checked the dressings of all central lines daily.
   – Managing central line education.

4) **Daily central line surveillance. The SCH IV Team provided daily review of all central Lines (and now midlines) on all inpatient units, except Hem/Onc.** Team services included:
   – Assessing each line and changing dressings either due for a change or those no longer intact.
   – Assessing complicated lines, and evaluating options when a line was no longer indicated.

5) **Established escalation process for complicated line issues.** The IV Team Manager provided leadership for complicated line issues by reviewing charts and accompanying the IV Therapy nurse to assess the line. The bedside nurse, nurse manager and/or VPMA offered solutions. Direct care providers were engaged to continually foster learning and confidence. By being aware, sharing information, and developing a plan, SCH has made improvements to keep patients safe.

6) **Staff engagement and re-education.** The team conducted "back to the basics," one-on-one meetings with all staff members who had a role in central line placement, care, maintenance or access. Resources included
   – Detailed training packets pushed to managers throughout the facility.
   – Timelines set for the completion of training for all affected staff.

7) **Ongoing leadership involvement.** Starting in 2014 Leadership conducted weekly central line audits.
   – At least five central line audits were completed each week.
   – Staff members benefited from disciplined and consistent focus on CLABSI prevention.

8) **Maintain a CLABSI prevention culture.** The SCH team consistently reinforced this culture with physicians and staff who were reminded of these expectations:
   – Constantly question/expect to be asked about the medical necessity of each central line.
   – Become comfortable with putting in the most appropriate line for the current need.
   – Retain awareness that care and maintenance remain our highest risks.
   – Remember that anyone accessing a central line had a role to play in preventing CLABSIs.

9) **Routine forum dedicated to IV action.** The SCH IV Action Committee meets monthly with representatives from inpatient, ambulatory and procedural areas about IVs (e.g. PIVs, products, Central Lines, etc.) to keep communications open. This forum keeps CLABSI prevention in the foreground by providing a regular venue for discussing issues and lessons learned. SCH continues to follow these actions in order to remain vigilant about all central lines.

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CLABSI

Peripheral Intravenous Catheter Procedures and Job Aids

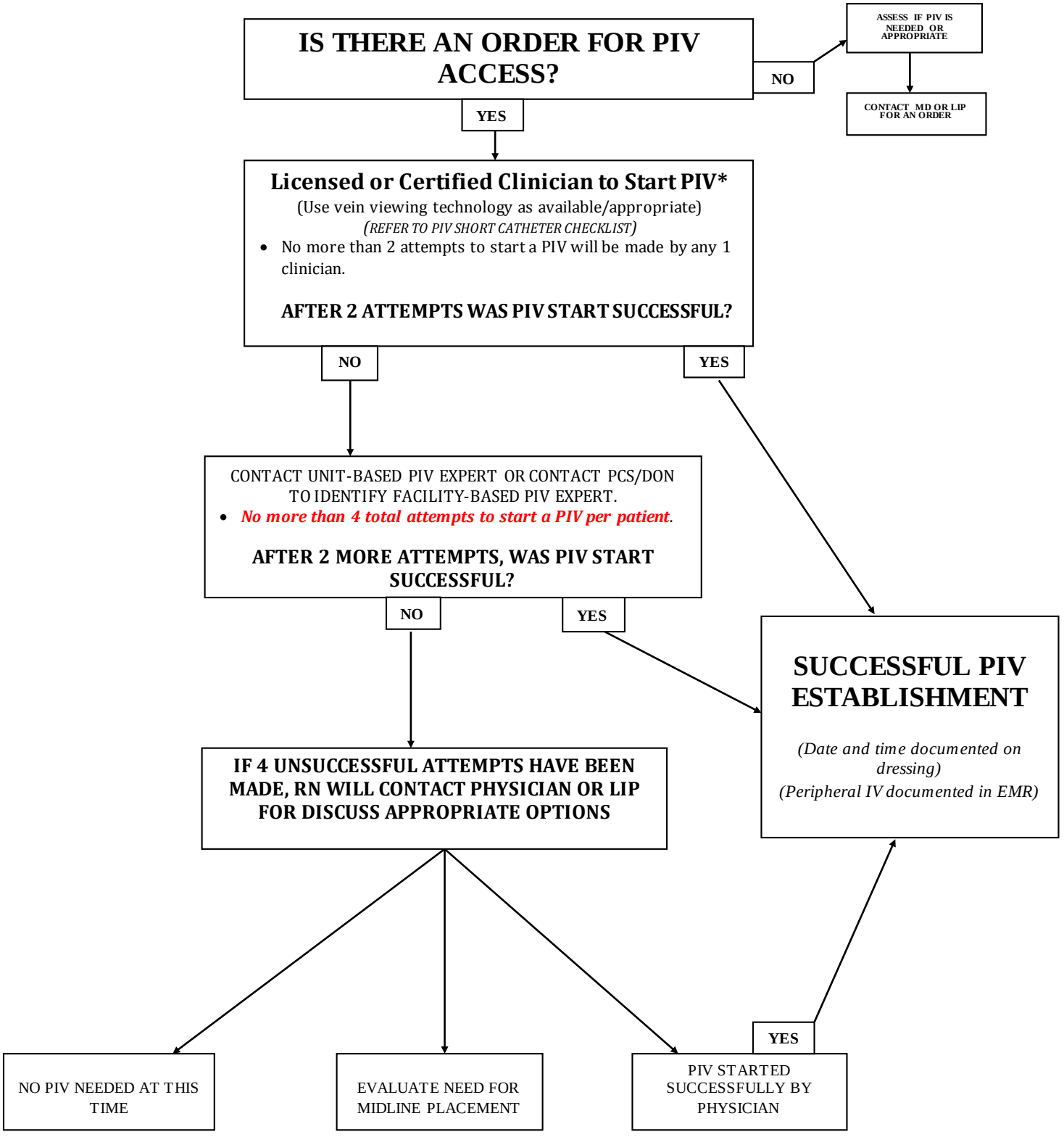
Procedures:

- Insertion and Maintenance of an Adult Peripheral Short IV Catheter Procedure

Job Aids:

- Adult Peripheral Intravenous (PIV) Access Job Aid
- Insertion and Maintenance of a Peripheral IV Short Catheter Checklist
- Nursing Phlebotomy Competency Checklist

IV Access Algorithm for Sentara Patients



Note: ***Ensure all PIV attempts are appropriately documented in the EMR.***

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CLABSI

Midline Venous Catheter Policies and Job Aids

Policies:

- Midline Catheter Insertion, Maintenance, and Removal Policy

Job Aids:

- Midline Catheter Insertion, Maintenance, and Removal Job Aid
- Midline Candidate Screening Tool
- Midline Insertion Checklist
- Midline and CVAD Dressing Change Checklist
- Midline Catheter and Non-Tunneled CVAD Removal Competency Checklist

▼ PEEL HERE ▼

ATTACH THIS CATHETER INFORMATION SHEET TO PATIENT'S CHART.

medCOMP
www.medcompnet.com

THIS PATIENT HAS A **POWER INJECTABLE** MIDLINE CATHETER.

Patient's Name:_____ Doctor's Name:_____

Catheter Insertion:

Date:_____ FR Size:_____ Product No.:_____ Lot No.:_____

Exposed Catheter Length:_____ Internal Length:_____

Vein Used:_____

Signature:_____

EXIT SITE CARE:
- Maintain according to hospital protocol.
- Use chlorhexidine gluconate and/or povidone iodine to clean the exit site around the catheter.
- Allow all cleaning agents/antiseptics to dry completely before applying dressing.

CATHETER MAINTENANCE:
Flush and lock catheter according to your institutional policy.

IMPORTANT INFORMATION:
- Contrast media should be warmed to body temperature prior to power injection. **WARNING:** Failure to warm contrast media to body temperature prior to power injection may result in catheter failure.
- Vigorously flush the catheter using a 10cc or larger syringe and sterile normal saline prior to and immediately following the completion of power injection studies. This will ensure patency of the catheter and prevent damage to the catheter. Resistance to flushing may indicate partial or complete catheter occlusion. **DO NOT** proceed with power injection study until occlusion has been cleared. **WARNING:** Failure to ensure patency of the catheter prior to power injection studies may result in catheter failure.
- Do not exceed the maximum indicated flow rate (see below table). **WARNING:** Power injector machine pressure limiting feature may not prevent over pressurization of an occluded catheter. **WARNING:** Exceeding the maximum indicated flow rate may result in catheter failure and/or catheter tip displacement.
- **WARNING:** The catheter indication for power injection of contrast media implies the catheter's ability to withstand the procedure, but does not imply appropriateness of the procedure for a particular patient. A suitably trained clinician is responsible for evaluating the health status of a patient as it pertains to a power injection procedure.

POWER INJECTION PROCEDURE:
1. Remove the injection/needleless cap from the catheter.
2. Attach a 10cc or larger syringe filled with sterile normal saline.
3. Aspirate for adequate blood return and vigorously flush the catheter with the full 10cc of sterile normal saline. **WARNING:** Failure to ensure patency of the catheter prior to power injection studies may result in catheter failure.
4. Detach syringe.
5. Attach the power injection device to the catheter per manufacturer's recommendations.
6. Complete power injection study taking care not to exceed the flow rate limits. **WARNING:** Exceeding the maximum indicated flow rate may result in catheter failure and/or catheter tip displacement.
7. Disconnect the power injection device.
8. Flush the catheter with 10cc of sterile normal saline, using a 10cc or larger syringe. Flush all lumens.
9. Replace the injection/needleless cap on the catheter.

IMPORTANT INFORMATION

Catheter Size	Maximum Indicated Power Injection Flow Rate[a]	Maximum Recommended Pressure Limit Setting[b]	Average Maximum Machine Injection Pressure During Power Injection[b]	Range of Maximum Machine Injection Pressures During Power Injection[b]	Average Maximum Static Burst Pressure[c]	Range of Maximum Static Burst Pressures[c]
4FR x 20cm Single Lumen	5cc/sec	300psi	5cc/sec @ 211psi	201-223psi	302psi	292-312psi
5FR x 20cm Double Lumen	7cc/sec	300psi	7cc/sec @ 234psi	183-261psi	249psi	241-262psi

[a]Represents maximum indicated flow rate setting for power injection of contrast media.

[b]Pressurized flow rates were determined for full-length catheters using media with viscosity of 11.8 centipoise (cp). These data represent approximate flow capabilities of the catheter for power injection of contrast media. During power injection testing, actual machine injection pressures did not exceed those listed in the above table. **WARNING:** Failure to warm contrast media to body temperature prior to power injection may cause contrast agent to be too viscous (thick), resulting in catheter failure.

[c]Maximum static burst pressure is the failure point of the catheter when the lumen is completely occluded. **WARNING:** Power injector machine pressure limiting feature may not prevent over pressurization of an occluded catheter.

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www.medcompnet.com

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PN40531 REV. A 5/14

MEDCOMP® CATHETER INFORMATION

_____
Patient's Name

_____
Physician

(_____) _____ - _____
Physician's Phone #

_____
Home Health Care Agency

(_____) _____ - _____
Agency Phone #

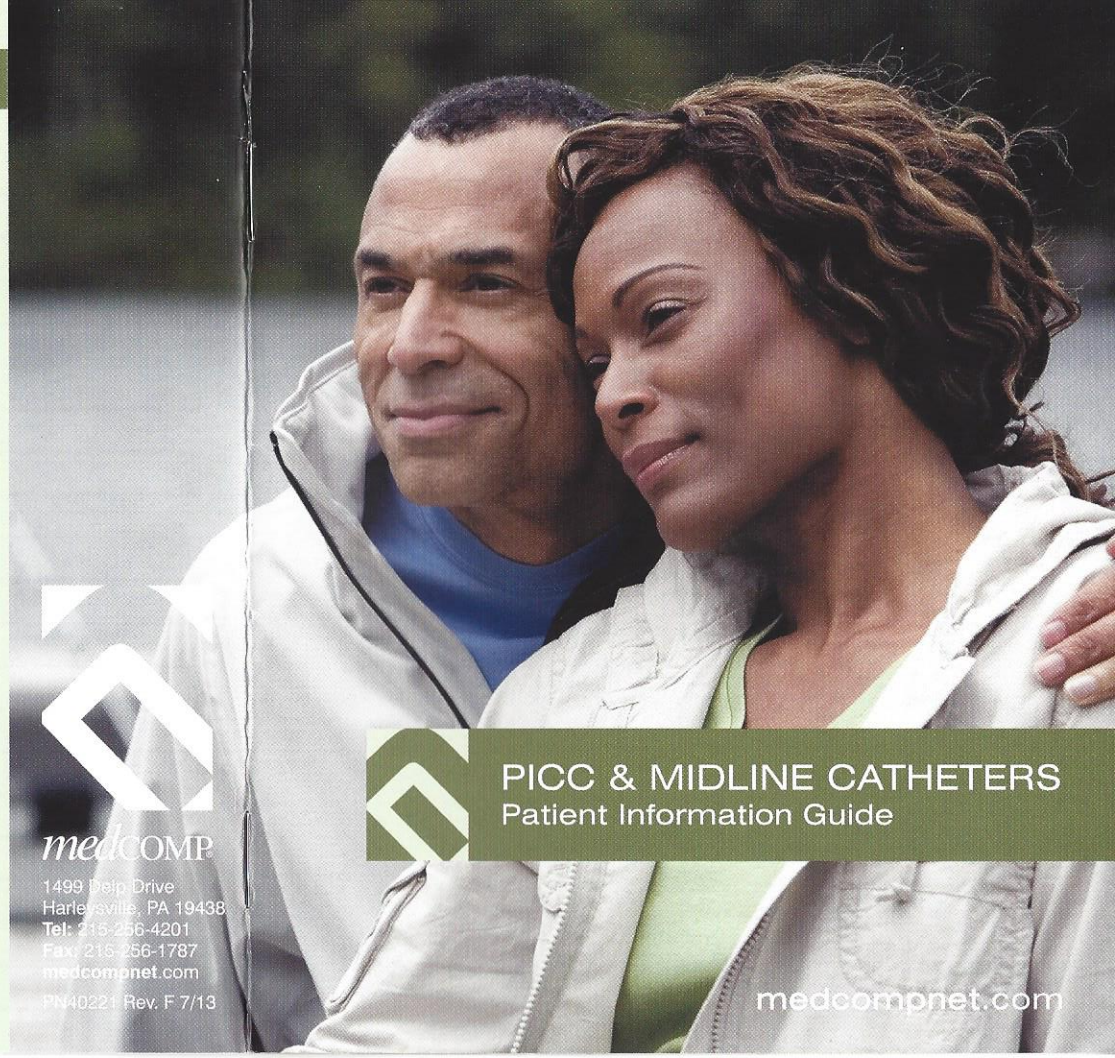
_____
Agency Nurse

_____
Catheter Name/Product Code

_____
Lot Number

_____ / _____ / _____ _____
Date of Insertion Catheter Length

_____
Tip Location



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PN40221 Rev. F 7/13

PICC & MIDLINE CATHETERS
Patient Information Guide

medcompnet.com

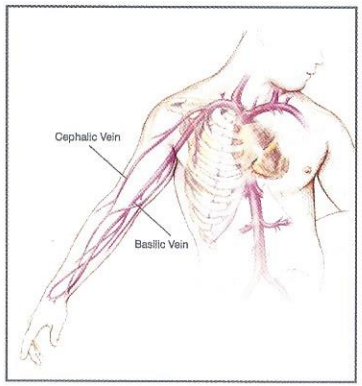
TABLE OF CONTENTS

INTRODUCTION

Your physician requested that a Medcomp® PICC or Midline Catheter be inserted in order for you to conveniently receive the IV therapy that you need. This *Patient Information Guide* will provide general information about your catheter. This booklet is only a guide. Any questions you have after reading it should be directed to your clinician (doctor or nurse).

WHAT IS A PICC OR MIDLINE CATHETER?

The catheters consist of a small, hollow tube (lumen) that is inserted into a blood vessel in your upper arm. The catheter allows medications, nutritional fluids, and blood products to be delivered directly into your bloodstream. The catheter may be left in your arm for various time periods, depending on the type of therapy you require.



HOW IS THE PICC OR MIDLINE CATHETER INSERTED?

The catheter will be inserted by either a doctor or nurse using sterile technique. This means that they will take precautions to prevent germs from entering your body. Similar precautions should be taken for every catheter related procedure. The clinician may wear a gown, mask, eye protection, and gloves for the insertion procedure.

The catheter will be inserted into a vein in your arm near your elbow. It may be placed in either arm. You may feel slight discomfort from the needle during the insertion, but no sensation should be felt while the catheter is being threaded into the vein. An x-ray should be taken after the insertion to make sure the catheter is positioned correctly.

NOTE: Your physician may insert the catheter into other sites, if determined to be necessary.

CATHETER CARE & MAINTENANCE

After the catheter is inserted, a small portion will remain outside of the body. A protective dressing will be placed over the insertion site to keep the area clean and prevent germs from entering your body. A sterile dressing should cover the insertion site at all times. The catheter will be held in place and secured using an anchoring device known as a Statlock®. This is a piece of adhesive that is placed on your arm and the catheter is snapped into place.

Valve technology does not act as a barrier to infection. A sterile end cap should be applied to the hub of the catheter to prevent contamination when the catheter is not in use. Medcomp® does not recommend immersing the catheter in water. Follow up with your healthcare provider for their recommendations concerning bathing.

Depending on your situation and the type of therapy you will require, you or a family member may be trained to care for your catheter. Be sure to follow the instructions given to you by the nurse or doctor.

CAUTION: Never allow a healthcare professional to draw blood from a vein in the arm with the catheter, as this could puncture the catheter lumen.

CAUTION: Never allow a health care professional to take your blood pressure in the arm with the catheter, as this could cause the catheter to become blocked or otherwise damaged.

CAUTION: Do not attempt to remove your catheter. Only a healthcare professional familiar with the appropriate techniques should remove the catheter.

DRESSING CHANGE

The area around the insertion site should be kept as clean as possible to prevent infection. Your nurse or doctor will tell you how often the dressing should be changed and how to change it. Always wash your hands with an antimicrobial soap before handling the catheter or touching the area around the insertion site. Inspect the insertion site for signs of infection (redness, swelling, drainage, or tenderness).

CAUTION: Do not use scissors to remove the dressing, to avoid accidentally cutting the catheter.

FLUSHING & LOCKING THE CATHETER

Your catheter will need to be flushed with saline and filled with a locking solution to prevent clots from forming in the lumen. The Medcomp® PICC catheters with valve technology do not require the use of a heparinized locking solution. Your nurse or doctor will determine how often the catheter should be flushed, who will flush it, and the appropriate solution to use. If you or a family member are flushing the catheter, follow the instructions provided by your nurse or doctor.

ADDITIONAL NOTES

QUESTIONS & TOPICS TO DISCUSS WITH YOUR CLINICIAN

DRESSING CHANGE

Who should change my dressing?

How often should my dressing be changed?

What are the steps to follow to change my dressing?

FLUSHING & LOCKING THE CATHETER

Who should flush/lock my catheter?

How often should my catheter be flushed/locked? With what solution?

What are the steps to follow to flush/lock my catheter?

ACTIVITIES

Are there any limits to my activities?

May I shower/bathe/swim while I have my catheter?

COMPLICATIONS

Who should I call if I have any problems with my catheter?

What problems should I call for?

CATHETER COMPLICATIONS

PROBLEM	SIGNS/SYMPTOMS	ACTION	PREVENTION
INFECTION	Redness, swelling, warmth, drainage at insertion site or up the arm. Fever and/or chills.	**Call your clinician IMMEDIATELY.**	Wash hands before any procedure and use sterile technique. Keep dressing over insertion site clean & dry.
LEAKING OR BLEEDING FROM CATHETER	Break in the catheter or injection cap comes off.	Carefully fold catheter over below the leaking area and tape securely. Replace cap. **Call your clinician IMMEDIATELY.**	Keep catheter secured with dressing/ Statlock. **DO NOT** use scissors near or pull on catheter.
CHANGED/CATHETER DISLODGED	Arm or shoulder swelling. Swishing sound in ear while medication is given. Pain during infusion.	**Call your clinician IMMEDIATELY.** Do not inject anything into catheter.	Keep catheter secured with dressing/ Statlock. **DO NOT** pull on catheter. Inject solutions into catheter slowly.
CLOTTED/KINKED CATHETER	Unable to inject solutions/medications. Resistance is felt when infusing solutions/medications.	**Call your clinician IMMEDIATELY.** Stop infusion. Do not force injection. Do not inject anything into catheter.	Flush catheter well before and after use. Fill catheter completely with locking solution.
PHLEBITIS (Vein Inflammation)	Redness, pain, swelling at the insertion site and/or upper arm.	**Call your clinician IMMEDIATELY.** Apply warm compresses. Elevate arm.	Infuse/inject medications & fluids slowly.
AIR EMBOLISM (Air in Bloodstream)	Shortness of breath, coughing, chest pain or loss of consciousness.	**CALL 911.** Clamp catheter. Lie on your left side with your head down.	Always secure connections. Remove all air from tubing & syringes before injection. Always clamp catheter before removing the cap.

COMMONLY USED TERMS

CATHETER A soft, hollow tube that is inserted into the body.

CATHETER HUB The external portion of the catheter where the injection cap, IV tubing, and syringes are attached.

DRESSING A sterile, protective covering placed to keep an area clean.

EXIT SITE The place where the catheter comes out of your body.

EXTENSION SET Additional tubing that can be attached to the catheter hub.

LOCKING SOLUTION A solution used to prevent blood from clotting inside the catheter.

INJECTION CAP A device placed on the catheter hub to protect the hub and prevent blood from coming out of the catheter.

INSERTION SITE The place where the catheter goes into your body.

INTRAVENOUS (IV) THERAPY The administration of medications and fluids through the veins.

LUMEN The space inside the catheter.

MIDLINE A peripherally inserted peripheral venous catheter.

PICC A peripherally inserted central venous catheter.

PICC WITH VALVE TECHNOLOGY A peripherally inserted central venous catheter with a valve that controls the flow of fluids to provide clamp-free infusion therapy.

SALINE A salt solution used to clear the catheter lumen after use (for example, infusion of medications).

STATLOCK® An anchoring system used to secure a catheter to the skin.

TEGADERM™ A transparent sterile dressing.

medCOMP®

CT MIDLINE CATHETER

INSTRUCTIONS FOR USE

INDICATIONS FOR USE:

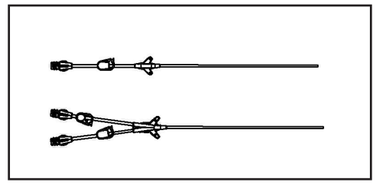
- The CT Midlines are indicated for Short-Term peripheral access to the peripheral venous system for selected intravenous therapies , blood sampling, and power injection of contrast media. The maximum recommended infusion rate varies by catheter French size and is printed on the catheter.

IMPORTANT INFORMATION PERTAINING TO POWER INJECTION:

- Contrast media should be warmed to body temperature prior to power injection. **Warning:** Failure to warm contrast to body temperature prior to power injection may result in catheter failure.
- Vigorously flush the CT Midline catheter using a 10cc or larger syringe and sterile normal saline prior to and immediately following the completion of power injection studies. This will ensure the patency of the catheter and prevent damage to the catheter. Resistance to flushing may indicate partial or complete catheter occlusion. **Do not** proceed with power injection study until occlusion has been cleared. **Warning:** Failure to ensure patency of the catheter prior to power injection studies may result in catheter failure.
- **Do not** exceed the maximum flow rate printed on the catheter. **Warning:** Power injector machine pressure limiting feature may not prevent over pressurization of an occluded catheter. **Warning:** Exceeding the maximum indicated flow rate may result in catheter failure and/or catheter tip displacement.
- **Warning:** CT Midline catheter indication of power injection of contrast media implies the catheter's ability to withstand the procedure, but does not imply appropriateness of the procedure for a particular patient. A suitably trained clinician is responsible for evaluating the health status of a patient as it pertains to a power injection procedure.

DESCRIPTION:

- This catheter is manufactured from soft radiopaque polyurethane material that provides increased patient comfort and excellent biocompatibility.



CONTRAINDICATIONS:

- This catheter is not intended for any use other than that which is indicated. Do not implant catheter in thrombosed vessels.
- The presence of skin related problems around the insertion site (infection, phlebitis, scars, etc.)
- The presence of device related bacteremia or septicemia.
- History of mastectomy on insertion side.
- Previous history of venous/subclavian thrombosis or vascular surgical procedures at insertion site.
- Fever of unknown origin.
- The patient's body size is insufficient to accommodate the size of the implanted device.
- The patient is known or is suspected to be allergic to materials contained in the device.
- Past irradiation of prospective insertion site.
- Local tissue factors will prevent proper device stabilization and/or access.

COMMON COMPLICATIONS:

- Sepsis
- Thrombosis
- Catheter occlusion
- Malposition/Migration
- Damage/Fracture of catheter
- Aseptic mechanical phlebitis
- Drainage from insertion site
- Pinch-off syndrome
- Cellulitis

POTENTIAL COMPLICATIONS:

- Air Embolism
- Brachial Plexus Injury
- Cardiac Arrhythmia
- Cardiac Tamponade
- Exit site infection
- Extravasation
- Hematoma
- Perforation of the vessel
- Subcutaneous hematoma
- Thromboembolism
- Vascular thrombosis

- Before attempting the insertion, ensure that you are familiar with the common and potential complications and their emergency treatment should any of them occur.

WARNINGS:

- Therapies not appropriate for midline catheters include those therapies requiring central venous access. Refer to standards of practice and institutional policies.
- In the rare event that a hub or connector separates from any component during insertion or use, take all necessary steps and precautions to prevent blood loss or air embolism and remove the catheter.
- Do not advance the guidewire or catheter if unusual resistance is encountered.
- Do not insert or withdraw the guidewire forcibly from any component. The wire may break or unravel. If the guidewire becomes damaged, the introducer needle or sheath/dilator and guidewire must be removed together.
- Federal Law (USA) restricts this device to sale by or on the order of a physician.
- This catheter is for Single Use Only.

- Do not re-sterilize the catheter or accessories by any method.
- Re-Use may lead to infection or illness/ injury.
- The manufacturer shall not be liable for any damages caused by reuse or re-sterilization of this catheter or accessories.
- Contents sterile and non-pyrogenic in unopened, undamaged package. STERILIZED BY ETHYLENE OXIDE

STERILE | EO

- Do not use catheter or accessories if package is opened or damaged.
- Do not use catheter or accessories if any sign of product damage is visible.

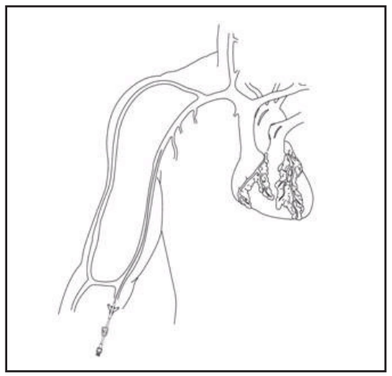
CATHETER PRECAUTIONS:

- Small syringes will generate excessive pressure and may damage the catheter. The use of 10cc or larger syringes are recommended.
- Do not use sharp instruments near the extension lines or catheter lumen.
- Do not use scissors to remove dressing.
- Catheter will be damaged if clamps other than what is provided with this kit are used.
- Clamping of the tubing repeatedly in the same location will weaken tubing. Avoid clamping near the luer(s) and hub of the catheter.
- Examine catheter lumen and extension(s) before and after each infusion for damage.
- To prevent accidents, assure the security of all caps and connections prior to and between treatments.
- Use only Luer Lock (threaded) Connectors with this catheter.
- Repeated over tightening of luer lock connections, syringes, and caps will reduce connector life and could lead to potential connector failure.

INSERTION SITES:

- The basilic, median cubital, or cephalic vein may be catheterized. The basilic vein is the preferred site.

Midline / Basilic Vein Insertion



DIRECTIONS FOR SELDINGER INSERTION

- Read instructions carefully before using this device. The catheter should be inserted, manipulated, and removed by a qualified, licensed physician or other qualified health care professional under the direction of a physician.
- The medical techniques and procedures described in these instructions for use do not represent all medically acceptable protocols, nor are they intended as a substitute for the physician's experience and judgment in treating any specific patient.
- Use standard hospital protocols when applicable.

PRIOR TO PLACEMENT

Identify insertion site and vein, taking into account the following variables:

- patient diagnosis
- age and size of patient
- unusual anatomical variables
- type and purpose of IV therapy
- anticipated dwell time of catheter

1. Apply tourniquet to arm above anticipated insertion site.
2. Select vein based on assessment.
3. Release tourniquet.

PREPARE CATHETER

4. Preflush catheter.

Note: For insertion with a stiffening stylet, see Alternate Insertion Technique using Stiffening Stylet and Sideport Adapter Section.

- Attach needleless access port(s) to female luer(s) of catheter.
- Attach a saline filled syringe to the needleless access port and completely flush catheter. For multi-lumen catheters, flush all lumens. Remove syringe(s) prior to clamping extension(s).

Caution: The needleless access port should not be used with needles, blunt cannula, or other non-luer connectors, or luer connectors with visible defects. If needle access is attempted, the needleless access port must be replaced immediately. Do not exceed 100 actuations.

INSERTION

5. Strict aseptic technique must be used during insertion, maintenance, and catheter removal procedures. Provide a sterile operative field. Use sterile drapes, instruments, and accessories. Perform surgical scrub. Wear gown, cap, gloves, and mask.
6. Apply tourniquet to arm above anticipated insertion site to distend the vein.
7. Insert the introducer needle with attached syringe into the target vein. Aspirate to insure proper placement. Release tourniquet.
8. Remove the syringe and place thumb over the end of the needle to prevent blood loss or air embolism. Draw the flexible end of marked .018" guidewire back into advancer so that only the end of the guidewire is visible. Insert the advancer's distal end into the needle hub. Advance guidewire with forward motion into and past the needle hub into the target vein.
9. Remove needle, leaving guidewire in the target vein. Thread sheath/dilator over the proximal end of the guidewire into target vein.

Caution: DO NOT bend the sheath/dilator during insertion as bending will cause the sheath to prematurely tear. Hold sheath /dilator close to the tip (approximately 3cm from tip) when initially inserting through the skin surface. To progress the sheath/dilator towards the vein, regrasp the sheath/dilator a few centimeters (approximately 5cm) above the original grasp location and push down on the sheath/dilator. Repeat procedure until sheath/dilator is fully inserted.

Caution: Never leave sheath in place as an indwelling catheter. Damage to the vein will occur.

10. Remove dilator from sheath.
11. Insert distal tip of catheter into and through the sheath until catheter tip is correctly positioned in the target vein.
12. Remove the tear-away sheath by slowly pulling it out of the vessel while simultaneously splitting the sheath by grasping the tabs and pulling them apart (a slight twisting motion may be helpful).

Caution: Do not pull apart the portion of the sheath that remains in the vessel. To avoid vessel damage, pull back the sheath as far as possible and tear the sheath only few centimeters at a time.

Caution: Do not clamp the lumen portion of the catheter. Clamp only the extension(s). Do not use serrated forceps, use only the in-line clamp(s) provided.

13. Attach syringe(s) to extension(s) and open clamp(s). Blood should aspirate easily. If excessive resistance to blood aspiration is experienced, the catheter may need to be repositioned to obtain adequate flow.
14. Once adequate aspiration has been achieved, lumen(s) should be irrigated with saline filled syringe(s). Clamp(s) should be open for this procedure.

Caution: Small syringes will generate excessive pressure and may damage the catheter. The use of 10cc or larger syringes are recommended.

15. Remove the syringe(s) and close extension clamp(s). Avoid air embolism by keeping catheter tubing clamped at all times when not in use and by aspirating then irrigating the catheter with saline prior to each use. With each change in tubing connections, purge air from the catheter and all connecting tubing and caps.
16. Document proper tip placement.

Note: If there is no blood return, verify catheter position before use.

CATHETER SECUREMENT AND WOUND DRESSING:

- The insertion site and external portion of the catheter should always be covered with a protective dressing.

17. Cover the exit site with an occlusive dressing according to the facility policy.
18. Record catheter length, catheter lot number, and tip position on patient's chart.

POWER INJECTION PROCEDURE

1. Remove the injection/needleless cap from the CT Midline catheter.

2. Using a 10cc or larger syringe(s), aspirate catheter lumen(s) to assure patency and remove locking solution. Discard syringe(s).

3. Attach a 10cc or larger syringe filled with sterile normal saline and vigorously flush the catheter with the full 10cc of sterile normal saline. **Warning:** Failure to ensure patency of the catheter prior to power injection studies may result in catheter failure.

4. Detach syringe.

5. Attach the power injection device to the CT Midline catheter per manufacturer's recommendations.

Warning: Always use connector tubing between power injector syringe and catheter. Do not attempt to connect power injector syringe directly to the catheter. Damage may result.

6. Complete power injection study taking care not to exceed the flow rate limits. **Warning:** Exceeding the maximum indicated flow rate may result in catheter failure and/or catheter tip displacement.

7. Disconnect the power injection device.

8. Flush the CT Midline catheter with 10cc of sterile normal saline, using a 10cc or larger syringe. For multi-lumen catheters, flush all lumens after power injection.

9. Replace the injection/needleless cap on the CT Midline catheter.

INFUSION

- Before infusion begins all connections should be examined carefully.

- Frequent visual inspection should be conducted to detect leaks to prevent blood loss or air embolism.

- If a leak is found, the catheter should be clamped immediately and replaced.

Caution: Only clamp catheter with in-line clamps provided.

- Necessary remedial action must be taken prior to the continuation of the treatment.

Note: Excessive blood loss may lead to patient shock.

CATHETER MAINTENANCE

- **Dressing Changes** - A dressing should cover the insertion site at all times. The dressing should be changed per institutional policy or any time the dressing becomes soiled, wet, or non-occlusive.

Note: During all dressing changes the external length of the catheter should be assessed to determine if catheter migration has occurred. Periodically confirm catheter placement and tip location.

- **Flushing and Locking** - Flush and lock catheter according to your institutional policy.

- The catheter should be flushed with normal saline prior to drug administration to remove locking solution.

- After drug administration each lumen should be flushed again with normal saline and then locked to maintain patency.

Injection Caps - Injection cap(s) or needleless access port(s) should be changed per institutional policy. If using the supplied needleless access port(s), do not exceed 100 actuations.

CATHETER PERFORMANCE

- Occluded/Partially Occluded Catheter- If resistance is encountered to aspirating or flushing, the lumen may be partially or completely occluded.

Warning: Do not flush against resistance.

- If the lumen will neither aspirate nor flush, and it has been determined that the catheter is occluded with blood, follow institutional declotting procedure.

Infection

Caution: Due to risk of exposure to HIV or other blood borne pathogens, health care professionals should always use Universal Blood and Body Fluid Precautions in the care of all patients.

- Sterile technique should always be strictly adhered to.

- Clinically recognized infection should be treated promptly per institutional policy.

CATHETER REMOVAL

Warning: Only a clinician familiar with the appropriate techniques should attempt the following procedures.

Caution: Always review facility protocol, potential complications and their treatment, warnings, and precautions prior to catheter removal.

1. Wash hands, gather equipment.

2. Remove old dressing and inspect insertion site for redness, tenderness, and drainage.

3. Grasp catheter near insertion site and using a slow steady motion, remove catheter from vein.

4. If resistance is felt - STOP. Retape the catheter and apply a warm compress to the extremity for 20-30 minutes.

5. Resume removal procedure. If catheter remains "stuck" follow institutional policy for further intervention.

6. Apply pressure, if necessary, until bleeding stops and dress site following institutional policy.

Note: Inspect catheter and measure length. It must be equal to baseline measurement taken when the catheter was inserted.

ALTERNATE INSERTION TECHNIQUE USING STIFFENING STYLET AND SIDEPORT ADAPTER

PREPARE CATHETER

1. Preflush catheter, sideport adapter, and needleless access ports.

- Attach saline filled syringe to luer of sideport adapter and flush adapter and catheter. Clamp sideport extension and remove syringe. If using multi-lumen catheter, attach needleless access port to remaining extension. Attach saline filled syringe to the needleless access port and completely flush catheter lumen. Remove syringe from needleless access port prior to clamping extension. Flush remaining needleless access port and set aside.

Caution: Never close clamp on catheter stylet; stylet and catheter damage may result.

Caution: The needleless access port should not be used with needles, blunt cannula, or other non-luer connectors, or luer connectors with visible defects. If needle access is attempted, the needleless access port must be replaced immediately. Do not exceed 100 actuations.

INSERTION

2. Strict aseptic technique must be used during insertion, maintenance, and catheter removal procedures. Provide a sterile operative field. Use sterile drapes, instruments, and accessories. Perform surgical scrub. Wear gown, cap, gloves, and mask.

3. Apply tourniquet to arm above anticipated insertion site to distend the vein.

4. Insert the introducer needle with attached syringe into the target vein. Aspirate to insure proper placement. Release tourniquet.

5. Remove the syringe and place thumb over the end of the needle to prevent blood loss or air embolism. Draw the flexible end of marked .018" guidewire back into advancer so that only the end of the guidewire is visible. Insert the advancer's distal end into the needle hub. Advance guidewire with forward motion into and past the needle hub into the target vein.

6. Remove needle, leaving guidewire in the target vein. Thread sheath/dilator over the proximal end of the guidewire into target vein.

Caution: DO NOT bend the sheath/dilator during insertion as bending will cause the sheath to prematurely tear. Hold sheath /dilator close to the tip (approximately 3cm from tip) when initially inserting through the skin surface. To progress the sheath/dilator towards the vein, regrasp the sheath/dilator a few centimeters (approximately 5cm) above the original grasp location and push down on the sheath/dilator. Repeat procedure until sheath/dilator is fully inserted.

Caution: Never leave sheath in place as an indwelling catheter. Damage to the vein will occur.

7. Loosen locking collar of sideport and withdraw stylet back beyond the point where the catheter is to be trimmed by at least ¼ inch (1cm).

Caution: Never attempt to cut stylet.

Caution: Always withdraw stylet back beyond the tip of the catheter prior to insertion.

8. Once proper catheter length and stylet position has been achieved, tighten locking collar to keep stylet in place.

9. Remove dilator from sheath.

10. Insert distal tip of catheter into and through the sheath until catheter tip is correctly positioned in the target vein.

11. Remove the tear-away sheath by slowly pulling it out of the vessel while simultaneously splitting the sheath by grasping the tabs and pulling them apart (a slight twisting motion may be helpful).

Caution: Do not pull apart the portion of the sheath that remains in the vessel. To avoid vessel damage, pull back the sheath as far as possible and tear the sheath only few centimeters at a time.

Caution: Do not clamp the lumen portion of the catheter. Clamp only the extension(s). Do not use the serrated forceps, use only the in-line clamp(s) provided.

12. Loosen locking collar of sideport. Remove the stylet by applying gentle pressure with one hand above the insertion site while grasping the stylet with the other hand and slowly pulling back with a constant motion. Remove sideport adapter and replace with needleless access port. Attach saline filled syringe to needleless access port, aspirate lumen and then irrigate with saline. Remove syringe prior to clamping extension.

Caution: If difficulty and/or bunching of the catheter lumen are experienced while removing the stylet, additional flushing of the catheter may be helpful. The catheter may need to be repositioned to allow for removal of the stylet.

Caution: Do not attempt to reinsert stylet once it has been withdrawn.

Caution: Never leave stylet in place after catheter insertion; injury may occur. Remove both stylet and sideport adapter after insertion.

13. Continue following directions at step #13 of "Insertion" Section.

SYMBOL TABLE

	Manufacturer
	Keep Dry
	Do Not Re-use
	Non-pyrogenic
	Keep Away from Sunlight
	Upper Limit of Temperature
STERILE EO	Sterilized Using Ethylene Oxide
	Do Not Use if Package is Damaged
	Use By Date
STERILIZE	Do Not Resterilize
LOT	Lot Number
REF	Catalogue Number
EC REP	Authorized Representative in the European Community

WARRANTY

Medcomp® WARRANTS THAT THIS PRODUCT WAS MANUFACTURED ACCORDING TO APPLICABLE STANDARDS AND SPECIFICATIONS. PATIENT CONDITION, CLINICAL TREATMENT, AND PRODUCT MAINTENANCE MAY EFFECT THE PERFORMANCE OF THIS PRODUCT. USE OF THIS PRODUCT SHOULD BE IN ACCORDANCE WITH THE INSTRUCTIONS PROVIDED AND AS DIRECTED BY THE PRESCRIBING PHYSICIAN.

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A Step By Step Guide for Removal of Midlines and Non-Tunneled Central Lines

Instructions for Use

This is an overview of the use of the new line removal kit. Please utilize this guide for just in time training when preparing to use this kit for removal of a midline or non-tunneled central line from a patient at the bedside.

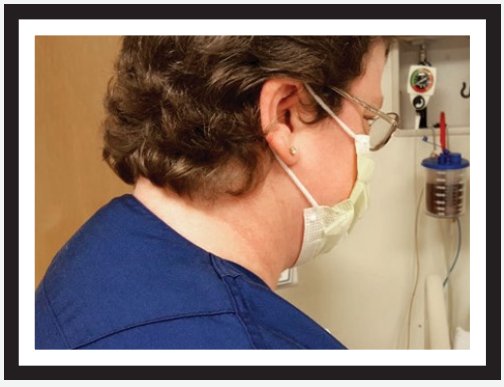
Please follow the steps below for removal. This reference should be used in conjunction with the appropriate policies and procedures.

1. **Verify line removal order in EMR. Gather supplies – utilize line removal kit.**

2. **Position patient:**
   a. **Sitting or recumbent- midline catheter**
   b. **Supine flat or Trendelenburg, unless contraindicated- all central lines**
3. **Perform hand hygiene.**
4. **Open 1st layer of line removal kit.**

5. **Mask patient.**

6. **Mask caregiver.**



7. **Perform hand hygiene and don sterile gloves.**
8. **Use sterile saline wipes inside the kit to help easily remove the old dressing.**

A Step By Step Guide for Removal of Midlines and Non-Tunneled Central Lines (continued)

9. Remove dressing.

10. Discard gloves and wash hands.

11. Inspect catheter-skin junction. Use 2nd layer of kit for cleaning site and removing line.

12. Don 2nd pair of sterile gloves.

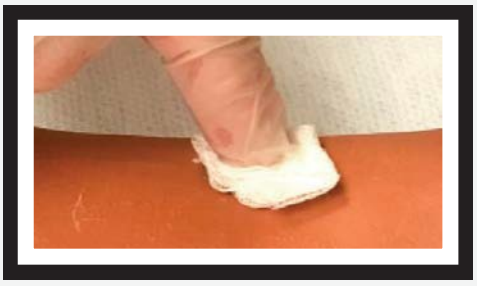
13. Scrub the site with CHG applicator.

14. Remove midline and assess integrity of removed line. Validate length removed is correct. Document length in EMR.

15. Apply pressure to the site. Continue pressure until hemostasis has occurred – *minimum of 30 seconds required.*

16. Dress the site with sterile petroleum.

17. Apply a 2x2 gauze to the site.



18. Apply transparent semi-permeable dressing.

19. Change dressing every 24 hours until exit site is healed.

***Patient should remain in catheter removal position for at least 30 minutes after non-tunneled central line has been removed.**

ALWAYS IMPROVING
Clinical Performance Improvement

CLABSI

Central Line Policies and Job Aids

Policies:

- Adult CVAD Insertion, Care, Maintenance, Removal Policy
- Adult CVAD Flushing Guidelines Policy
- Nursing Care of Adult Patients with CVADs Present on Admission Policy
- Central Line Catheter Guidewire Exchange Policy

Job Aids:

- CVAD Dressing Change, Maintenance, and Blood Sampling Checklist
- Midline and CVAD Dressing Change Checklist
- Midline Catheter and Non-Tunneled CVAD Removal Competency Checklist

Sentara CVAD Scope of Practice Grid

Definitions/Abbreviations

CVAD: Central Venous Access Device

- Device which permits access to the central vascular system

IVAD: Implanted Vascular Access Device

"Access" a CVAD: any manipulation of a CVAD which includes but is not limited to: insertion, care, maintenance, infusion of any fluid into the catheter and discontinuation/removal of the device

Examples of CVADS (not all inclusive):
Peripherally Inserted Central Catheter (PICC)

Non-cuffed/non-tunneled CVAD (IJ, Subclavian, Swan Ganz)

Cuffed/tunneled CVAD (Broviac, Groshong, Hickman, Quinton)

Hemodialysis CVAD (Trialysis Catheter or other temporary/ permanent catheters used to provide dialysis to the patient)

Implanted Vascular Access Devices/Ports (MediPorts, PortaCath)

Providers:

LIP=Licensed Independent Practitioner

RN=Registered Nurse, CRNA, Dialysis RN, Float/Contract RN

LPN=Licensed Practical Nurse

Rad Tech= Radiologic Technologist (certified by ARRT)

DT= Dialysis Technician (SNGH only)

NCP, CNA= **do not access central lines**, not within the Scope of Practice for those roles (INS Standard 3)

INS= Infusion Nurses Society
(S)= INS Standards
(P)= INS Policies and Procedures

Procedure	*Catheter*	LIP	RN	LPN	Rad Tech	RCIS	DT	*Comments*
Insert catheter	PICC	Y	Y*	N	Y+	N	N	LIP are providers credentialed by the organization for this procedure *RN (by facility) +Rad Techs (by facility)
	ALL CVADS	Y	N	N	N	N	N	LIP are providers credentialed by the organization for this procedure *All Central Venous Access Device placement orders should reference either the Sentara Adult IV Selection Algorithm or the Sentara Oncology Insertion Algorithm for practice recommendations*
Check documentation verifying placement prior to use (to include power injection)	ALL CVADS	Y	Y	Y	Y+	Y@	Y	Documentation should be checked PRIOR to use Y+=Rad Techs (by facility) Y@= RCIS must be under the direction of a qualified physician
Access/de-access (as defined above)	ALL CVADS	Y	Y*	Y*	Y+	Y@	Y#	**Specifics of access are outlined below** *All providers accessing Central Venous Access Devices as defined by the Infusion Nurses Society (INS) must complete a Sentara orientation and demonstrate competency* *Annual demonstration of competency is also required*
	IVAD (Needle Access/De-Access)	Y	Y	Y	N	N	N	All implanted access devices must be accessed using the smallest gauge non-coring needle to accommodate the therapy (S28). *All providers accessing and de-accessing an Implanted Vascular Access Device/port must have a validated, recent competency prior to performing this task.*
	Hemodialysis/ trialysis catheters	Y	Y*	N	Y+	N	Y#	*RNs in Dialysis and other RNs with an MD order only Y+= Rad Techs (by facility) Y#= Catheters used for dialysis only
Assess and document	ALL CVADS	Y	Y	Y	Y+	Y@	N	All providers utilizing CVADs for any reason should ALWAYS assess the site prior to use (S41). Assessment includes: condition of the insertion site, condition of the dressing, condition of the needless connectors and appropriate placement of alcohol impregnated caps

	Hemodialysis Catheters/						Y#	Y#=Catheters used for dialysis only
Flush Catheter following facility policy	ALL CVADS	Y	Y	Y	Y+	Y@	N	INS Policy and Procedure (S40; Procedure Section 4) Adult Central Venous Access Device Flushing Guidelines Policy
	Hemodialysis/ trialysis Catheters	Y	Y*	Y*	Y+	N	Y#	*RNs in Dialysis and other RNs, LPNs with an MD order only Y+= Rad Techs (by facility) Y#=Catheters used for dialysis only
Flush catheter with Heparin	ALL CVADS	Y	Y*	Y*	Y+	Y@	N	* *Must have an MD order for Heparin flushes* Y+= Rad Techs (by facility) Y@=RCIS must be under the direction of a qualified physician
	Hemodialysis/ trialysis Catheters	Y	Y*	N	Y+	N	Y#	*RNs in Dialysis and other RNs. LPNs with an MD order only Y+ = Rad Techs (by facility) Y #= Catheter used for dialysis only
Change Dressing	ALL CVADS	Y	Y	Y	Y+	Y@	N	Dressing should be changed every 7 days or immediately if the dressing becomes compromised, if moisture, drainage or blood is present or if signs and symptoms of a site infection are present (S41) If gauze is placed, dressing is changed every 2 days (S41)
	Hemodialysis/ trialysis Catheters						Y#	Y#=Catheters for Dialysis only
De-clot or repair catheter	ALL CVADS	Y	Y*	N	Y+	N	N	*RNs requires additional training and demonstrated competency (Procedure Section 5) Y+= Rad Techs (by facility) See facility Job Aid for Trouble-shooting CVAD Complications
Remove Catheters	PICC	Y	Y*	N	Y+	N	N	*RNs require additional training and demonstrated competency Y+=Rad Techs (by facility)
	Non-tunneled CVADS	Y	Y*	N	Y+	N	N	*RNs require additional training and demonstrated competency Y+ Rad Techs (by facility)
	Tunneled CVADS Implanted Ports	Y	N	N	N	N	N	Tunneled Catheters require surgical removal

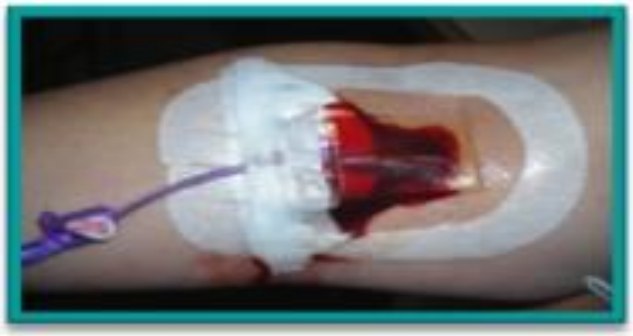
Reference:

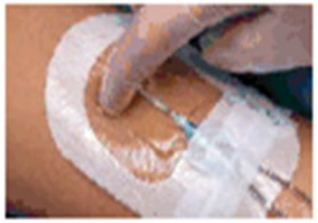
Infusion Nurses Society, Inc. (2016). Policies and Procedures for Infusion Nursing (5th Edition).

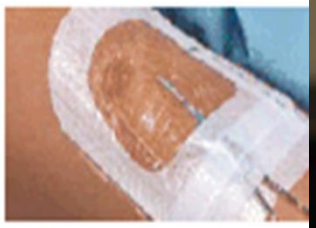
Central Line Dressing Changes Tip Card

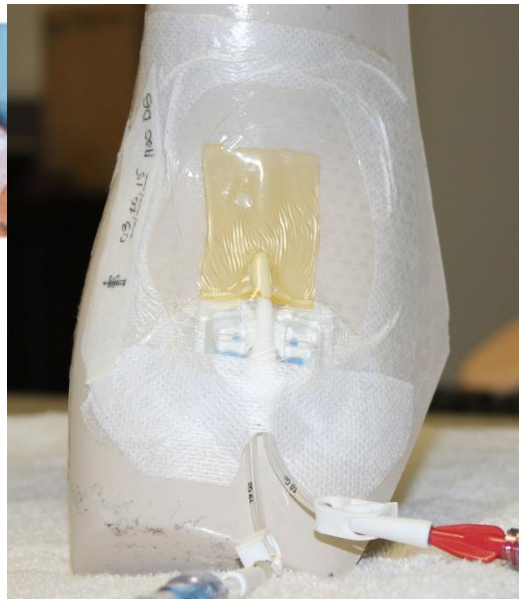
When Dressing Changes Required

- Every 7 days
- Any time the integrity of the dressing is compromised
- Any time blood/drainage is present that <u>extends beyond the CHG impregnated gel pad</u>
- Any time moisture is present
- Any time dressing is removed for any reason









Dressing Placement

- CHG pad should be centered over insertion site
- Gauze dressings, when required, are changed every 48 hours

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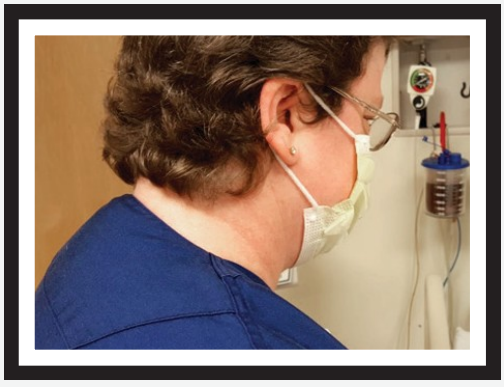

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A Step By Step Guide for Removal of Midlines and Non-Tunneled Central Lines (continued)

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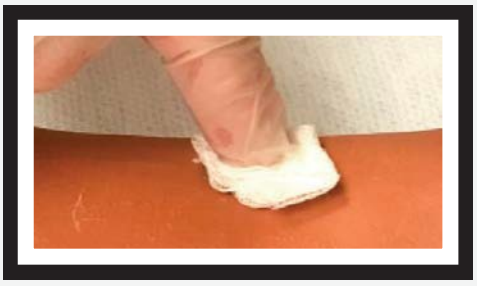

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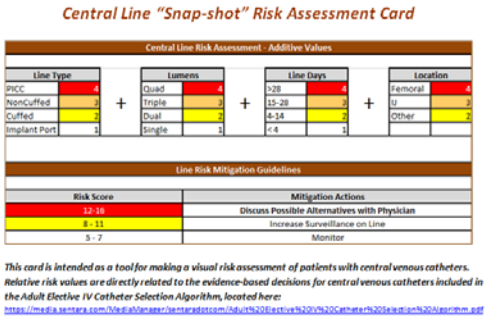
Central Line "Snap-Shot" Risk Assessment Card #1240



Central Line "Snap-shot" Risk Assessment Card

Central Line Risk Assessment - Additive Values

Line Type		Lumens		Line Days		Location	
PICC	4	Quad	4	>28	4	Femoral	4
NonCuffed	3	Triple	3	15-28	3	IJ	3
Cuffed	2	Dual	2	4-14	2	Other	2
Implant Port	1	Single	1	<4	1		

Line Risk Mitigation Guidelines

Risk Score	Mitigation Actions
12-16	Discuss Possible Alternatives with Physician
8 - 11	Increase Surveillance on Line
5 - 7	Monitor

This card is intended as a tool for making a visual risk assessment of patients with central venous catheters. Relative risk values are directly related to the evidence-based decisions for central venous catheters included in the Adult Elective IV Catheter Selection Algorithm, located here:

February 15, 2017

S	**Situation-** **The proper assessment of Central Lines plays a critical role in the reduction of CLABSIs.**
B	**Background-** **The CLABSI team has made available a new tool to assist with assessing Central Lines. There is no requirement to utilize this assessment card. The idea was to simply provide our team with an additional assessment tool.**
A	**Assessment-** **Some of the ways that the Risk Assessment Card can be utilized include:** • **Assisting in the education of new graduate Registered Nurses** • **As an additional resource for experienced staff** • **Leadership rounds** • **Safety Huddles** • **Chart reviews**
R	**Recommendation-** **Order from Print Services** **The cards are listed: Hospitals>Badges/Cards>Safety/Quality** **Listed as Central Line "Snap-Shot" Risk Assessment Card #1240** **It can also be found by searching #1240 on the Print Services** **Please contact mcgray@sentara.com 757-983-2810 with questions**

Central Line "Snap-shot" Risk Assessment Card

Central Line Risk Assessment - Additive Values

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https://media.sentara.com/MediaManager/sentaradotcom/Adult%20Elective%20IV%20Catheter%20Selection%20Algorithm.pdf

Evidence Indicates:

- *Peripheral venous lines are the least likely form of venous access to have a complication.*
- *Central Line Associated Blood Stream Infections increase with the number of lumens.*
- *Blood stream infections and risk of thrombosis probably increase with use of power injectable venous devices.*

References:

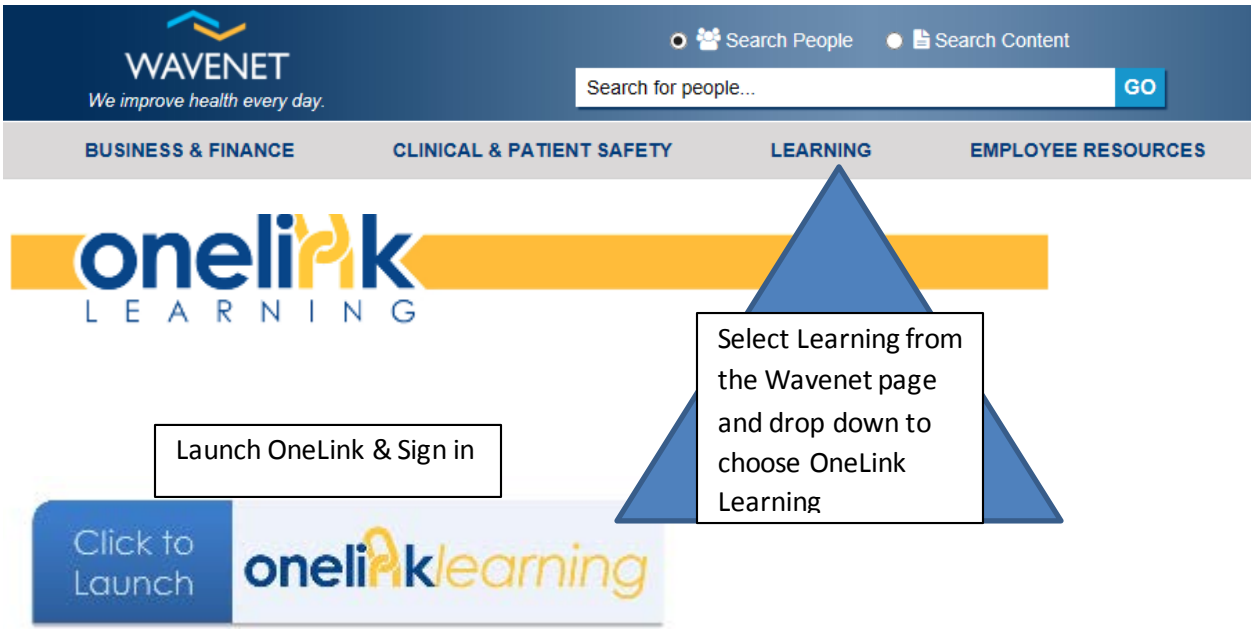
1. *Impact of Postplacement Adjustment of Peripherally Inserted Central Catheters on the Riskof Bloodstream Infection and Venous Thrombus Formation. Author(s): Sanjiv M. Baxi, MD, MS; Emily K. Shuman, MD; Christy A. Scipione, MPH; Benrong Chen, PhD; Aditi Sharma, MD; Jennifer J. K. Rasanathan, MD, MPH; Carol E. Chenoweth, MD,MS; Source: Infection Control and Hospital Epidemiology, Vol. 34, No. 8 (August 2013), pp. 785-792; Published by: The University of Chicago Press on behalf of The Society for Healthcare Epidemiology of America; Stable URL: http://www.jstor.org/stable/10.1086/671266 ; Accessed: 23/09/2014 07:22*
2. *PICC-associated Bloodstream Infections: Prevalence, Patterns, and Predictors; Vineet Chopra, MD, MS; David Ratz, MS; Latoya Kuhn, MPH; Tracy Lopus, RN, CRNI; Carol Chenoweth, MD, MS; Sarah Krein, PhD, RN; The Center for Clinical Management Research and The Patient Safety Enhancement Program, Ann Arbor, Mich; VA Ann Arbor; Healthcare System, Ann Arbor, Mich; The University of Michigan Health System, Ann Arbor – as published in the Journal of American Medicine.*
3. *Allen-Bridson, K. (March 12, 2014). NHSN Central Line-associated Bloodstream Infection Surveillance. Retrieved from* http://www.cdc.gov/nhsn/PDFs/training/training-CLABSI-2014-with-answers-BW.pdf

CVAD QuikClot® Tip Card

- A sterile gauze dressing is preferred when:
  1. Patient is diaphoretic
  2. Insertion site is actively oozing or bleeding
- The sterile gauze dressing will be changed every 2 days and when the dressing integrity has been compromised.
- If bleeding is not controlled with a sterile gauze dressing, contact the provider. Notify the provider of the condition of the site.
- A QuikClot® hemostatic bandage may be placed on an actively oozing site for 24 hours ONLY.
- A physician order must be obtained to place QuikClot.
- QuikClot is a non-stock item available for ordering through Materials Management, Item No. 148937.
- After removal of QuikClot, if there is no more oozing, dress the site with a CHG Tegaderm dressing.

NOTE: Not for areas of dried blood; used for active bleeding at the site.

PIV/ML Tip Sheet December 2015



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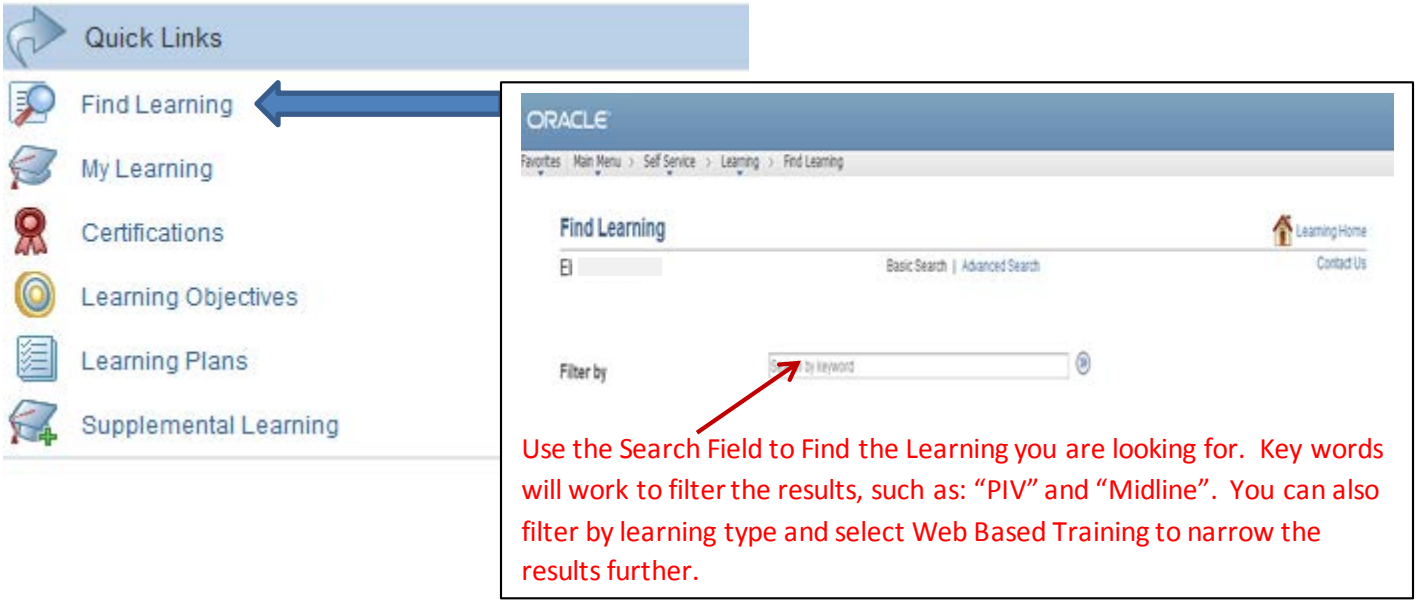
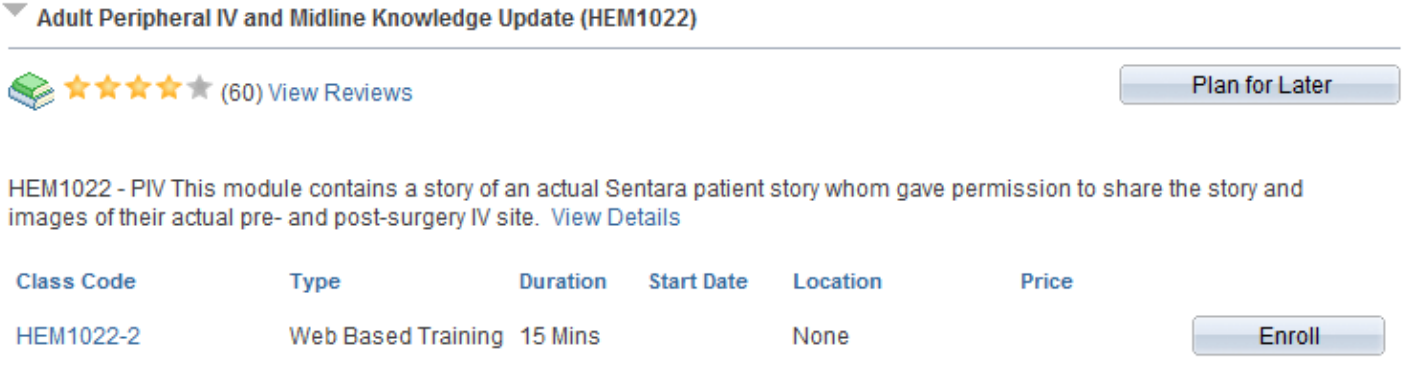
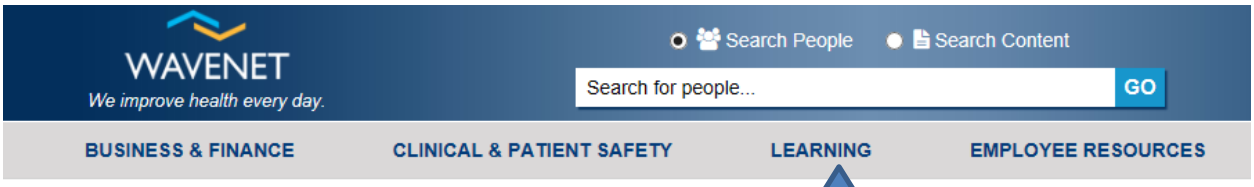
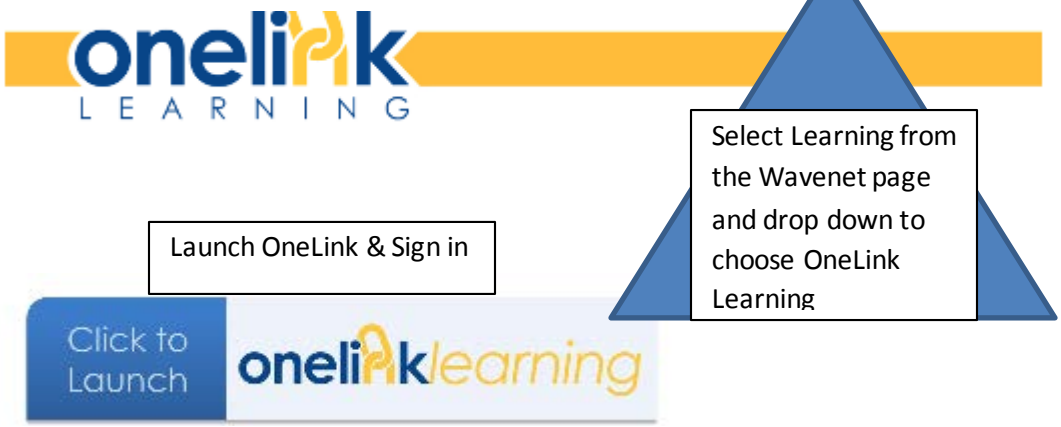




CVAD Tip Sheet December 2015





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