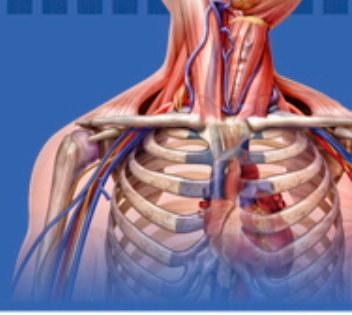
Vessel Health and Preservation:

What is the Right Line for the Right Patient at the Right Time?

Nancy Moureau, *BSN, RN, CRNI, CPUI, VA-BC*

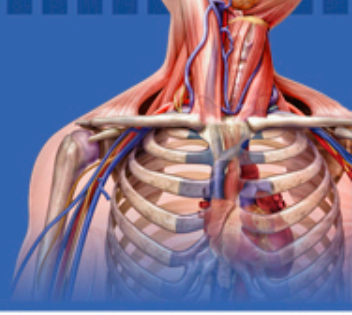
This program is sponsored by Teleflex

Objectives



- After completing this activity the learner will be able to:
- List the key concepts of the Vessel Health and Preservation program
- Discuss the benefits of the Vessel Health and Preservation Program
- Describe the implementation plan of Vessel Health and Preservation (VHP)
- Describe the tools of the VHP initiative including the Daily Vascular Access Assessment Tool
- Identify the methods for providing input and evaluation of the program

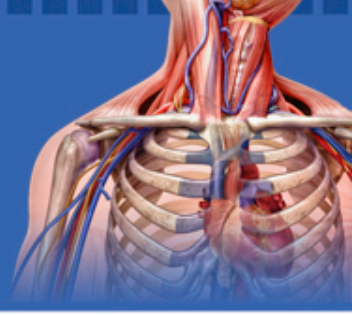
Disclosure



Ms. Moureau has disclosed the following:

- Speakers Bureau for Arrow/Teleflex, Cook, Excelsior, 3M
- Educational Support for Access Scientific, Angiodynamics, Genentech

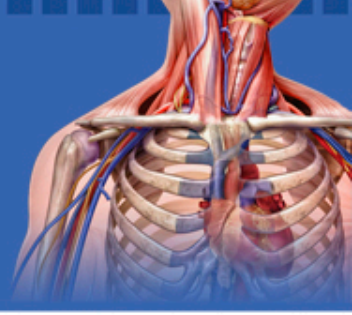
Continuing Education Credit (CE)



- At the end of this webinar you can obtain 1.0 contact hour by going to www.saxetesting.com/vh
- Complete the post-test and evaluation form.
- Upon successful submission, you will be able to print out your certificate of completion.
- Provider (Saxe Communications) is approved by the California Board of Registered Nursing. Provider # 14477
- This program has been approved for 1.0 contact hour of CRCE by the AARC.
- No off-label use of products will be discussed.
- Ms. Moureau did not disclose any conflicts of interest in relation to this presentation.

What Is Vessel Health and Preservation?

Vessel Health and Preservation (VHP)

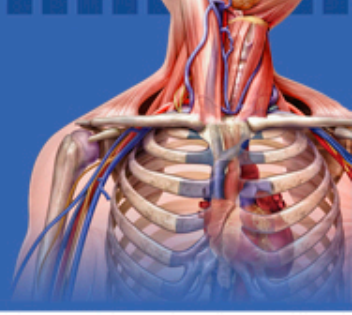


Vessel Health and Preservation is a process that applies evidence-based guidelines for:

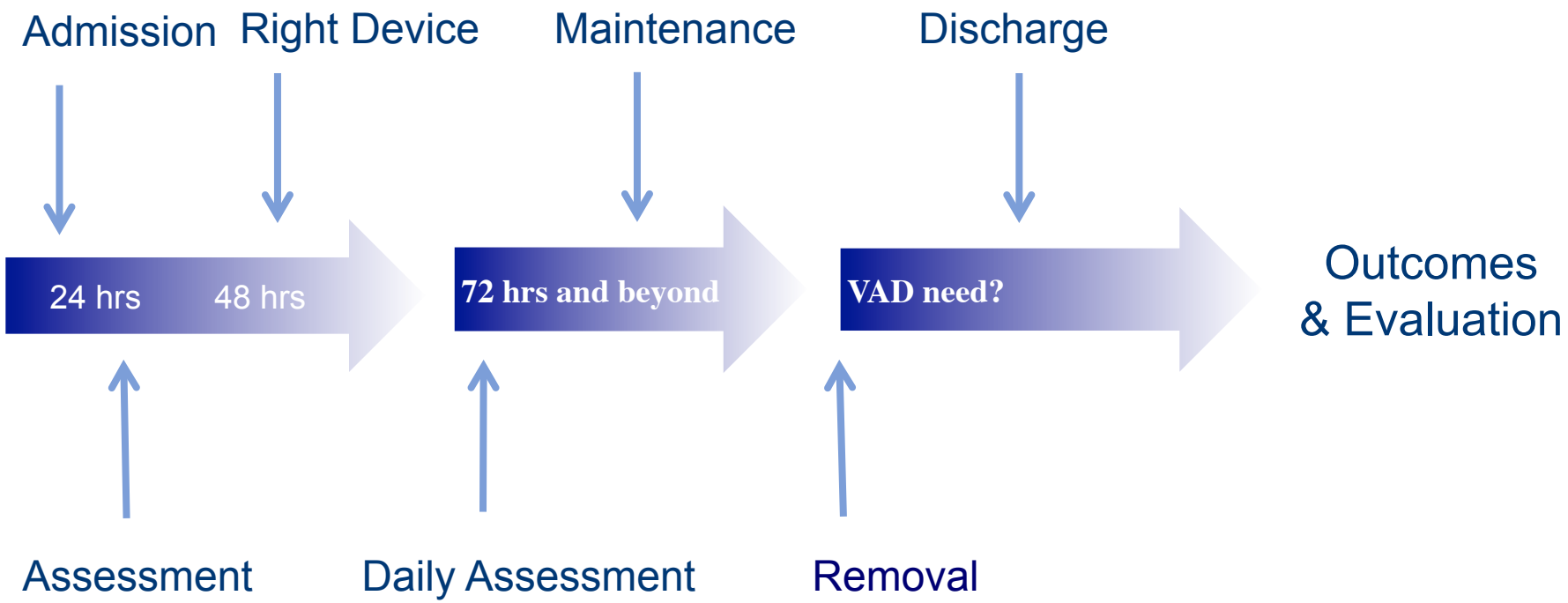
- Vascular Access (IV) device selection, insertion, maintenance and removal
- It is an evidenced base system that functions on a timeline with selection algorithm

Right Line for the Right Patient at the Right Time™

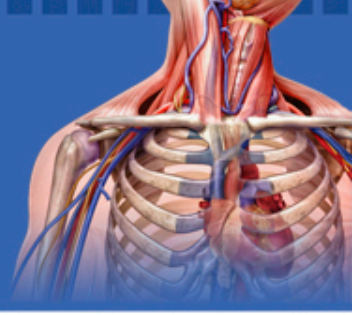
The VHP as a Vascular Access System of Care



Right Line for the Right Patient at the Right Time™



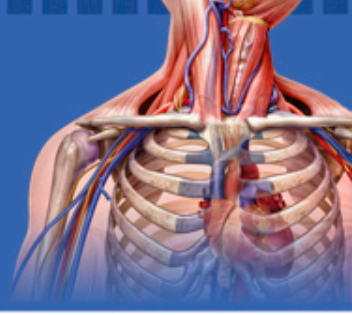
VHP Outcomes are a Function of Evidence and Guidelines



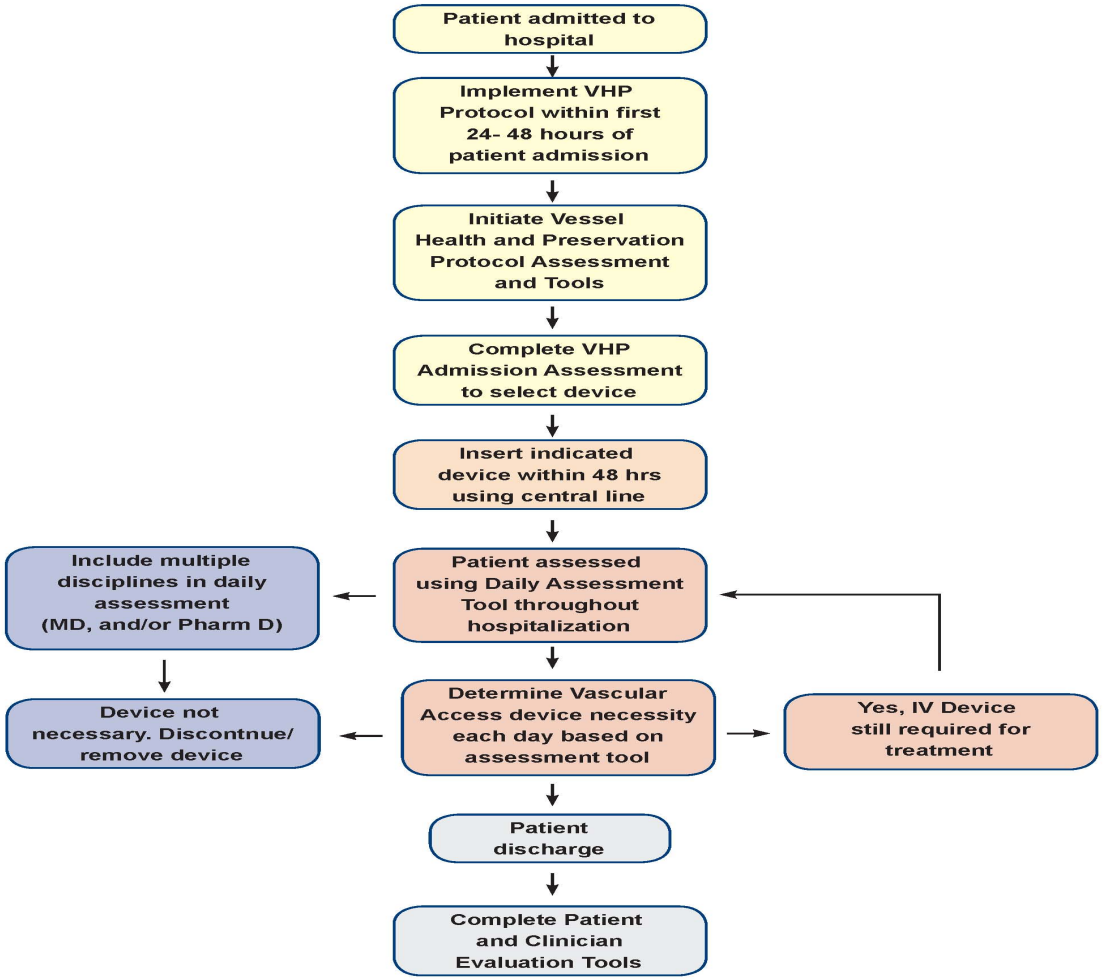
KEY CONCEPTS

- Right Line
  - Choose the best vascular access device based on treatment plan
  - Fewest lumen, smallest size, safest site, and use of ultrasound
- Right Patient
  - Select a device based on patient conditional factors and long-term needs
  - Assess veins, choices, and history
- Right Time
  - Early assessment (< 24 hrs) and placement (< 48 hours)
  - Daily assessment and removal when treatment complete

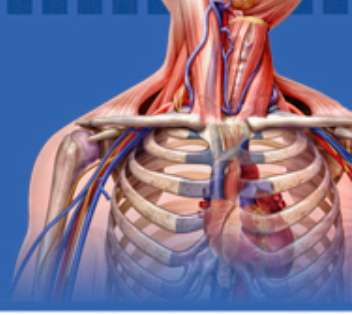
Practice Recommendations: Assessment and Device Selection for Vascular Access, RNAO 2008 www.rnao.org



The VHP Protocol:
a working process for intentional access selection and assessment



Benefits of Vessel Health and Preservation

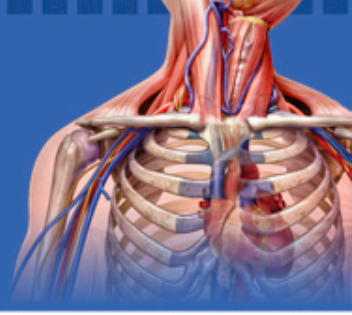


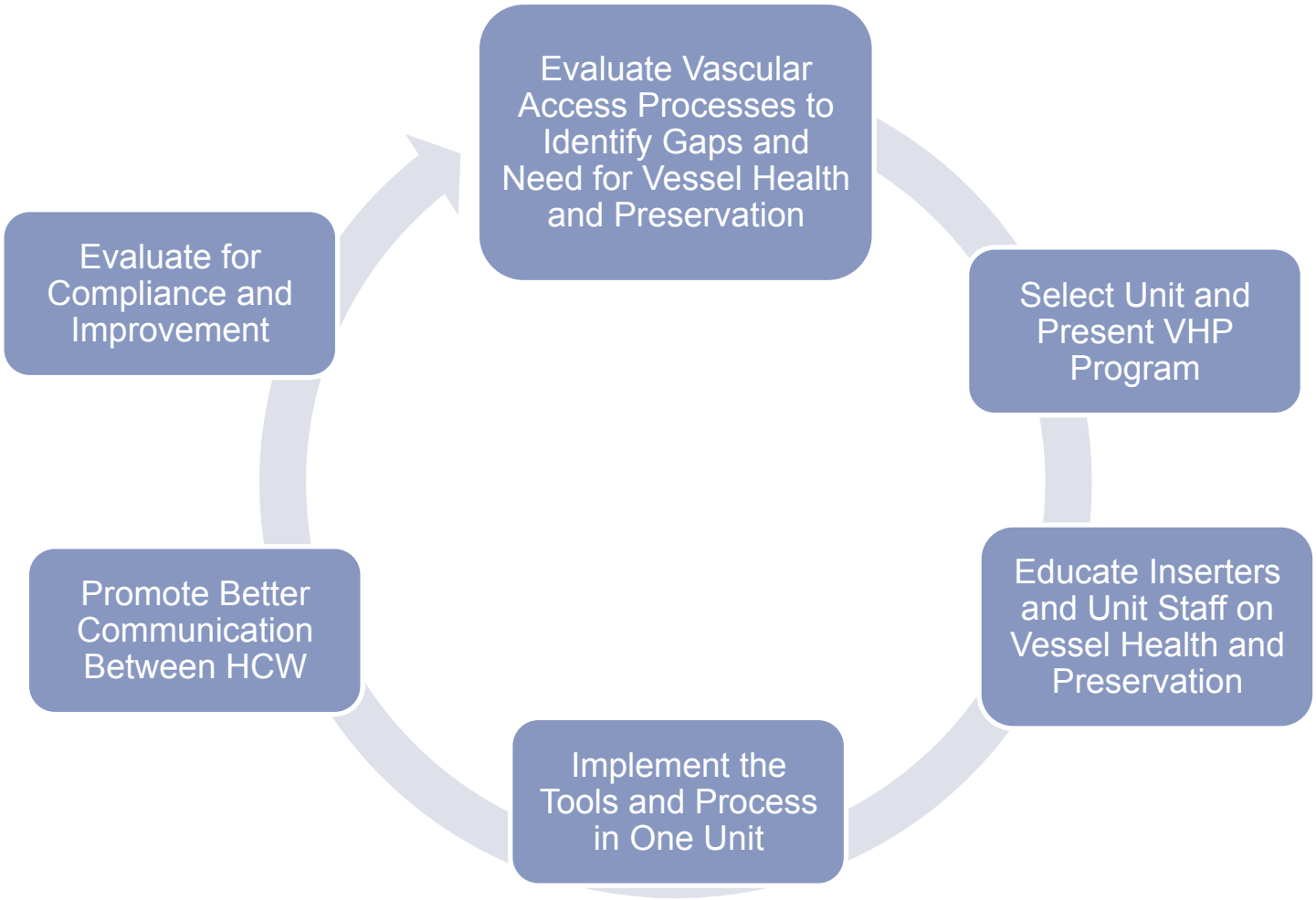
- Protocol provides consistency of care
- Intentional selection process preserves veins for future needs of patient
- Process implements Best Practice Guidelines
- Education and compliance with guidelines results in reduced infection rates
- Fewer vascular access devices promotes greater patient satisfaction

Stage 1

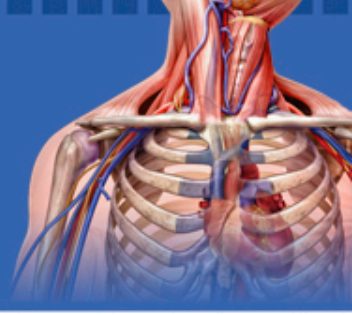
A Starting Point for Assessment

Implementing the VHP System



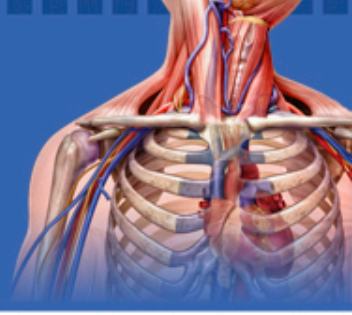


First Phase of Vessel Health Implementation

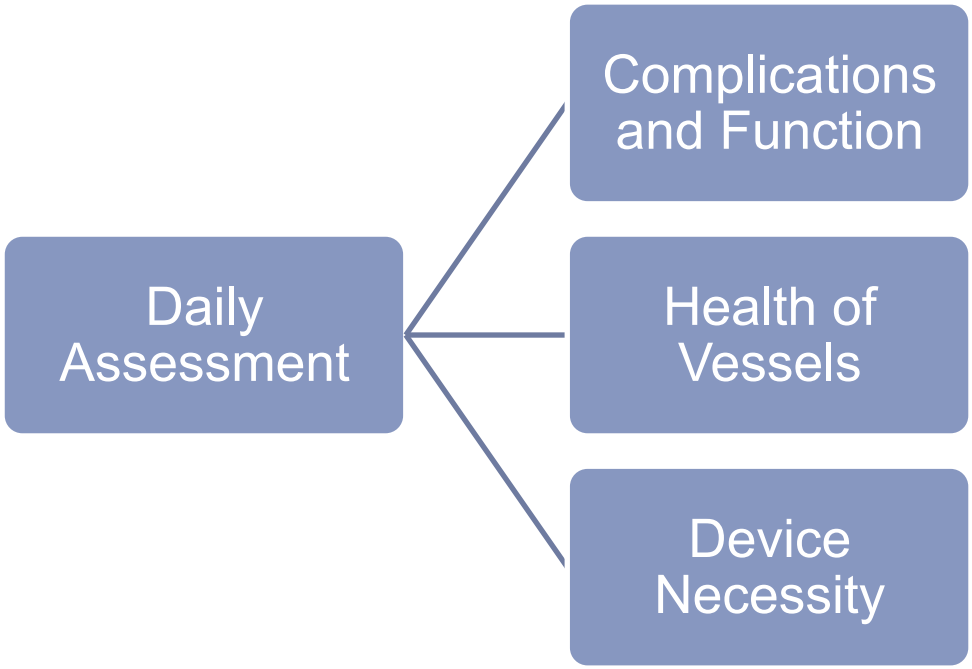


- Retrospective Review of vascular access device usage and complications
- Initiate education for Daily Vascular Access Assessment (DVA Tool)
- Begin use of Daily Assessment Tool in your unit
- Reach 100% usage of DVA Tool for all patients in unit
- Perform random trial use of Admission Assessment Tool
- Evaluate patient and staff for comments and satisfaction with Stage 1 process

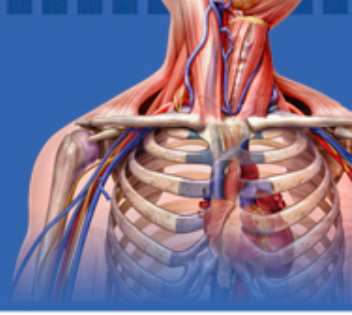
Right Time for Daily Measurement of Outcomes



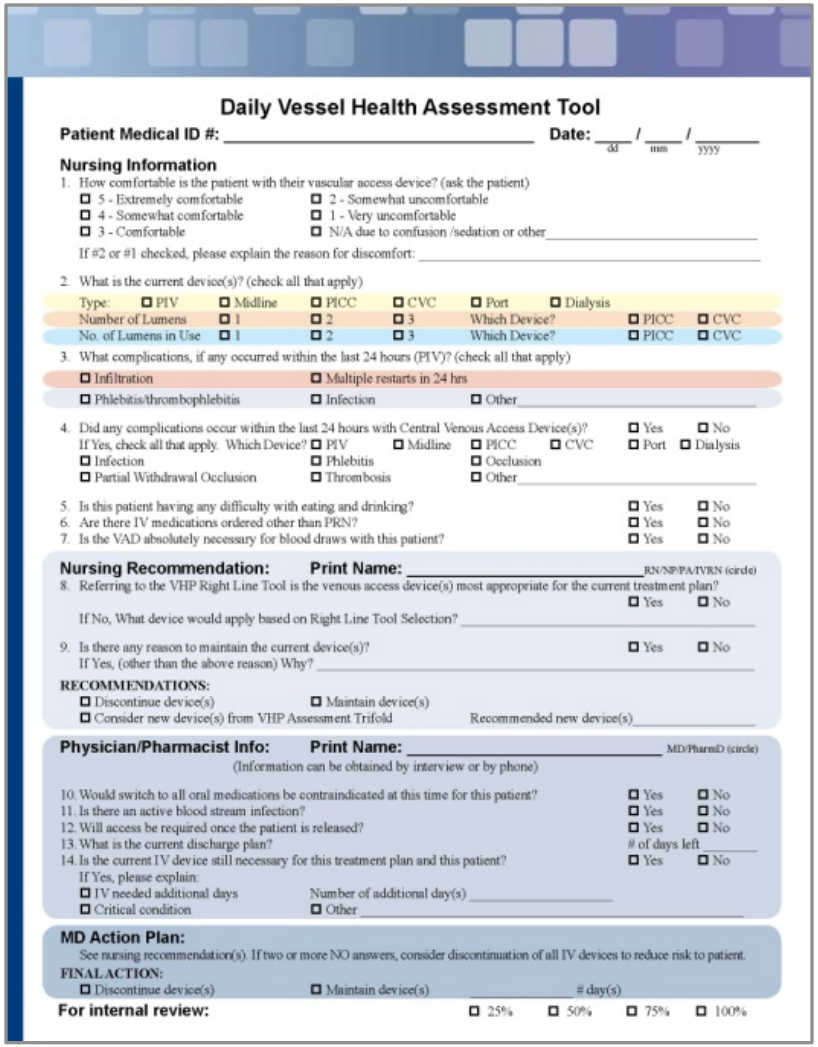
- Daily Assessment
  - Performed for early identification of complications
  - Is device appropriate, preserving vessel health and comfortable for patient?
  - Is device still necessary or can meds change to oral?



Daily Assessment



- Daily vascular access assessment by nursing and medical staff
- Completion of Daily Assessment by nursing staff by night staff to make it ready (before 6AM) for AM rounds
- Medical staff completion by end of day, verified with signature
- Determination of necessity with multi-disciplinary focus and medical rounds



Daily Vessel Health Assessment Tool

Patient Medical ID #: _____ **Date:** ____ / ____ / _____ (dd / mm / yyyy)

Nursing Information

1. How comfortable is the patient with their vascular access device? (ask the patient)
   - ☐ 5 - Extremely comfortable
   - ☐ 4 - Somewhat comfortable
   - ☐ 3 - Comfortable
   - ☐ 2 - Somewhat uncomfortable
   - ☐ 1 - Very uncomfortable
   - ☐ N/A due to confusion /sedation or other_____

   If #2 or #1 checked, please explain the reason for discomfort: _____

2. What is the current device(s)? (check all that apply)

Type:	☐ PIV	☐ Midline	☐ PICC	☐ CVC	☐ Port	☐ Dialysis	
Number of Lumens	☐ 1	☐ 2	☐ 3	Which Device?		☐ PICC	☐ CVC
No. of Lumens in Use	☐ 1	☐ 2	☐ 3	Which Device?		☐ PICC	☐ CVC

3. What complications, if any occurred within the last 24 hours (PIV)? (check all that apply)
   - ☐ Infiltration
   - ☐ Multiple restarts in 24 hrs
   - ☐ Phlebitis/thrombophlebitis
   - ☐ Infection
   - ☐ Other_____

4. Did any complications occur within the last 24 hours with Central Venous Access Device(s)? ☐ Yes ☐ No
   If Yes, check all that apply. Which Device? ☐ PIV ☐ Midline ☐ PICC ☐ CVC ☐ Port ☐ Dialysis
   - ☐ Infection
   - ☐ Phlebitis
   - ☐ Occlusion
   - ☐ Partial Withdrawal Occlusion
   - ☐ Thrombosis
   - ☐ Other_____

5. Is this patient having any difficulty with eating and drinking? ☐ Yes ☐ No
6. Are there IV medications ordered other than PRN? ☐ Yes ☐ No
7. Is the VAD absolutely necessary for blood draws with this patient? ☐ Yes ☐ No

Nursing Recommendation: **Print Name:** _____ RN/NP/PA/IVRN (circle)

8. Referring to the VHP Right Line Tool is the venous access device(s) most appropriate for the current treatment plan? ☐ Yes ☐ No
   If No, What device would apply based on Right Line Tool Selection? _____
9. Is there any reason to maintain the current device(s)? ☐ Yes ☐ No
   If Yes, (other than the above reason) Why? _____

RECOMMENDATIONS:
- ☐ Discontinue device(s)
- ☐ Maintain device(s)
- ☐ Consider new device(s) from VHP Assessment Trifold
- Recommended new device(s)_____

Physician/Pharmacist Info: **Print Name:** _____ MD/PharmD (circle)
(Information can be obtained by interview or by phone)

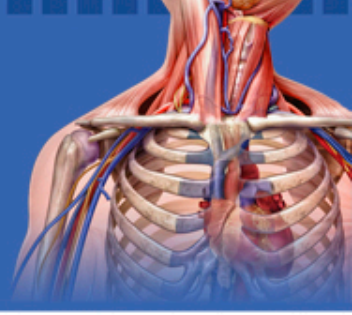
10. Would switch to all oral medications be contraindicated at this time for this patient? ☐ Yes ☐ No
11. Is there an active blood stream infection? ☐ Yes ☐ No
12. Will access be required once the patient is released? ☐ Yes ☐ No
13. What is the current discharge plan? # of days left _____
14. Is the current IV device still necessary for this treatment plan and this patient? ☐ Yes ☐ No
    If Yes, please explain:
    - ☐ IV needed additional days
    - Number of additional day(s) _____
    - ☐ Critical condition
    - ☐ Other _____

MD Action Plan:
See nursing recommendation(s). If two or more NO answers, consider discontinuation of all IV devices to reduce risk to patient.

FINAL ACTION:
- ☐ Discontinue device(s)
- ☐ Maintain device(s) _____ # day(s)

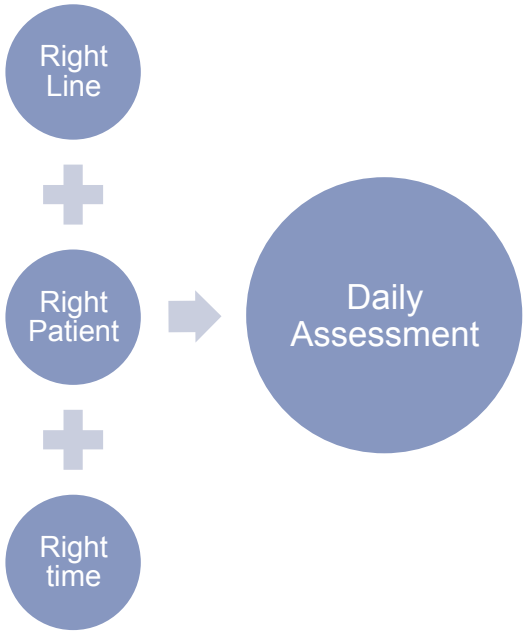
For internal review: ☐ 25% ☐ 50% ☐ 75% ☐ 100%

Daily Assessment Example

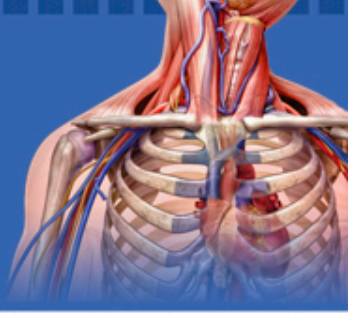


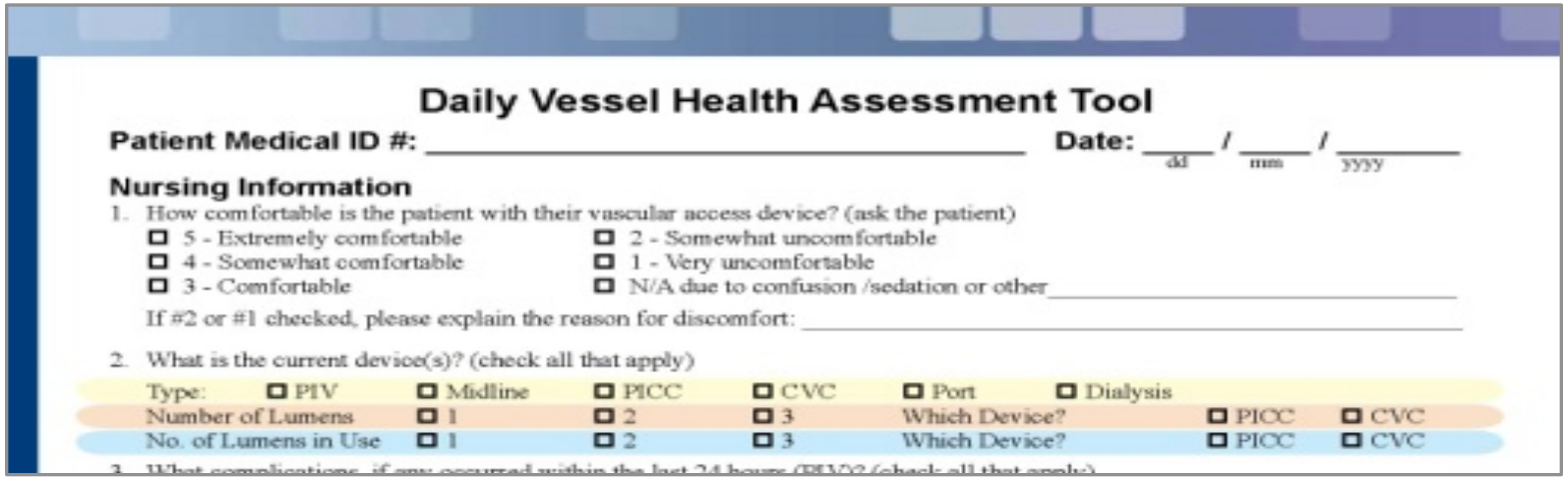
Daily rounds for patient with goal evaluation and device assessment

- **Right Line**
  - Have there been complications in last 24 hours?
  - Is the device the best for the treatment?
- **Right Patient**
  - Is the device comfortable for the patient?
  - Does the device(s) accommodate the treatment plan without interruption?
- **Right Time**
  - Is the device still needed and if so how many more days?
  - Can the medications be changed to oral?



Daily Assessment Tool





Daily Vessel Health Assessment Tool

Patient Medical ID #: _____ **Date:** ____ / ____ / _____ (dd / mm / yyyy)

Nursing Information

1. How comfortable is the patient with their vascular access device? (ask the patient)
   - ☐ 5 - Extremely comfortable
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   - ☐ 3 - Comfortable
   - ☐ 2 - Somewhat uncomfortable
   - ☐ 1 - Very uncomfortable
   - ☐ N/A due to confusion /sedation or other _____

   If #2 or #1 checked, please explain the reason for discomfort: _____

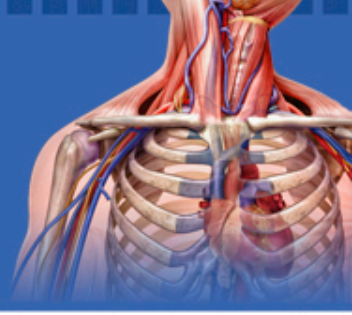
2. What is the current device(s)? (check all that apply)

Type:	☐ PIV	☐ Midline	☐ PICC	☐ CVC	☐ Port	☐ Dialysis		
Number of Lumens		☐ 1	☐ 2	☐ 3	Which Device?		☐ PICC	☐ CVC
No. of Lumens in Use		☐ 1	☐ 2	☐ 3	Which Device?		☐ PICC	☐ CVC

3. What complications, if any, occurred within the last 24 hours (PIV)? (check all that apply)

- Written in a modified SBAR format (Situation-Background-Assessment-Recommendation) including patient input, and reason for vascular access device(s)
- Patient assessment of comfort and satisfaction is 1st question
- Identify the device; any problems? Is it the right device?

Daily Assessment Tool



3. What complications, if any occurred within the last 24 hours (PIV)? (check all that apply)

☐ Infiltration ☐ Multiple restarts in 24 hrs

☐ Phlebitis/thrombophlebitis ☐ Infection ☐ Other_____

4. Did any complications occur within the last 24 hours with Central Venous Access Device(s)? ☐ Yes ☐ No

If Yes, check all that apply. Which Device? ☐ PIV ☐ Midline ☐ PICC ☐ CVC ☐ Port ☐ Dialysis

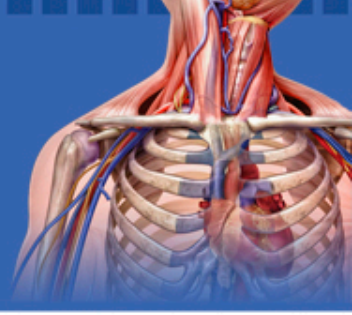
☐ Infection ☐ Phlebitis ☐ Occlusion

☐ Partial Withdrawal Occlusion ☐ Thrombosis ☐ Other_____

5. Is this patient having any difficulty with eating and drinking? ☐ Yes ☐ No
6. Are there IV medications ordered other than PRN? ☐ Yes ☐ No
7. Is the VAD absolutely necessary for blood draws with this patient? ☐ Yes ☐ No

- Double check the medical record and ask clinical staff about any complications; ask the patient – the goal – determine if the device is working well for this patient
- Also check if the patient is drinking well, still receiving any IV medications/solutions or just prn?
- Decide if the device is still needed or can be removed today?

Daily Assessment Tool



Nursing Recommendation: **Print Name:** _____ RN/NP/PA/IVRN (circle)

8. Referring to the VHP Right Line Tool is the venous access device(s) most appropriate for the current treatment plan? ☐ Yes ☐ No

   If No, What device would apply based on Right Line Tool Selection? _____

9. Is there any reason to maintain the current device(s)? ☐ Yes ☐ No

   If Yes, (other than the above reason) Why? _____

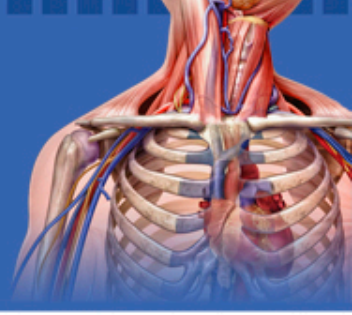
RECOMMENDATIONS:

☐ Discontinue device(s) ☐ Maintain device(s)

☐ Consider new device(s) from VHP Assessment Trifold Recommended new device(s) _____

- What the recommendation by nursing staff?
- Different device?
- Remove the IV access?
- Place assessment tool in chart with Progress Notes ready for medical rounds

Application of Guidelines with VHP



Providing documentation of vascular access assessment demonstrates application of National Patient Safety Goals

Provide Education (SHEA)

- Annual infection prevention education for all clinicians who insert or care for CVCs
- Education upon hire for all clinicians who work with CVCs
- Evaluate to ensure understanding and compliance
- Competency assessment
- Teach assessment and placement for device with the least risk for the patient (CDC 2008)

Implement Central Line Bundle Practices

- •Hand hygiene
- •Select insertion site based on risk assessment – avoid femoral
- •Use maximal barriers and protection
- •Chlorhexidine with alcohol for skin disinfection
- •Remove device promptly when not needed
- •Assess current device, function and necessity by clinical staff at least daily (Joint Commission, CDC 2011, ASDIN 2008 and RNAO 2008)

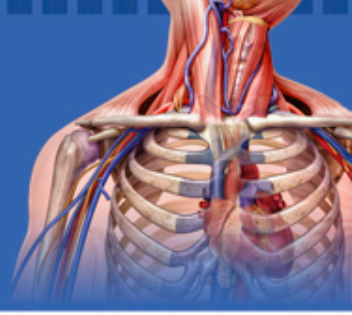
Use Central line Checklist (NHSN 2009)

- Use checklist for all CVC insertions
- Ensure compliance sterile technique with observer present
- Empower observer to stop procedure if compromised

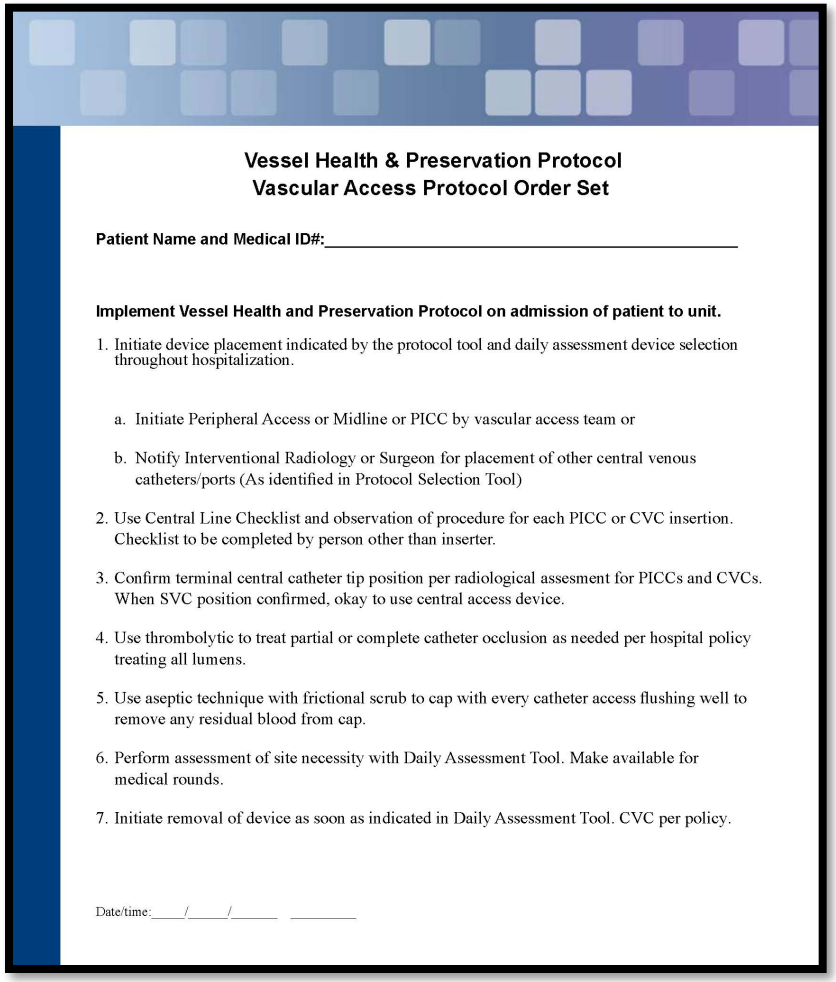
References: Institute for Health Care Improvement (www.IHI.org), Getting Started Kit Central Line Bundle: Preventing Central Line Infections How-to Guide p3, accessed November 2011.
CDC. Guidelines for the Prevention of Intravascular Catheter Related Infections. 2011.

Vessel Health and Preservation
Moving Forward

VHP Protocol Initiation



- Protocol approved by hospital or used as order
- Initiated upon admission
- Directs the process and empowers device placement
- The protocol is designed to provide consistent device management from the patient's admission to discharge
- It is a defined process for measurement of outcomes
- Aligned with national standards of practice



Vessel Health & Preservation Protocol
Vascular Access Protocol Order Set

Patient Name and Medical ID#:_____

Implement Vessel Health and Preservation Protocol on admission of patient to unit.

1. Initiate device placement indicated by the protocol tool and daily assessment device selection throughout hospitalization.

   a. Initiate Peripheral Access or Midline or PICC by vascular access team or

   b. Notify Interventional Radiology or Surgeon for placement of other central venous catheters/ports (As identified in Protocol Selection Tool)

2. Use Central Line Checklist and observation of procedure for each PICC or CVC insertion. Checklist to be completed by person other than inserter.

3. Confirm terminal central catheter tip position per radiological assesment for PICCs and CVCs. When SVC position confirmed, okay to use central access device.

4. Use thrombolytic to treat partial or complete catheter occlusion as needed per hospital policy treating all lumens.

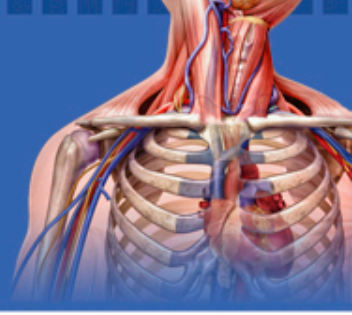
5. Use aseptic technique with frictional scrub to cap with every catheter access flushing well to remove any residual blood from cap.

6. Perform assessment of site necessity with Daily Assessment Tool. Make available for medical rounds.

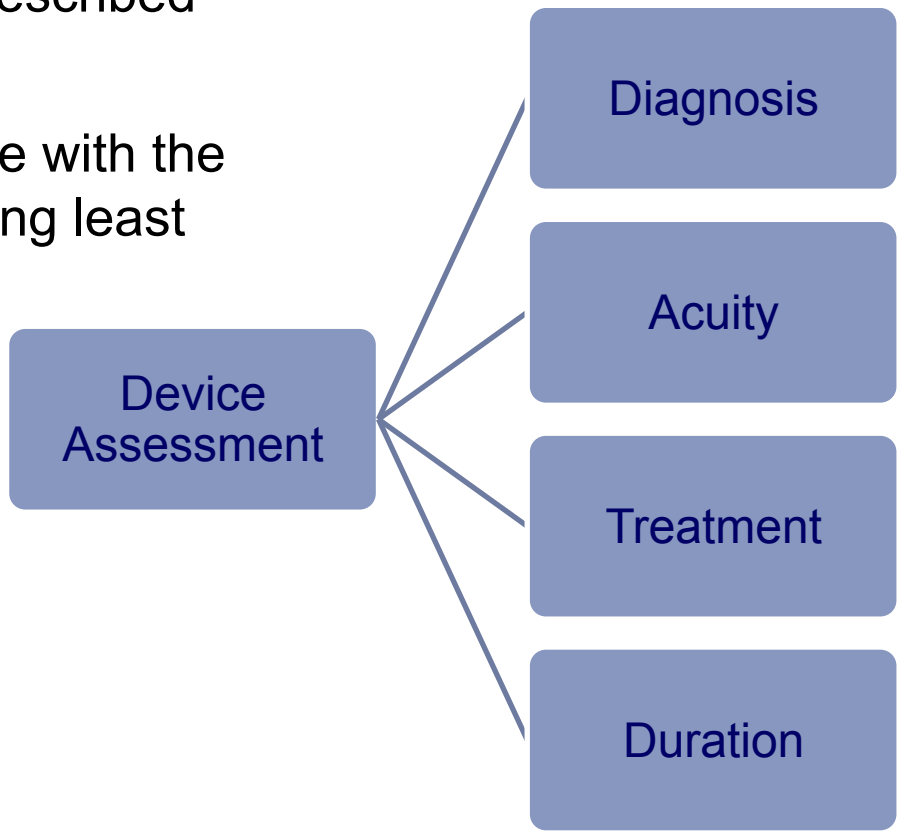
7. Initiate removal of device as soon as indicated in Daily Assessment Tool. CVC per policy.

Date/time:____/_____/_____ _____

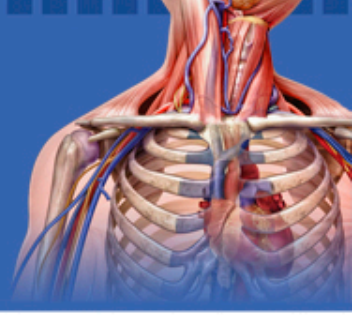
Second Phase with Adm Assessment Right Line for Device Selection



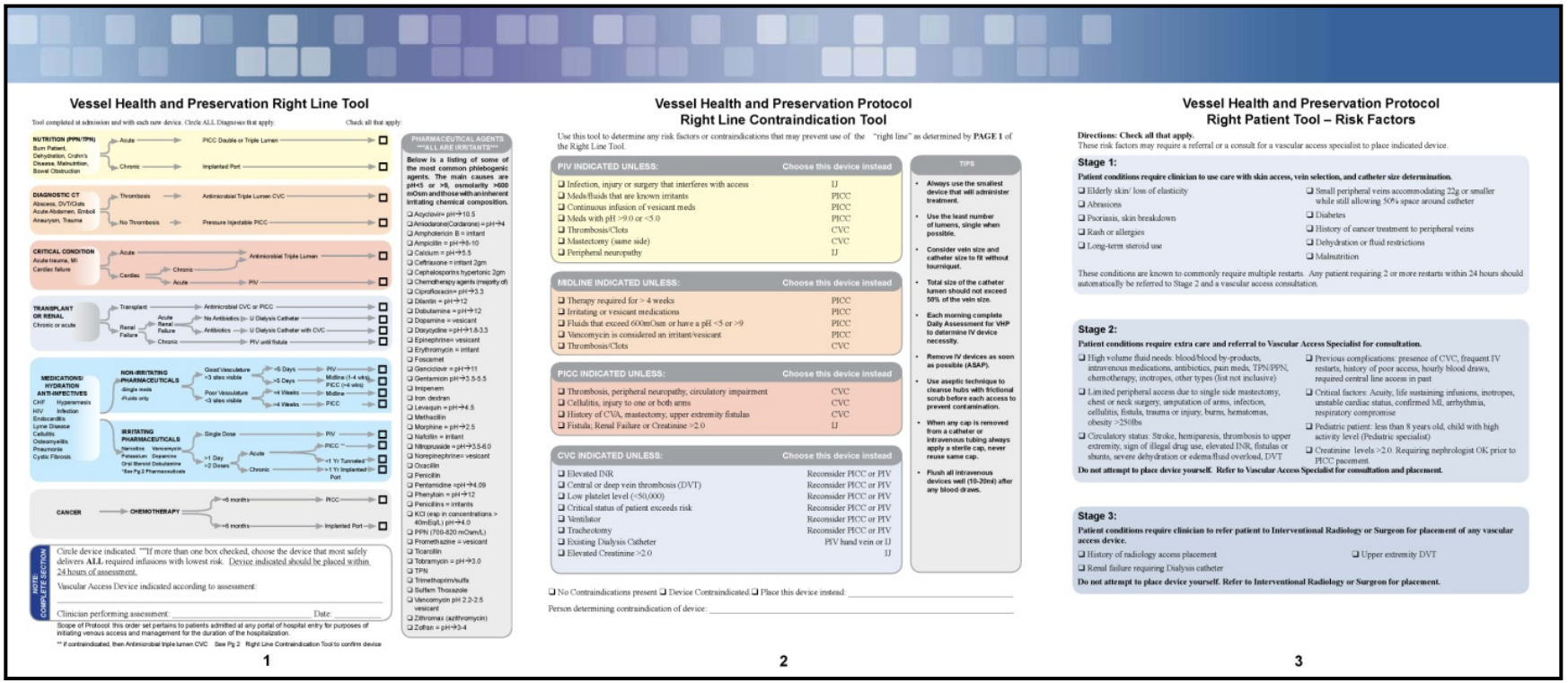
- Choose the best vascular access device based on diagnosis, acuity, prescribed therapy and duration
- Select most appropriate device with the lowest risk for infection including least number of lumens



Second Phase Admission Assessment



- Admission assessment consists of individual evaluation of the patient
- Includes risk assessment and device selection



Vessel Health and Preservation Right Line Tool

Tool completed at admission and with each new device. Circle ALL Diagnoses that apply. Check all that apply:

NUTRITION (PPN/TPN): Burn Patient, Dehydration, Crohn's Disease, Malnutrition, Bowel Obstruction
- Acute → PICC Double or Triple Lumen
- Chronic → Implanted Port

DIAGNOSTIC CT: Abscess, DVT/Clots, Acute Abdomen, Emboli, Aneurysm, Trauma
- Thrombosis → Antimicrobial Triple Lumen CVC
- No Thrombosis → Pressure Injectable PICC

CRITICAL CONDITION: Acute trauma, MI, Cardiac failure
- Acute → Antimicrobial Triple Lumen
- Cardiac
  - Chronic → Antimicrobial Triple Lumen
  - Acute → PIV

TRANSPLANT OR RENAL: Chronic or acute
- Transplant → Antimicrobial CVC or PICC
- Renal Failure
  - Acute Renal Failure
    - No Antibiotics → U Dialysis Catheter
    - Antibiotics → U Dialysis Catheter with CVC
  - Chronic → PIV until fistula

MEDICATIONS/ HYDRATION ANTI-INFECTIVES: CHF, HIV, Endocarditis, Lyme Disease, Cellulitis, Osteomyelitis, Pneumonia, Cystic Fibrosis; Hypernatremia, Infection
- NON-IRRITATING PHARMACEUTICALS
  - single meds; Fluids only
    - Good Vasculature >3 sites visible → <5 Days → PIV; >5 Days → Midline (1-4 wks), PICC (>4 wks)
    - Poor Vasculature <3 sites visible → <4 Weeks → Midline; >4 Weeks → PICC
- IRRITATING PHARMACEUTICALS: Narcotics, Vancomycin, Potassium, Dopamine, Oral Steroid Dobutamine; *See Pg 2 Pharmaceuticals
  - Single Dose → PIV
  - >1 Day, >2 Doses
    - Acute → PICC **
    - Chronic → <1 Yr Tunneled; >1 Yr Implanted Port

CANCER → CHEMOTHERAPY
- <6 months → PICC
- >6 months → Implanted Port

NOTE: COMPLETE SECTION

Circle device indicated. **If more than one box checked, choose the device that most safely delivers ALL required infusions with lowest risk. Device indicated should be placed within 24 hours of assessment.

Vascular Access Device indicated according to assessment:

Clinician performing assessment: _____ Date: _____

Scope of Protocol: this order set pertains to patients admitted at any portal of hospital entry for purposes of initiating venous access and management for the duration of the hospitalization.

** If contraindicated, then Antimicrobial triple lumen CVC See Pg 2 Right Line Contraindication Tool to confirm device

PHARMACEUTICAL AGENTS ***ALL ARE IRRITANTS***

Below is a listing of some of the most common phlebogenic agents. The main causes are pH<5 or >9, osmolarity >600 mOsm and those with an inherent irritating chemical composition.

- Acyclovir= pH→10.5
- Amiodarone(Cordarone) = pH→4
- Amphotericin B = irritant
- Ampicillin = pH→8-10
- Calcium = pH→5.5
- Ceftriaxone = irritant 2gm
- Cephalosporins hypertonic 2gm
- Chemotherapy agents (majority of)
- Ciprofloxacin= pH→3.3
- Dilantin = pH→12
- Dobutamine = pH→12
- Dopamine = vesicant
- Doxycycline = pH→1.8-3.3
- Ephedrine= vesicant
- Erythromycin = irritant
- Foscarnet
- Ganciclovir = pH→11
- Gentamicin pH→3.5-5.5
- Imipenem
- Iron dextran
- Levaquin = pH→4.5
- Methacillin
- Morphine = pH→2.5
- Nafcillin = irritant
- Nitroprusside = pH→3.5-6.0
- Norepinephrine= vesicant
- Oxacillin
- Penicillin
- Pentamidine =pH→4.09
- Phenytoin = pH→12
- Penicillins = irritants
- KCl (esp in concentrations > 40mEq/L) pH→4.0
- PPN (700-820 mOsm/L)
- Promethazine = vesicant
- Ticarcillin
- Tobramycin = pH→3.0
- TPN
- Trimethoprim/sulfa
- Sulfam Thiazazole
- Vancomycin pH 2.2-2.5 vesicant
- Zithromax (azithromycin)
- Zolfan = pH→3-4

1

Vessel Health and Preservation Protocol Right Line Contraindication Tool

Use this tool to determine any risk factors or contraindications that may prevent use of the "right line" as determined by **PAGE 1** of the Right Line Tool.

PIV INDICATED UNLESS:	Choose this device instead
❑ Infection, injury or surgery that interferes with access	IJ
❑ Meds/fluids that are known irritants	PICC
❑ Continuous infusion of vesicant meds	PICC
❑ Meds with pH >9.0 or <5.0	PICC
❑ Thrombosis/Clots	CVC
❑ Mastectomy (same side)	CVC
❑ Peripheral neuropathy	IJ

MIDLINE INDICATED UNLESS:	Choose this device instead
❑ Therapy required for > 4 weeks	PICC
❑ Irritating or vesicant medications	PICC
❑ Fluids that exceed 600mOsm or have a pH <5 or >9	PICC
❑ Vancomycin is considered an irritant/vesicant	PICC
❑ Thrombosis/Clots	CVC

PICC INDICATED UNLESS:	Choose this device instead
❑ Thrombosis, peripheral neuropathy, circulatory impairment	CVC
❑ Cellulitis, injury to one or both arms	CVC
❑ History of CVA, mastectomy, upper extremity fistulas	CVC
❑ Fistula, Renal Failure or Creatinine >2.0	IJ

CVC INDICATED UNLESS:	Choose this device instead
❑ Elevated INR	Reconsider PICC or PIV
❑ Central or deep vein thrombosis (DVT)	Reconsider PICC or PIV
❑ Low platelet level (<50,000)	Reconsider PICC or PIV
❑ Critical status of patient exceeds risk	Reconsider PICC or PIV
❑ Ventilator	Reconsider PICC or PIV
❑ Tracheotomy	Reconsider PICC or PIV
❑ Existing Dialysis Catheter	PIV hand vein or IJ
❑ Elevated Creatinine >2.0	IJ

TIPS

- **Always use the smallest device that will administer treatment.**
- **Use the least number of lumens, single when possible.**
- **Consider vein size and catheter size to fit without tourniquet.**
- **Total size of the catheter lumen should not exceed 50% of the vein size.**
- **Each morning complete Daily Assessment for VHP to determine IV device necessity.**
- **Remove IV devices as soon as possible (ASAP).**
- **Use aseptic technique to cleanse hubs with frictional scrub before each access to prevent contamination.**
- **When any cap is removed from a catheter or intravenous tubing always apply a sterile cap, never reuse same cap.**
- **Flush all intravenous devices well (10-20ml) after any blood draws.**

❑ No Contraindications present ❑ Device Contraindicated ❑ Place this device instead: _____

Person determining contraindication of device: _____

2

Vessel Health and Preservation Protocol Right Patient Tool – Risk Factors

Directions: Check all that apply.
These risk factors may require a referral or a consult for a vascular access specialist to place indicated device.

Stage 1:

Patient conditions require clinician to use care with skin access, vein selection, and catheter size determination.

- ❑ Elderly skin/ loss of elasticity
- ❑ Abrasions
- ❑ Psoriasis, skin breakdown
- ❑ Rash or allergies
- ❑ Long-term steroid use
- ❑ Small peripheral veins accommodating 22g or smaller while still allowing 50% space around catheter
- ❑ Diabetes
- ❑ History of cancer treatment to peripheral veins
- ❑ Dehydration or fluid restrictions
- ❑ Malnutrition

These conditions are known to commonly require multiple restarts. Any patient requiring 2 or more restarts within 24 hours should automatically be referred to Stage 2 and a vascular access consultation.

Stage 2:

Patient conditions require extra care and referral to Vascular Access Specialist for consultation.

- ❑ High volume fluid needs: blood/blood by-products, intravenous medications, antibiotics, pain meds, TPN/PPN, chemotherapy, inotropes, other types (list not inclusive)
- ❑ Limited peripheral access due to single side mastectomy, chest or neck surgery, amputation of arms, infection, cellulitis, fistula, trauma or injury, burns, hematomas, obesity >250lbs
- ❑ Circulatory status: Stroke, hemiparesis, thrombosis to upper extremity, sign of illegal drug use, elevated INR, fistulas or shunts, severe dehydration or edema/fluid overload, DVT
- ❑ Previous complications: presence of CVC, frequent IV restarts, history of poor access, hourly blood draws, required central line access in past
- ❑ Critical factors: Acuity, life sustaining infusions, inotropes, unstable cardiac status, confirmed MI, arrhythmia, respiratory compromise
- ❑ Pediatric patient: less than 8 years old, child with high activity level (Pediatric specialist)
- ❑ Creatinine levels >2.0. Requiring nephrologist OK prior to PICC placement.

Do not attempt to place device yourself. Refer to Vascular Access Specialist for consultation and placement.

Stage 3:

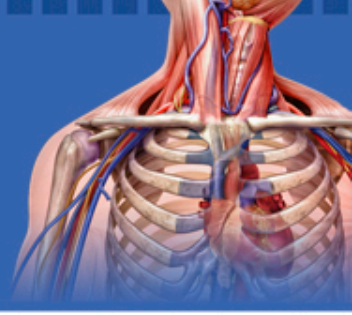
Patient conditions require clinician to refer patient to Interventional Radiology or Surgeon for placement of any vascular access device.

- ❑ History of radiology access placement
- ❑ Renal failure requiring Dialysis catheter
- ❑ Upper extremity DVT

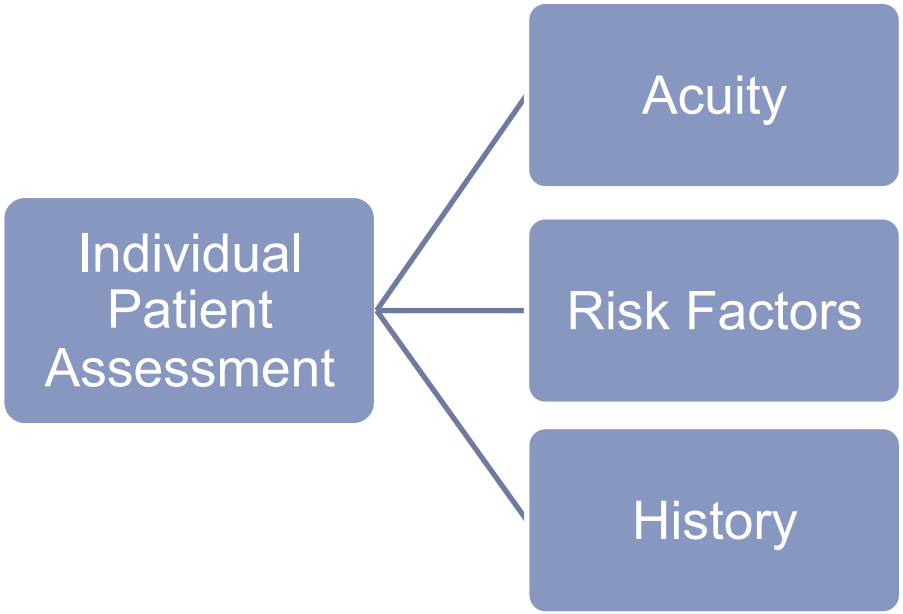
Do not attempt to place device yourself. Refer to Interventional Radiology or Surgeon for placement.

3

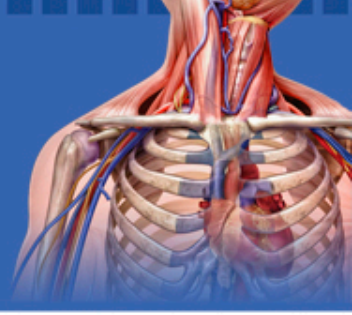
Right Patient Assessment



- **Right Patient**
  - Assess patient conditions that may contraindicate right line device
    - Level of acuity dictates specific access choices
    - Risk factors
    - History
  - Assess need for vascular access team placement



Risk Factor Action Plan



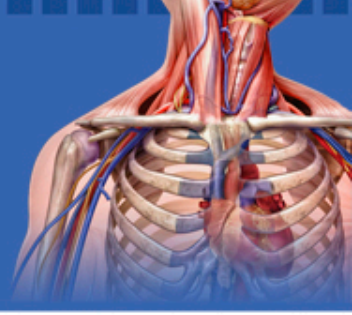
Assess Patient for:

Risk Factors and History

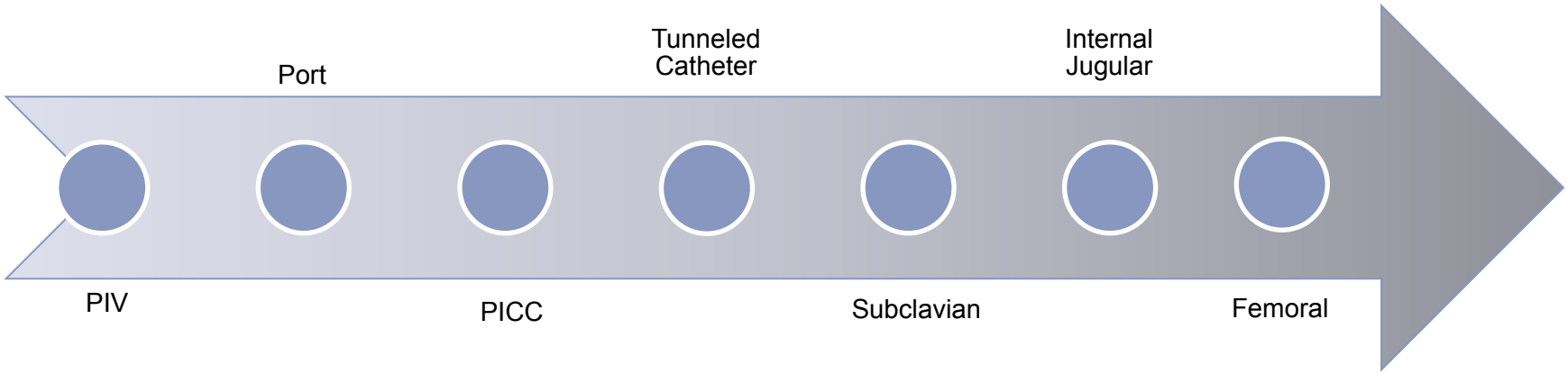
- Skin conditions
- Vein size and health
- Cancer/ Chemotherapy
- Renal failure
- Circulatory/stroke
- Surgical/trauma

Specialized Access Team Review

Device Selection - Risk Assessment

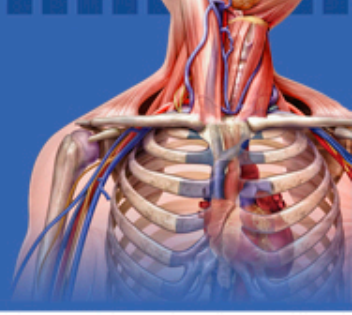


Lowest → Highest



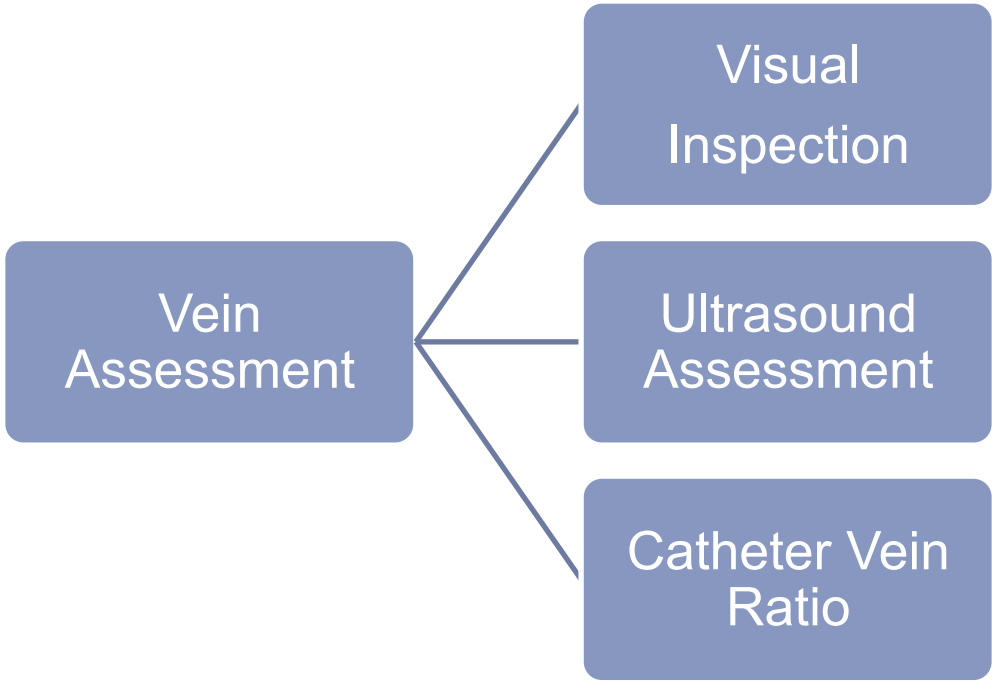
References:
1.Patel BM, Dauenhauer CJ, Rady MY, Larson JS, Benjamin TR, Johnson DJ, Helmers RA. (2007) Impact of Peripherally Inserted Central Catheters on Catheter-Related Bloodstream Infections in the Intensive Care Unit. J Patient Safety; 3:142-148.
2.Raiy BA, Fakih MG, et al. (2010) Peripherally Inserted central catheters in the acute care setting: A safe alternative to high-risk short-term central venous catheters. AJIC 38(2):149-153.
3.Maki D, et al. (2006) The risk of bloodstream infection in adults with different intravascular devices: a systematic review of 200 published prospective studies Mayo Clin Proc. 81(9): 1159-71.

Right Time for Insertion Assessment

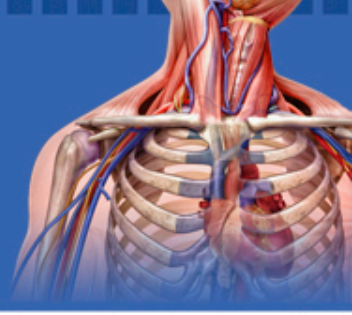


Right Time

- Perform insertion as soon as possible (within 48 hours) of beginning of treatment plan
- Use ultrasound guidance for CVC/PICC assessment and insertion
- Remove device as soon as treatment complete; perform evaluation daily

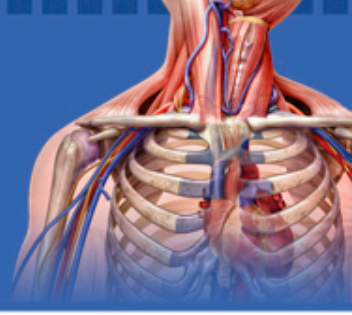


Vein Assessment



- Use direct observation and history of IV access
- Perform ultrasound scanning of actual veins and look at choices
- Catheter Vein Ratio Size Determination
  - Select vein based on vein diameter at least 3 times size of catheter without a tourniquet
    - 3FR = vein size at least 3mm
    - 4FR = 4mm
    - 5FR = 5mm
    - 6FR = 6mm

Admission Assessment and Device Best Practices

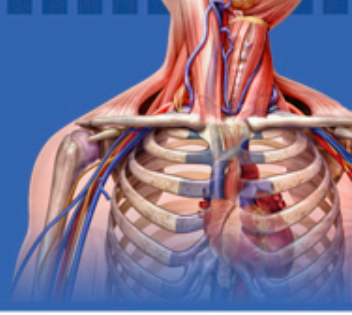


- Use smallest, shortest device with least number of lumens that will accommodate needs
- Focus on the lowest risk device moving to higher risk only as needed
- When treatment longer than 5 days is expected, consider central catheter or port
- Consider prescribed therapy, number of medications, incompatibilities
- Evaluate type of medication (irritating, chemotherapeutic, etc.) and determine long term needs

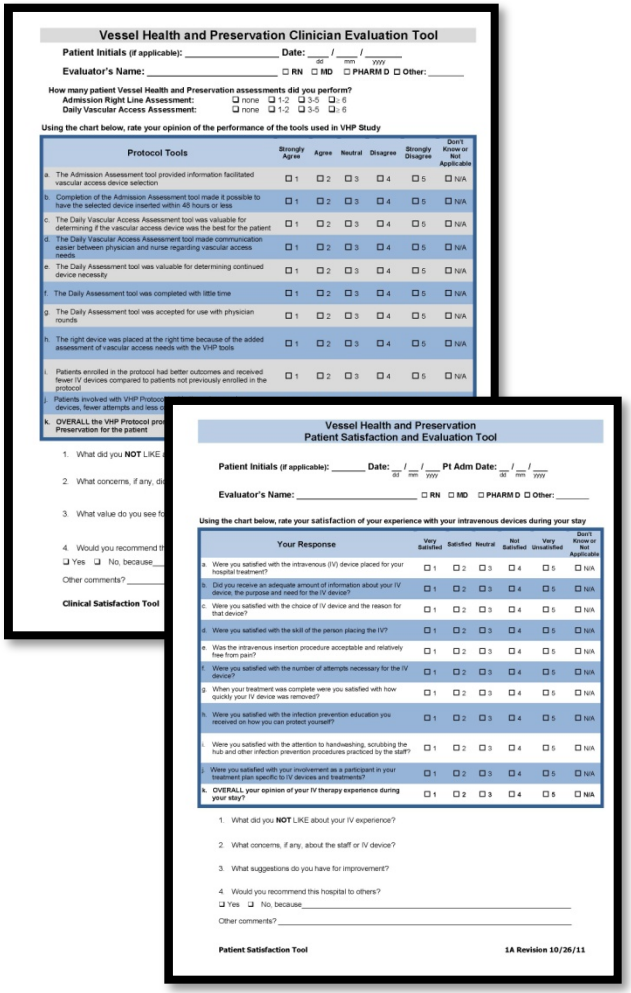
Assessment and Device Selection for Vascular Access, RNAO 2008 www.rnao.org

Vessel Health and Preservation
Putting it all Together

Putting it All Together for the Patient



- Application of guidelines and best practices result in better outcomes
- Daily evaluation of correct device and function will improve patient satisfaction and facilitate completion of treatment plan
- Your input and that of your patients will help us customize and improve the program
- Turn in evaluation sheets at least once a week to manager or Shift Captain
- Perform patient evaluation prior to D/C



Vessel Health and Preservation Clinician Evaluation Tool

Patient Initials (if applicable): _____ Date: ___ / ___ / _____ (dd / mm / yyyy)

Evaluator's Name: _____ ☐ RN ☐ MD ☐ PHARM D ☐ Other: _____

How many patient Vessel Health and Preservation assessments did you perform?

Admission Right Line Assessment: ❑ none ❑ 1-2 ❑ 3-5 ❑ ≥ 6

Daily Vascular Access Assessment: ❑ none ❑ 1-2 ❑ 3-5 ❑ ≥ 6

Using the chart below, rate your opinion of the performance of the tools used in VHP Study

Protocol Tools	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Don't Know or Not Applicable
a. The Admission Assessment tool provided information facilitated vascular access device selection	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ N/A
b. Completion of the Admission Assessment tool made it possible to have the selected device inserted within 48 hours or less	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ N/A
c. The Daily Vascular Access Assessment tool was valuable for determining if the vascular access device was the best for the patient	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ N/A
d. The Daily Vascular Access Assessment tool made communication easier between physician and nurse regarding vascular access needs	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ N/A
e. The Daily Assessment tool was valuable for determining continued device necessity	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ N/A
f. The Daily Assessment tool was completed with little time	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ N/A
g. The Daily Assessment tool was accepted for use with physician rounds	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ N/A
h. The right device was placed at the right time because of the added assessment of vascular access needs with the VHP tools	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ N/A
i. Patients enrolled in the protocol had better outcomes and received fewer IV devices compared to patients not previously enrolled in the protocol	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ N/A
j. Patients involved with VHP Protocol devices, fewer attempts and less						
k. OVERALL the VHP Protocol pro Preservation for the patient						

1. What did you **NOT** LIKE

2. What concerns, if any, di

3. What value do you see fo

4. Would you recommend t

❑ Yes ❑ No, because___

Other comments? _____

Clinical Satisfaction Tool

Vessel Health and Preservation
Patient Satisfaction and Evaluation Tool

Patient Initials (if applicable): _____ Date: ___ / ___ / ___ (dd / mm / yyyy) Pt Adm Date: ___ / ___ / ___ (dd / mm / yyyy)

Evaluator's Name: _____ ☐ RN ☐ MD ☐ PHARM D ☐ Other: _____

Using the chart below, rate your satisfaction of your experience with your intravenous devices during your stay

Your Response	Very Satisfied	Satisfied	Neutral	Not Satisfied	Very Unsatisfied	Don't Know or Not Applicable
a. Were you satisfied with the intravenous (IV) device placed for your hospital treatment?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ N/A
b. Did you receive an adequate amount of information about your IV device, the purpose and need for the IV device?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ N/A
c. Were you satisfied with the choice of IV device and the reason for that device?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ N/A
d. Were you satisfied with the skill of the person placing the IV?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ N/A
e. Was the intravenous insertion procedure acceptable and relatively free from pain?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ N/A
f. Were you satisfied with the number of attempts necessary for the IV device?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ N/A
g. When your treatment was complete were you satisfied with how quickly your IV device was removed?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ N/A
h. Were you satisfied with the infection prevention education you received on how you can protect yourself?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ N/A
i. Were you satisfied with the attention to handwashing, scrubbing the hub and other infection prevention procedures practiced by the staff?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ N/A
j. Were you satisfied with your involvement as a participant in your treatment plan specific to IV devices and treatments?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ N/A
k. **OVERALL your opinion of your IV therapy experience during your stay?**	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ N/A

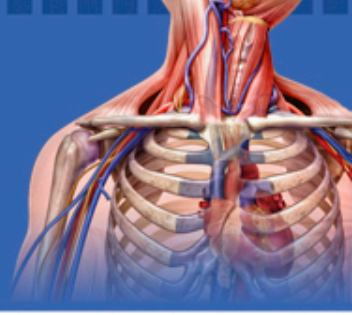
1. What did you **NOT** LIKE about your IV experience?
2. What concerns, if any, about the staff or IV device?
3. What suggestions do you have for improvement?
4. Would you recommend this hospital to others?

❑ Yes ❑ No, because_____

Other comments? _____

Patient Satisfaction Tool **1A Revision 10/26/11**

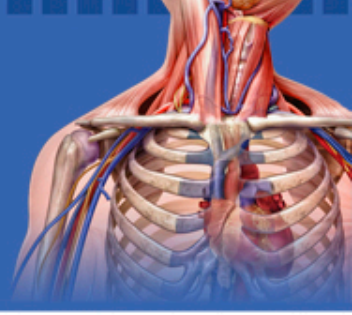
Total Value of Vessel Health Protocol Implementation



Did the VHP Program Provide:

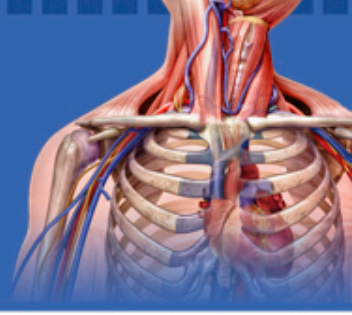
- Decision for best device
- Fewer accesses per patient
- Daily device necessity determination
- Compliance with CVC Insertion Checklist Guidelines
- Evaluation of complications and best device for preservation of veins
- Assessment promoting multidisciplinary communication
- Education and compliance with guidelines resulting in reduced infection rates

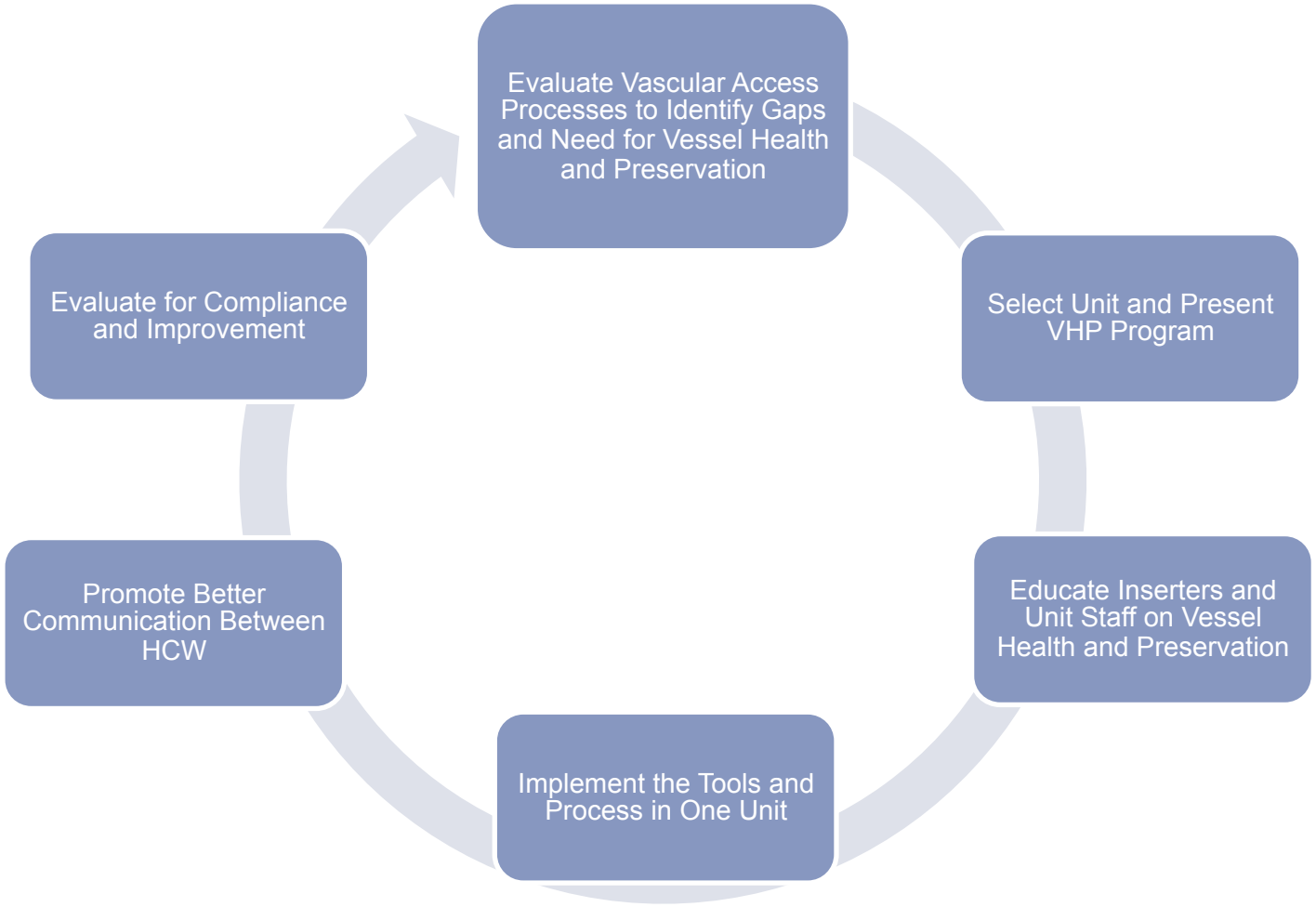
Vessel Health and Preservation Process Working for Your Patients



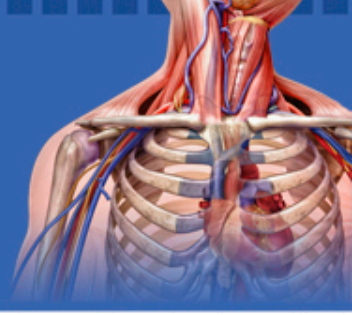
- Evaluation of outcome is built into program
- Retrospective and prospective analysis is performed initially and at the end of each stage
- Analysis of data will demonstrate outcomes of protocol
- Cost savings become apparent and measurable with fewer devices and reduced complications
- Treatment is completed without interruptions
- Patient satisfaction improves

Implementing the VHP System



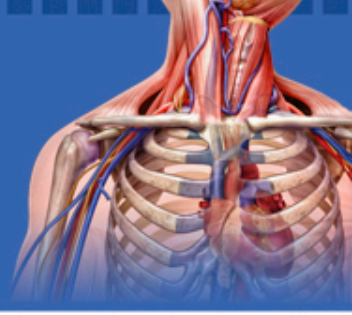


The Expected Results!

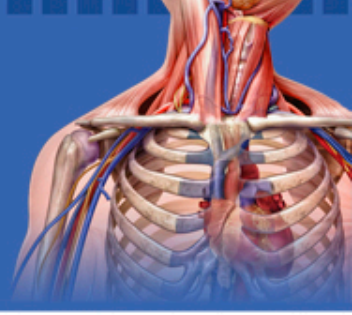


Establishment of an evidence-based process used for patient assessment and device selection that results in reduced risk, preserved vessel health and evaluation of access device(s) from hospital admission to discharge

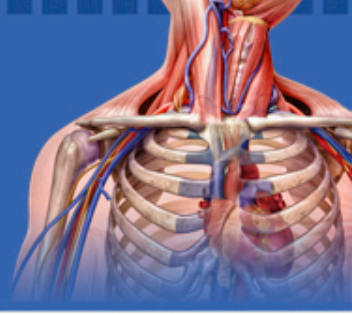
Continuing Education Credit (CE)



- To obtain 1.0 contact hour, go to www.saxetesting.com/vh
- Complete the post-test and evaluation form.
- Certificate of completion will be issued immediately.
- Provider approved by the California Board of Registered Nursing. Provider # 14477.
- This program has been approved for 1.0 contact hour of CRCE by the AARC.



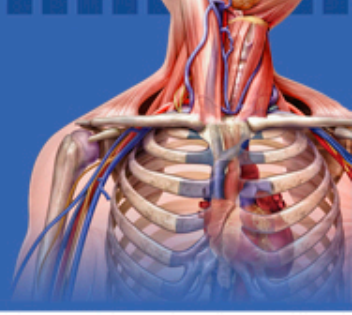
Questions ?



Thank you for your attention

This session has been recorded and will be archived on www.vesselhealth.org

References



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