Peripherally Inserted Central Catheter (PICC): Insertion and Exchange procedure for

Quicklinks

Site Applicability

VCH: VGH, RH, LGH

PHC: SPH, MSJ

Practice Level

Vascular Access Team (VAT) RNs: Advanced skill

- PICC insertion with ultrasound guidance and exchange are advanced skills restricted to the VAT RNs. Certification for PICC insertion is the responsibility of the Vascular Access Team Clinical Educator by following process below.

The PICC insertion competency process includes:

- Completion of a self-directed learning package
    - Anatomy and Physiology of upper arms veins, arteries, nerves and lymph nodes
    - Aseptic technique
    - Hand washing
    - Sterile Gowning and Gloving
    - Ultrasound guided cannulation competency
    - Modified Seldinger Technique
    - PICC Zone Insertion method (ZIM)
    - Tip Locating System and Electrocardiogram (ECG) tip placement
- Attending classroom, teaching theory or lab sessions, provided and organized by VAT Clinical Educator
- Clinical preceptorship
- 10 times of return demonstration of the skill under supervision by the VAT Nurse Educator or delegate
- A minimum of 1 to 2 per month or 12 per year documented PICC insertions must be done to maintain competency

Requirements

- A most responsible provider (MRP) order is required for a PICC insertion. (See Appendix C for Pre-printed Orders and Cerner screenshot for power plan).
- Full assessment includes:
  - if vascular access is necessary
  - if alternate route of medication delivery is possible other than vascular access for therapy
  - if vascular access is necessary, determine most appropriate device type based on therapy and vascular status of patient.
- Site selection based on patient and clinical needs. Avoid insertion on extremity with, lymphedema, current or planned AV fistula or graft site, acute infection, tissue injury or acute trauma.
- Caution is required in patients with previous bilateral mastectomies and/or lymph node dissections, Ipsilateral Pacemaker, paralysis.
- Review the patient's medical history, current medications, and recent laboratory results to determine whether any contraindications are present or precautions should be considered. Consult with the MRP accordingly.
- Caution is required in patients with stage 4 or 5 chronic kidney disease (eGFR less than 30 mL/min) or renal transplant refer to BC Renal guidelines. Consult Renal Team if available at site or MRP if necessary.
- When able, informed consent (verbal) from the patient must be obtained prior to a PICC insertion – the patient must be informed of what a PICC is, the reason for the PICC insertion, risks, benefits and the possible complications related to the insertion procedure and ongoing PICC related risks. Follow the Consent to Health Care Policy
- The PICC can only be used as a Central Venous Catheter after PICC tip has been confirmed by ECG or chest x-ray (CXR) with placement in the lower third of the superior vena cava (SVC) or at the junction of the right atrium and distal SVC (CAJ). If tip placement is not central, then the PICC can only be used as a peripheral access (i.e. short-term antibiotics, IV hydration. No TPN, vesicants, medications with a pH of less than 5 or greater than 7 or greater than 600 mOsm/L).
- The insertion procedure requires strict aseptic technique using maximum barrier precautions (i.e. use of sterile gloves, mask with eye protection (cover or shield), head-cover, sterile gown, full body sterile drape for patient, sterile supplies).
- Following insertion of a PICC and removal of the sterile field the catheter may be pulled back, but must not be re-advanced.
- No more than 2 attempts to cannulate the vein (gain venous access) will be made by the same RN, and a third attempt will only be made if the patient agrees.
- The person performing PICC insertion will not wear artificial nails or nail products.
- Skin antiseptic preparation solution or products will be separate and not part of the sterile PICC insertion field.
- Site preparation with maximum potential to decrease bacterial colonization will include a double prep wash: An extremity scrub will occur using a surgical chlorhexidine (CHG) scrub sponge followed by 2 percent CHG or 70 percent alcohol site prep. Allow the antiseptic to air dry prior to draping and vein cannulation. If patient has documented sensitivity to CHG, povidone iodine solution is acceptable.

- Local anesthetic (i.e. intradermal lidocaine) will be injected immediately prior to cannulation, as part of the sterile procedure.
- Ultrasound guidance for vein cannulation is best practice and will be used.

Need to Know

- PICC insertion is performed by nurses from the Vascular Access Team and is strongly recommended to be a 2-person procedure.
- The use of ultrasound for PICC insertion requires specific training for its use that includes a preceptorship and competency evaluation.
- All machines or devices used for the PICC insertion procedure (i.e. ultrasound, ECG and navigation devices) must be cleaned before and after each use with manufacturer-approved products and according to organization policy and Infection Control standards.
- Vein cannulation for PICC insertion will be done using ultrasound guidance and Micro-introducer Technique (Modified Seldinger).
- Donning of sterile gloves must be done using closed-glove technique.
- PICCs are inserted via the peripheral veins on the arm(s) – the cephalic, basilic or brachial veins – above the ACF and the PICC is threaded to the lower third of the SVC or junction between the right atrium and distal SVC (CAJ), which defines it a central venous catheter. The catheter has depth markings and is radiopaque to allow for visualization or identification on chest x-ray or fluoroscopy.
- PICCs will be secured and stabilized with a securement device (adhesive or subcutaneous anchor) cyanoacrylate (i.e. tissue adhesive, glue) or an adhesive dressing with integrated CHG pad over the insertion site.
- At the time of insertion, if a sterile, dry, dressing is applied due to possible bleeding at the site, a dressing change is required 24 hours after insertion. A transparent, semi-permeable, adhesive dressing should be applied 24 hours post insertion to allow for regular assessment of the site. Routine dressing changes are required once a week, if no problems arise.
- The sterile dressing must cover the insertion site and the PICC up to the integrated suture wing.
- Any additional equipment connected to the PICC after insertion (i.e. IV tubing, and connectors) must be changed as per organization policy unless otherwise specified. Exception: needleless connector must be changed every 7 to 8 days (to correspond with IV tubing changes).
- A PICC exchange can be done to replace a malfunctioning PICC without having to access a new vein provided the site is free from complications.

Procedure

Equipment and Supplies

- Ultrasound Machine
- Tip Locating System with ECG technology and navigation sensor
- ECG lead with electrode x 2 or 3
- Printer

- Overbed table

Skin Preparation:

- CHG Surgical Scrub Brush Foil Pack
- 2 percent CHG and 70 percent alcohol Prep Solution:
  - 2 large (3 if bariatric patient) (5.2mL) swabstick (Solu-IV™) or
  - 1 x 10.5 mL sterile applicator (Chloraprep™)
- Sterile Line insertion Pack
- Mask with eye protection and Headcover or cap
- Sterile Gloves

PICC Insertion:

- Mask with visor or goggles (eye protection) and Head cover or cap
- Sterile Gloves
- PICC with ECG technology package with catheter and stabilization device
- Lidocaine 1 percent or 2 percent without epinephrine for injection (for intradermal or local anesthetic)
- Alcohol swabs
- Sterile Probe Cover
- Sterile Needleless Connector (if necessary)
- Sterile NS 0.9 percent Pre-filled syringe (3 to 6)

Pre-Insertion Procedure:

1. Ensure Order for PICC insertion obtained and verified in patient's chart – paper or electronic.
2. Verify patient's allergies – ensure patient is not allergic to lidocaine or any other medications that may cause a reaction. For VGH site, complete safety check list.
3. Prior to sterile set-up, use ultrasound for vessel assessment.
   Measure diameter of vein for insertion and ensure catheter-to-vein ratio is 45 percent or less. Consider catheter-to-vein ratio equal to, or less than, 33 percent especially in patient with cancer diagnosis or hypercoagualopathy. If vein is of inadequate size, plan for alternative access.
   Ensure vein is patent (soft, compressible) along its duration up to axilla.
   Identify nerve bundle to avoid nerve injury during cannulation and access.
4. Position ultrasound machine to minimize risk of contamination of sterile field during procedure.
5. Determine measurement based on patient's height using Lum's or measure approximate distance from insertion site to desired tip location (lower 3rd of the SVC, typically represented by 3rd intercostal space to right of sternum.) using measuring tape in cm.
6. For use of Tip Locating System and or ECG technology, refer to specific manufacturer instructions.
7. Follow site specific guideline to record patient's identifications for ECG tip documentation.

During the Procedure:

Site or Skin Preparation Strict aseptic technique is required for PICC insertion

1. Clean work area table, put mask and head cover on, perform hand hygiene. Don non-sterile gloves.
2. Place patient in supine position (as much as tolerated) and place insertion arm at 45 to 90 degree angle from the trunk of the body supported by towels or linens.
3. Prepare work area, organize supplies for first part of procedure.
4. Open and prepare drapes. Clean arm using scrub brush with CHG Surgical Scrub.
5. Remove non-sterile gloves.
6. Perform hand hygiene, put on sterile gloves. Clean area using friction or scrubbing starting at insertion site and covering from mid upper to mid lower arm. Repeat with one or two 2 percent CHG or 70 percent alcohol swab sticks.
7. Allow 2 percent CHG or 70 percent alcohol to dry on skin (CHG must be DRY on skin in order to achieve maximal skin antisepsis).
8. Place sterile drape under patient's arm AFTER skin has dried.
9. Apply sterile tourniquet to patient's upper arm.
10. Open insertion tray outer wrap.
11. Remove gloves. Perform hand hygiene (Can use alcohol based hand rub).

PICC INSERTION:

1. Put on sterile gown and sterile gloves, using closed- glove technique. Refer to Clinical Skills (Elsevier): Sterile Gown and Gloves (Closed Gloving) - CE. (Copy and paste the link below to Chrome)
   http://mns.elsevierperformancemanager.com/SkillsConnect/Default.aspx?Token=549253&SkillID=632
2. Cover arm with sterile fenestrated drape. Ensure vein to be accessed is visible.
3. Extend sterile field with body drape.
4. Receive sterile supplies from assistant and add sterile supplies to sterile field.
5. Prepare sterile probe:
   i. Fold or roll sterile cover and create a well to add sterile ultrasound gel into cover.
   ii. The assistant will hold probe to allow the inserter to place the tip of the probe into the cover.
   iii. Using a sterile forcep grasp probe cover and pull it up over the cord.
   iv. Clip forcep and sterile cover to the corner of the sterile field.
6. Add sterile gel to patient skin for optimum ultrasound visualization.
7. Locate appropriate vein for access and anchor the transducer to prevent "drifting".
8. Use local anesthetic intra-dermally at the intended puncture site:
   i. Insert needle with bevel "up" position. Before injection, aspirate for absence of blood return (per INS p. 83)10. Slowly introduce anesthetic while withdrawing needle.
   ii. Change needle position without fully removing and administer into 1 to 3 different areas and angles around site to achieve maximum anesthetic effect.
9. Insert introducer needle through anesthetized area into the vein until tip is observed on the ultrasound screen to be in the vein lumen and blood return (flashback) is noted. *Ensure that

vessel cannulated is a vein and NOT an artery. Check for pulsating blood flow and bright red blood colour – this may be indicative of arterial blood.

10. Remove guide wire tip protector from guide wire hoop. Insert flexible end of guide wire through introducer needle to vein. Advance guide wire 15 to 20 cm. Do NOT advance guide wire if resistance felt. If resistance felt, try to re-position arm to see if vein path can be straightened.
11. Gently withdraw and remove introducer needle over wire while stabilizing guide wire in position. Ensure that guide wire does not move with introducer needle to prevent vein embolization. **If resistance removing the guide wire while the needle is inserted, remove both the needle and the wire as a unit to prevent the needle from damaging or shearing the guide wire.**
12. Activate sharp safety mechanism.
13. Advance sheath and dilator together as a unit over guide wire, with a slight rotational motion through skin into vein. If you experience difficulty, take apart sheath from dilator and insert dilator into insertion site over guide wire. Rotate and ease dilator into skin at insertion site – try to make opening as large as possible. If unsuccessful, you may need to use a small scalpel blade to make a tiny nick at guide wire insertion site.
14. Release tourniquet.
15. If using proximal valved PICC determine correct catheter length and trim catheter.
16. Flush lumen(s) with NS and confirm valve function.
17. Remove guidewire and inner cannula. **Place a finger over the orifice of the sheath to minimize blood loss and risk of air aspiration - the Valsalva's Maneuver reduces the risk of air embolism.**
18. Start to insert primed PICC and slowly thread PICC to pre-determined length tracking the movement with Tip Locating System. *Rapid threading of PICC increases the risk of vessel wall trauma, which may cause development of mechanical phlebitis.
19. If PICC turns towards IJ, have patient turn his or her head to shoulder of the insertion arm and lower chin to shoulder. This head position is theorized to decrease chance of PICC migration up into jugular vein. Other strategies (remove pillow, deep breath, valsava, turn to opposing side)
20. Once PICC has been threaded correctly via Tip Locating System to estimate Lum's or predetermined measurement, break and peel away sheath from vein leaving PICC in place.
21. If using ECG placement technology:
    i. Connect ECG technology wires:
    ii. Capture deflection of P-wave and document and save image of the shortest catheter length with deflection.
    iii. Pull back PICC until Max-P wave amplitude is achieved.
    iv. Capture maximum P-wave and document and save image.
22. Check lumen(s) for blood return.
23. Reconfirm PICC placement and measurement on skin.
24. Remove wire inside of PICC only after correct positioning is confirmed or assumed. Any resistance to removal of wire may mean PICC is kinked or looped in vessel.
25. Attach and connect PICC hub extension pieces if appropriate (Single Groshong™).
26. Attach appropriate sterile needleless connector to PICC hub. Flush with minimum 10mL NS.
27. **Apply Securement Device:**
    i. Adhesive:
        a. Apply skin prep to skin where it will be placed. Allow to dry completely.

b. Align the device anchor pad so directional arrows point toward catheter insertion site. Place permanent wing of PICC into post securement device.
c. Support anchor pad and catheter while closing retainer doors between your fingers. Ensure wings of device are “clicked” closed.
d. Remove backing from adhesive securement and stick to skin – ensure insertion site remains visible.

ii. Subcutaneous Anchoring Device:

a. Place catheter according to protocol, leaving at least 3cm of catheter external to the insertion site. Extra catheter length needs to be added to trimming measurement to securely attach to catheter.
b. Select appropriate size securement device to match catheter diameter. If the catheter is labeled with a half French size, use the closest smaller size, i.e. with 8.5F catheter, use 8F securement device.
c. Fold the base downward until tips of feet come together.
d. Lift the catheter to visualize the insertion site.
e. Apply light traction to the skin to help dilate the insertion site.
f. Use the tip of a dilator to stretch the skin opening if necessary. Do not use scalpel or dermatotomy.
g. Hold folded base perpendicular to the catheter track.
h. Slant base at an angle to skin surface with tips pointing towards insertion site.
i. Insert tips of feet into the insertion site following catheter track until the curved segment is no longer visible.
j. Align base to desired orientation.
k. Advance feet into subcutaneous tissue until feet are “buried to orange hub”. Release base to allow it to open until flat without resistance. Ensure anchor is flat.
l. Gently retract base to be sure there is some subcutaneous tissue between the feet and the dermis.
m. Use sterile gauze to remove blood, ultrasound gel or other fluids from the catheter. Be sure catheter and base are clean and dry.
n. Align catheter with the blue groove in the base and press catheter into the groove.
o. Place cover on the base by pressing firmly at center then edges while holding the base. Cover will “click” into place.

iii. Cyanoacrylate tissue adhesive (i.e. glue):

a. Apply manual pressure to insertion site for a minimum of 3 minutes to ensure bleeding has stopped. Apply tissue adhesive (i.e. glue) directly on site to reduce micro movement (1 to 2 drops) as per instructions for use and an optional drop under the hub of catheter to provide stabilization.
b. Cyanoacrylate tissue adhesive will remain attached to the skin surface until natural cellular regeneration occurs (approx. 5 to 7 days).
c. Place sterile, semi-permeable, transparent dressing to cover.

iv. Tegaderm™ with CHG Gel Pad:

a. Apply CHG gel pad at site, ensure that the CHG gel pad covers the catheter insertion site.
b. Do not stretch the dressing at placement to prevent tension blisters around edges of dressing.

c. Apply firm pressure to the entire dressing starting over the CHG gel pad to enhance adhesion of dressing.

28. Position PICC on skin creating least amount of tension (i.e. slightly J curve catheter exiting site).
29. Apply sterile 2x2 (folded) gauze on site to absorb possible bleeding post insertion and transparent dressing over insertion site and surrounding skin if cyanoacrylate or CHG pad not being used.
30. Ensure securement device and permanent wing of catheter are completely covered by dressing.
31. Fill out PICC documentation information and place in chart (paper or electronic) or provide to patient.

Documentation of PICC Insertion

1. Document insertion procedure (site specific).
2. Document will include:
   a. Inserting and assisting clinician's name
   b. Lot number of PICC (use label provided in kit)
   c. Size of PICC (3-4-5 or 6 FR)
   d. Single, double or triple lumen
   e. Insertion site
   f. Name of vein accessed
   g. Number of attempts with introducer
   h. Number of attempts to thread with guidewire or PICC
   i. Trimmed length
   j. Internal length
   k. External Visible catheter length
   l. Vein diameter at assessment, pre-procedure
   m. Use of intra-dermal local anesthetic (dose and amount) – document as per organizational policy
   n. Any complications with flushing, amount of flush solution injected
   o. Presence of blood return with aspiration

PICC Exchange

PICC exchange over a guidewire to replace either a malfunctioning catheter or a partial accidental removal or upsize of catheter will not occur if the presence of laboratory confirmed blood stream infection, erythema, redness, palpable cord, or suspicion or confirm of UEDVT (upper extremity deep vein thrombosis).

Equipment and Supplies

- Same as above for PICC insertion procedure plus:
- Dressing Tray
- Sterile scissor
- Sterile gloves x 2
  1. Clean work area table, put mask and head cover on, perform hand hygiene. Don non-sterile gloves.
  2. Place patient in supine position (as much as tolerated) and place insertion arm at 45 to 90 degree angle from the trunk of the body supported by towels or linens.

3. Prepare work area, organize supplies for first part of procedure.
4. Remove dressing and securement device.
5. Prepare dressing tray and put on sterile gloves.
6. Place sterile towel under arm.
7. Withdraw PICC 5 cm, clamped just above PICC point of entry in the skin, make clean cut to PICC using sterile scissor about 5 to 8 cm from insertion site.
8. Clean PICC and insertion site using CHG, allow area to dry completely. Observe condition of insertion site.
9. Cover cut portion of PICC with sterile drape. The exposed catheter should be the portion pulled out, freshly cut from patient arm.
10. Remove gloves, perform hand hygiene using alcohol hand rub and don sterile gown and new pair of sterile gloves.
11. Set up tray for new PICC insertion, refer to PICC insertion above.
12. Inject Lidocaine 1 percent no epinephrine at insertion site to reduce discomfort from introducer insertion.
13. Prime new PICC.
14. Using sterile technique, pull back another 2 to 3 cm more, ensure to leave some catheter inside the vein.
15. Cut catheter, pinch or clamp to prevent bleeding or air entry.
16. Insert guidewire thru one of the catheter lumens. Keep control of catheter at all time to prevent catheter embolis.
17. While inserting guidewire, DO NOT let go of catheter.
18. Once guidewire is advanced to desire depth, remove remaining catheter while maintaining the guidewire's position within the vein.
19. Insert dilator introducer over the guidewire than proceed as per guideline for PICC insertion.

Related Documents

To best view document, please **copy and paste** link in **Google Chrome**

For Intradermal Injection procedure

- Medication Administration: Intradermal Injection and Allergy Skin Testing - CE
http://mns.elsevierperformancemanager.com/SkillsConnect/Default.aspx?Token=549253&SkillID=374

For Gown and Closed Gloves procedure

- Sterile Gown and Gloves (Closed Gloving) - CE
http://mns.elsevierperformancemanager.com/SkillsConnect/Default.aspx?Token=549253&SkillID=632
- Surgical Gown: Donning Gown and Maintaining Sterility (Perioperative) - CE
http://mns.elsevierperformancemanager.com/SkillsConnect/Default.aspx?Token=549253&SkillID=10587

References

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Appendices

- Appendix A: VCH for PICC inserted using ECG technology
- Appendix B: PHC for PICC inserted using ECG technology
- Appendix C: PICC Insertion Documentation VCH
- Appendix D: PICC Insertion Documentation and Process in Cerner for PHC and LGH
- Appendix E: Performance Checklist

Appendix A: VCH for PICC inserted using ECG technology

a. Cover Tip Locating System sensor with plastic sleeve, place high on patient chest almost touching the neck, as flat as possible.
b. Slide the Fin assembly onto the sensor until fully seated.
c. Connect ECG leads to electrodes, black lead position on patient's right lower shoulder, red lead position on patient's lower left side inferior to the umbilicus and laterally along the mid-axillary line.
d. Ensure stylet in correct position
e. PICC threaded
f. Tip locating tracking (Sherlock) tracing followed to bullseye or CAJ
g. LUM measurement correlated (Actual with estimated)
h. Deflection achieved (Enter measurement AND print)
i. Max P achieved – with zero to minimal residual deflection (Enter measurement AND print.
j. Strip printed and attached to data collection and chart. Printouts are complete –Pt name, ID, length, P deflection (cm), peak P wave (cm)

Appendix B: PHC for PICC inserted using ECG technology

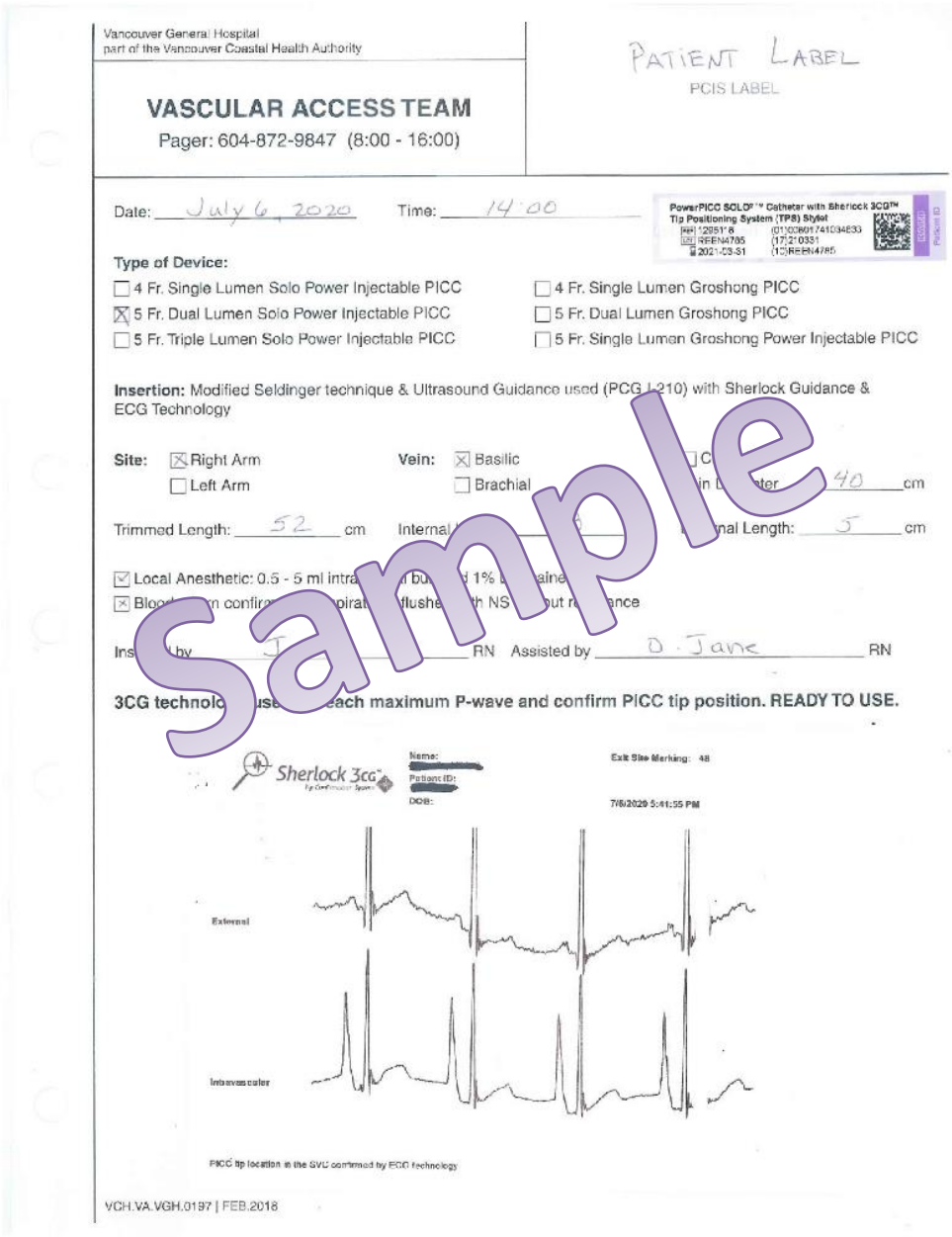
ECG Tip Technology with Tip Navigation – Refer to Arrow® VPS Rhythm® Device with Optional TipTracker™ Technology Instructions for Use:

a. Cover Tip Navigation System sensor with plastic sleeve, place high on patient chest almost touching the neck, as flat as possible.
b. Connect ECG leads to electrodes, attach adhesive ECG pads, apply to patient: WHITE goes on the right shoulder; BLACK goes on the left shoulder; RED goes on the left torso or above hip.
c. Obtain baseline heart rhythm with clear or obvious and regular rhythm – SAVE as baseline.
d. Cover remote with sterile cover.
e. Load stylet into PICC and secure connection to remote.
f. Thread PICC to desired location based on navigation.
g. Proceed until deflection in p-wave noted – SAVE and document cm marking.
h. Withdraw until max p-wave noted – SAVE and document cm marking.
i. Ensure final checklist completed to confirm proper placement.
j. Print off labels. Print off form from Form Fast in Cerner and apply to form – place completed and signed form in Chartlet.

Appendix C: PICC Insertion Documentation VCH

VGH

- Peripherally Inserted Central Catheter (PICC) Insertion Consult
- Vascular Access Team Form



Vancouver General Hospital
part of the Vancouver Coastal Health Authority

PATIENT LABEL
PCIS LABEL

VASCULAR ACCESS TEAM
Pager: 604-872-9847 (8:00 - 16:00)

Date: July 6, 2020 Time: 14:00

PowerPICC SOLO™ Catheter with Sherlock 3CG™ Tip Positioning System (TPS) Stylet

Type of Device:

- ☐ 4 Fr. Single Lumen Solo Power Injectable PICC
- ☒ 5 Fr. Dual Lumen Solo Power Injectable PICC
- ☐ 5 Fr. Triple Lumen Solo Power Injectable PICC
- ☐ 4 Fr. Single Lumen Groshong PICC
- ☐ 5 Fr. Dual Lumen Groshong PICC
- ☐ 5 Fr. Single Lumen Groshong Power Injectable PICC

Insertion: Modified Seldinger technique & Ultrasound Guidance used (PCG I-210) with Sherlock Guidance & ECG Technology

Site: ☒ Right Arm ☐ Left Arm **Vein:** ☒ Basilic ☐ Brachial ☐ C… 40 cm

Trimmed Length: 52 cm Internal … nal Length: 5 cm

☑ Local Anesthetic: 0.5 - 5 ml intra… bu… d 1% …caine
☒ Bloo… confir… pirat… flushe… h NS …ut r… ance

Ins… by … RN Assisted by D. Jane RN

3CG technolo… use… each maximum P-wave and confirm PICC tip position. READY TO USE.

Sherlock 3CG™

Name:
Patient ID:
DOB:
Exit Site Marking: 48
7/6/2020 5:41:55 PM

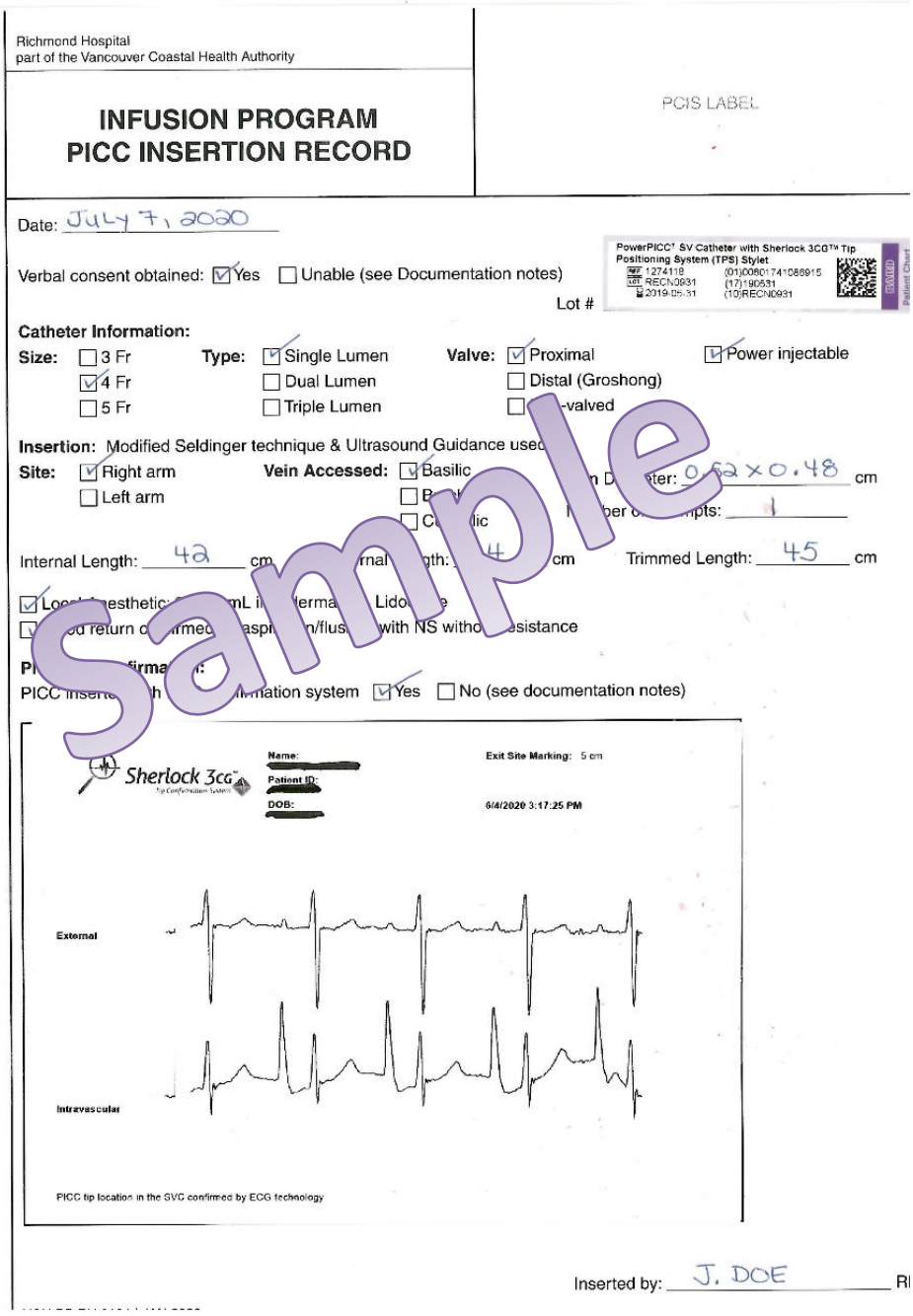
External
Intravascular

PICC tip location in the SVC confirmed by ECG technology

VCH.VA.VGH.0197 | FEB.2018

Richmond

- Peripherally Inserted Central Catheter (PICC) Insertion Consult
- Infusion Program PICC Insertion Record



Richmond Hospital
part of the Vancouver Coastal Health Authority

INFUSION PROGRAM
PICC INSERTION RECORD

PCIS LABEL

Date: July 7, 2020

Verbal consent obtained: ☑ Yes ☐ Unable (see Documentation notes)

PowerPICC™ SV Catheter with Sherlock 3CG™ Tip Positioning System (TPS) Stylet
REF 1274118 (01)00801741088915
LOT RECN0931 (17)190531
2019-05-31 (10)RECN0931

Lot #

Catheter Information:

Size: ☐ 3 Fr ☑ 4 Fr ☐ 5 Fr **Type:** ☑ Single Lumen ☐ Dual Lumen ☐ Triple Lumen **Valve:** ☑ Proximal ☐ Distal (Groshong) ☐ -valved ☑ Power injectable

Insertion: Modified Seldinger technique & Ultrasound Guidance used

Site: ☑ Right arm ☐ Left arm **Vein Accessed:** ☑ Basilic ☐ B... ☐ C...lic

...ter: 0.62 x 0.48 cm

...pts: 1

Internal Length: 42 cm ...rnal ...gth: 4 cm Trimmed Length: 45 cm

☑ Loc...esthetic: ...mL i... ...erma... Lido...e

☐ ...d return c...rmed ...aspi...n/flus... with NS witho...esistance

Pl... ...firma...:

PICC inser...h ...rmation system ☑ Yes ☐ No (see documentation notes)

Sherlock 3CG™

Name: [redacted]
Patient ID: [redacted]
DOB: [redacted]

Exit Site Marking: 5 cm
6/4/2020 3:17:25 PM

External
Intravascular

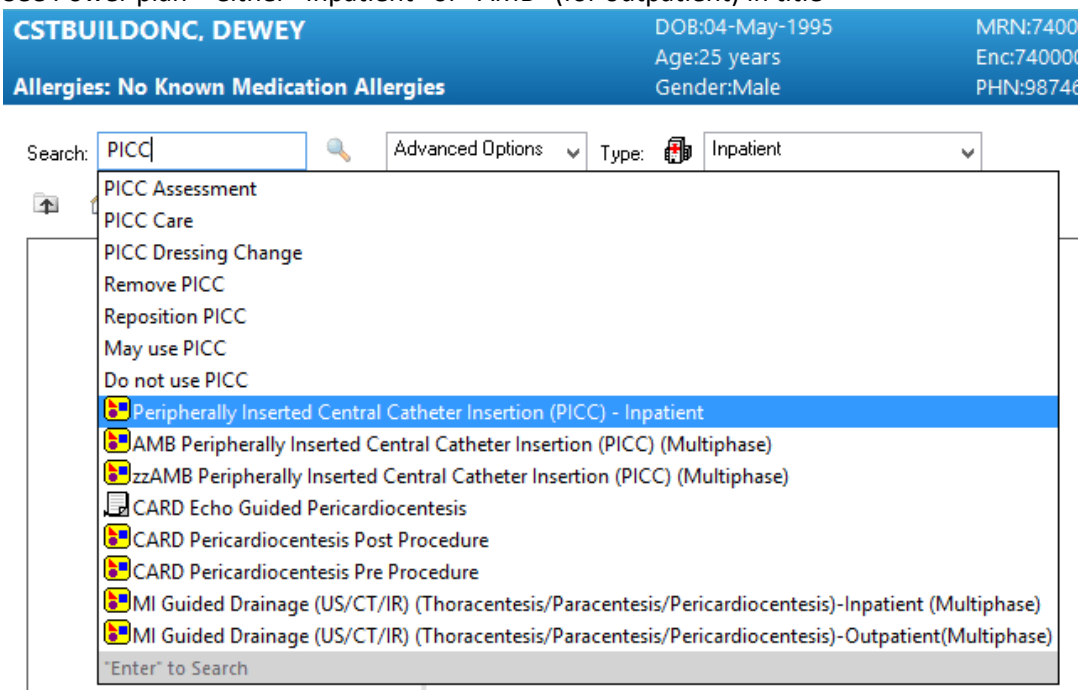
PICC tip location in the SVC confirmed by ECG technology

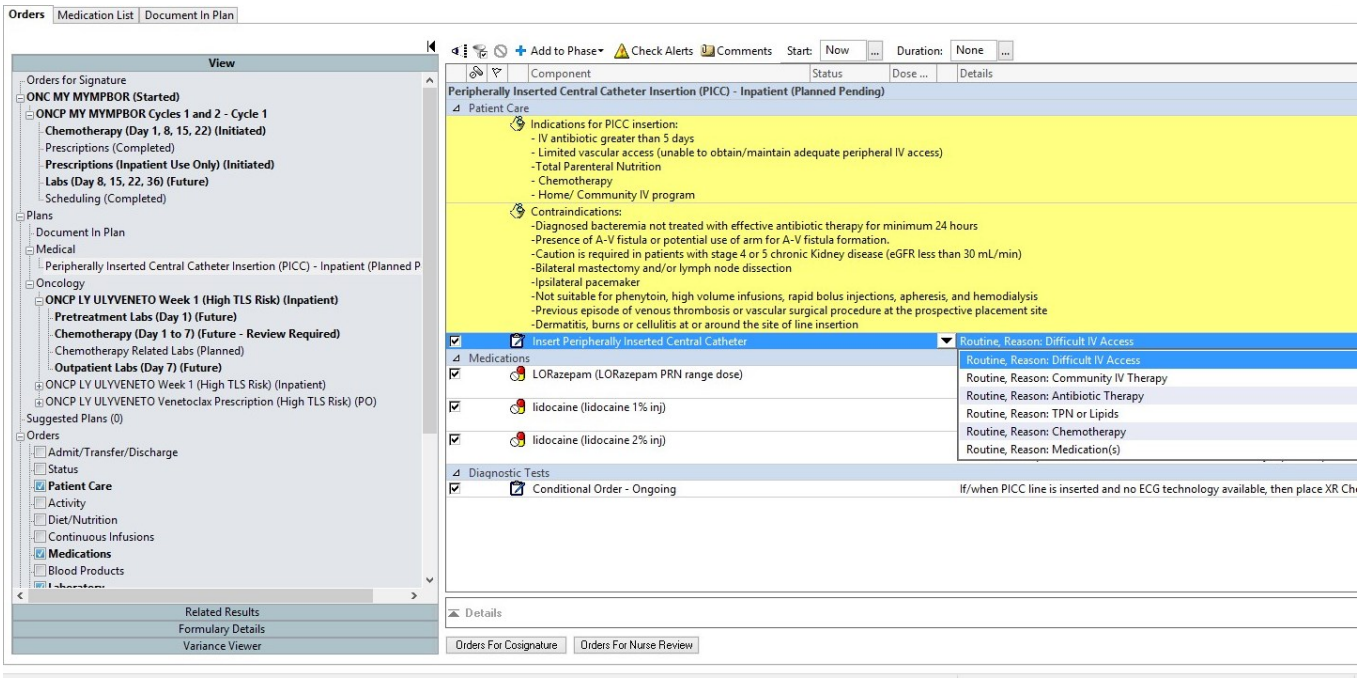
Inserted by: J. DOE RI

Sample

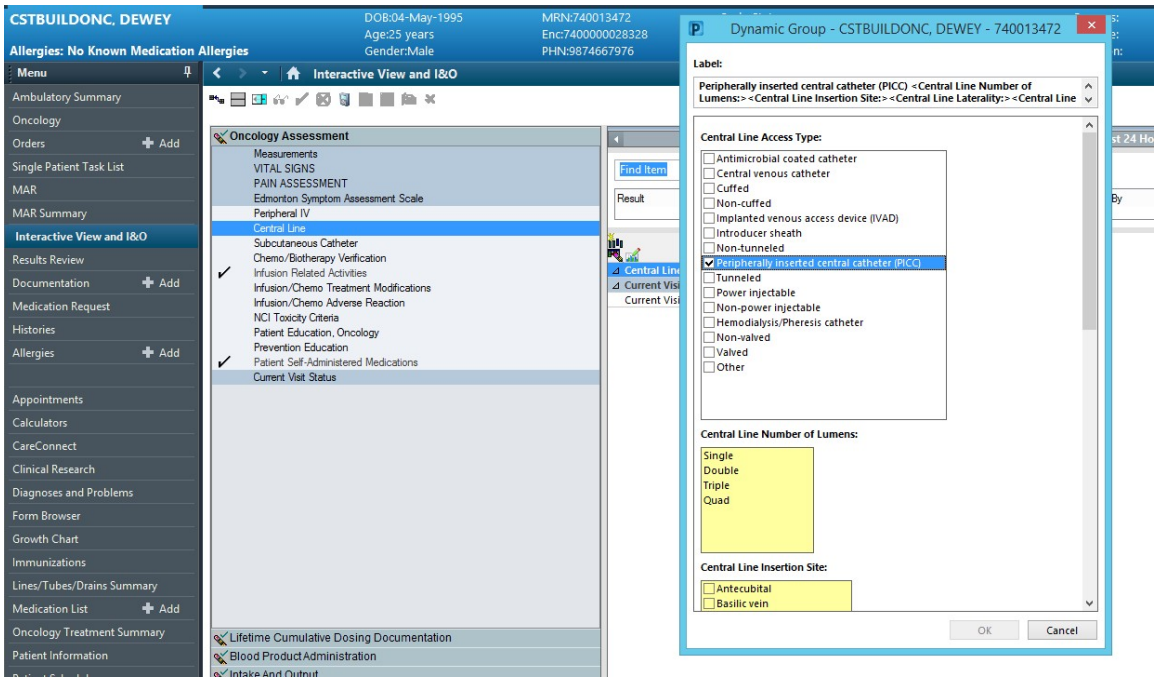
Appendix D: PICC Insertion Documentation and Process in Cerner for PHC and LGH

1. See Power plan – either “Inpatient” or “AMB” (for outpatient) in title

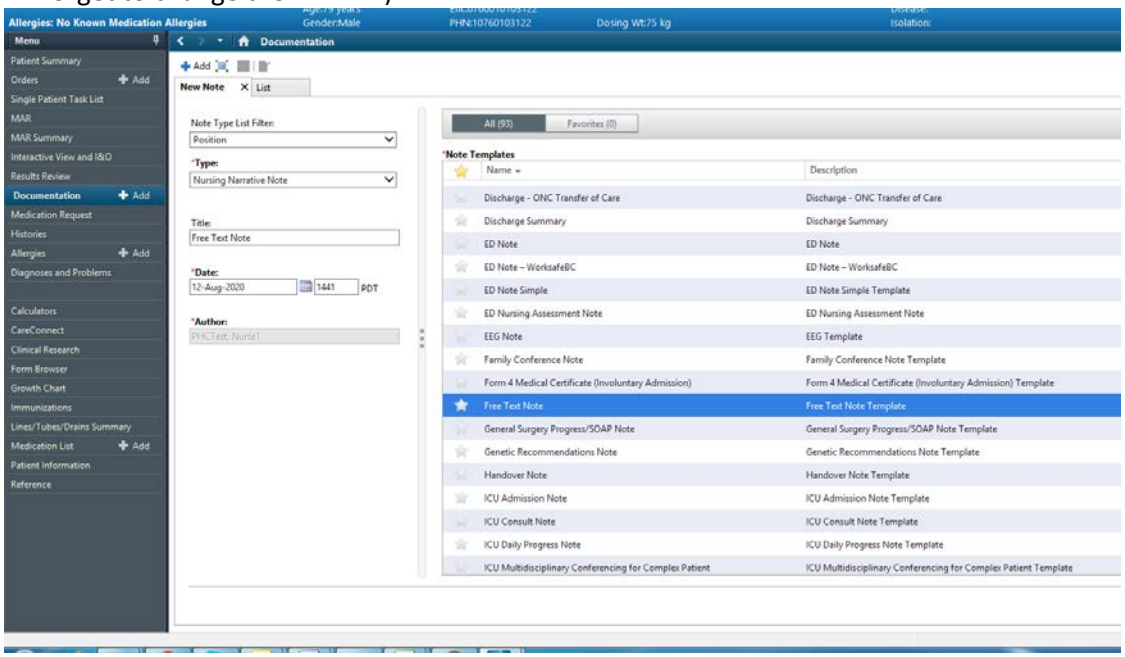




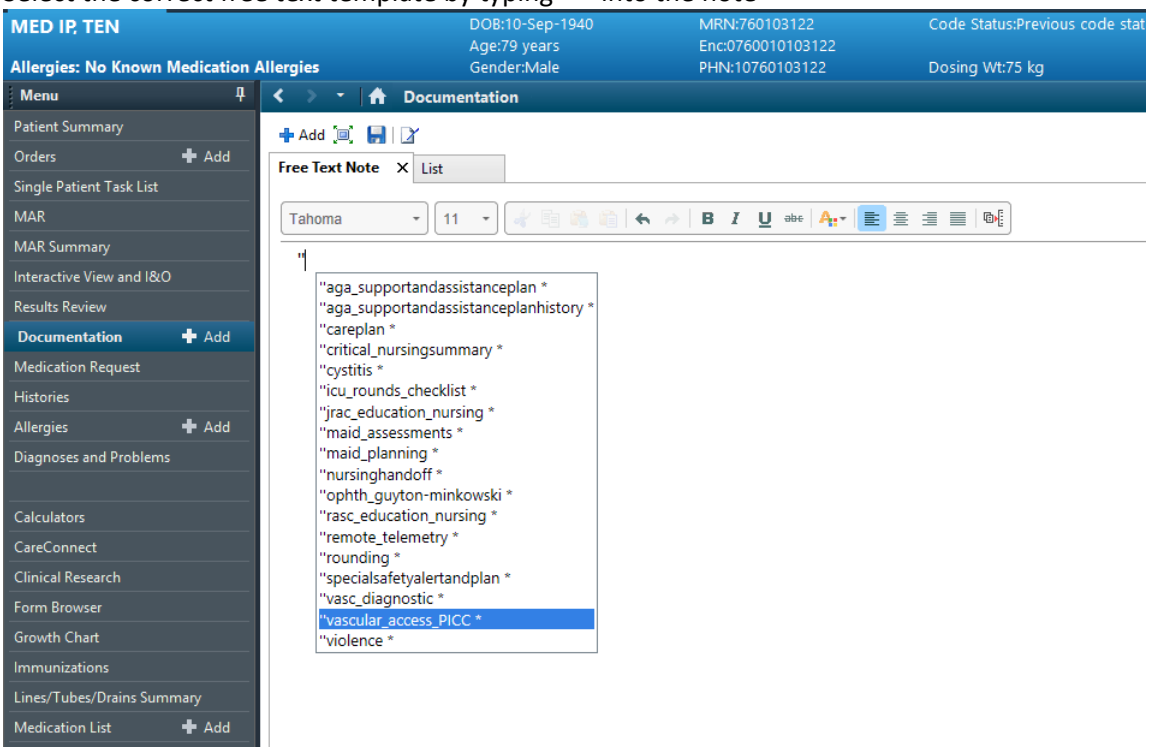
2. In iView – Enter NEW Dynamic Group with every insertion.



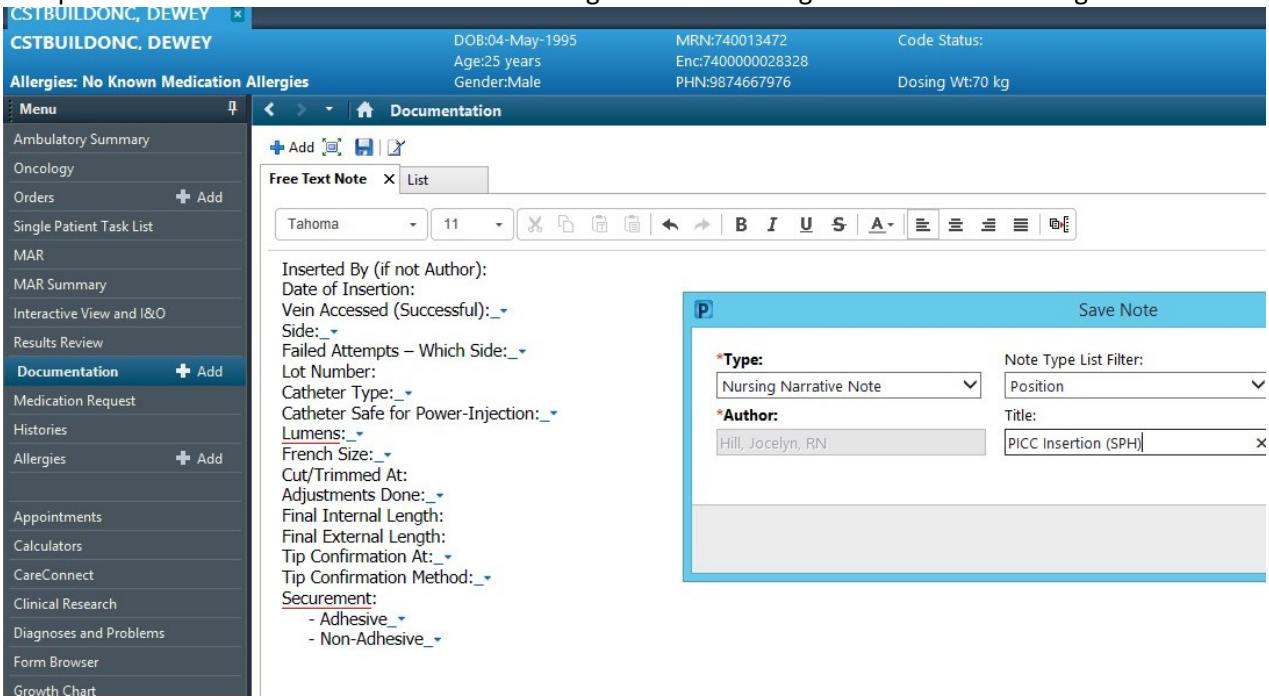
3. Document insertion procedure using PICC insertion template in Documents. Select “Free Text Note” **Don’t forget to change the TITLE**)



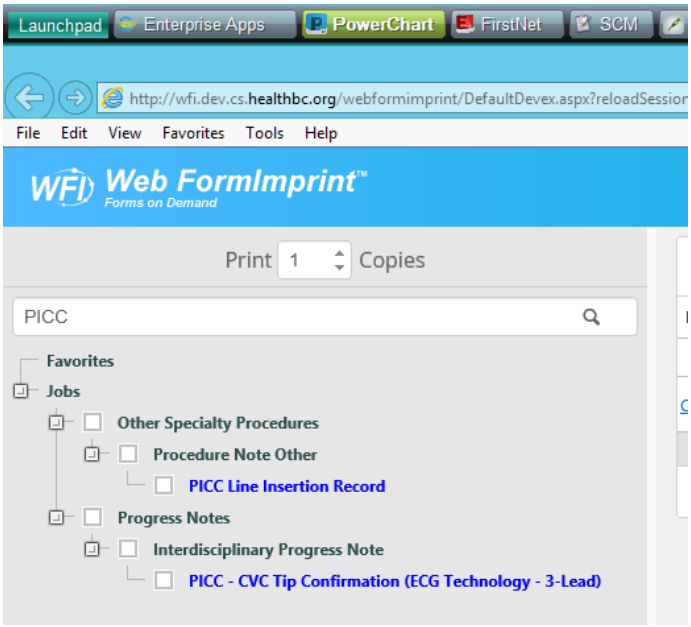
Select the correct free text template by typing '' into the note



Complete the documentation and then save or sign the note editing the title before closing



4. ECG tech printout samples labels put on FORM from FormFast for the Chartlet:



Appendix E: Performance Checklist

PERFORMANCE CHECKLIST

TITLE OF SKILL: Peripherally Inserted Central Catheter (PICC) insertion

NURSE NAME: _____ **SITE:** _____

ASSESSOR /TRAINER NAME: _____ **DATE:** _____

ASSESSOR /TRAINER NAME: _____ **DATE:** _____

ASSESSOR /TRAINER NAME: _____ **DATE:** _____

The nurse will perform the above skill consistent with the performance checklist and will correctly answer questions related to the underlying principles foundational to this skill.

The principle(s) emphasized in this procedure are: 1) establishment of rapport and communication with patient; 2) thorough assessment and selection of vascular access site; 3) strict maintenance of aseptic technique; 4) prevention of complications (through-puncture, arterial puncture).

Using the ratings below, indicate nurse's performance for each of the following skills.

3 different insertions required. Provide date for each insertion.

√ = satisfactory performance

X = Unsatisfactory performance, recommend review of procedure

SECTION 1: Assessment and Site Preparation

THE NURSE DID:	DATE: _____	DATE: _____	DATE: _____	RELATED QUESTIONS
1.1 Assesses the patient's past medical history, current condition and presenting venous anatomy for appropriateness of PICC insertion.				What factors must be considered and assessed prior to inserting a PICC?

THE NURSE DID:	DATE: _____	DATE: _____	DATE: _____	RELATED QUESTIONS
1.2 Explains the procedure to the patient.				What information should the clinician communicate to the patient prior to insertion?
1.3 Verbal consent obtained as per site policy.				
1.4 Provides appropriate sedation as necessary (i.e. lorazepam).				
1.5 Positions the patient and provides patient with a mask if indicated.				
1.6 Selects the appropriate vein for insertion.				What considerations must be addressed in selecting an appropriate vein?
1.7 Measures and documents vein size using ultrasound, determines catheter gage or diameter appropriateness.				
1.8 Measures the patient for PICC length.				
1.9 Use combination of manual measurement and Lum's Theory Chart.				
1.10 Prepares all equipment needed for aseptic skin prep. Non-sterile gloves, mask with eye cover, surgical cap or bonnet, CHG scrub brush.				
1.11 Appropriately preps the insertion site and surrounding skin. Sterile gloves, CHG or Alcohol swabsticks or applicator. Sterile drape positioned under the arm.				Approximately what area should be cleansed around the intended puncture site?
1.12 Positions and applies the tourniquet.				

THE NURSE DID:	DATE: _____	DATE: _____	DATE: _____	RELATED QUESTIONS
1.13 Safely dons sterile gown and new pair sterile gloves (closed-gloving).				
1.14 Prepares large sterile field with necessary supplies. Places large body drape (cover patient and bed), with fenestrated opening at target site.				
1.15 Inject local anesthetic to intradermal layer of skin creating a superficial "bleb"				

SECTION 2: Micro-Introducer Technique (Modified Seldinger) **Recommended**

THE NURSE DID:	DATE: _____	DATE: _____	DATE: _____	RELATED QUESTIONS
2.1 Inserts the introducer needle into the vein. Alternative technique: The IV catheter may be used as an alternate to the introducer needle. Remove the needle from the catheter after the vein is cannulated.				What are two complications of venipuncture? Describe nursing interventions for each complication. How many attempts can be made to obtain venipuncture?
2.2 Removes the guide wire tip protector from the guide wire hoop. Maintains sterility of wire.				
2.3 Inserts the flexible end of the guide wire into the introducer needle or catheter and into the vein.				

THE NURSE DID:	DATE: _____	DATE: _____	DATE: _____	RELATED QUESTIONS
2.4 Advances the guide wire to the desired depth (wire should not go past the axillary or subclavian junction).				
2.5 Gently withdraws and removes the introducer needle or catheter while holding the guide wire in position. **If there is resistance passing or withdrawing the guide wire while the needle is insitu, remove both the needle and the wire together as a unit to prevent the needle from damaging or shearing the guide wire.**				
2.6 Insert sheath and dilator unit over the wire into the skin at insertion site, being careful to maintain visual of the external position of the wire at all times.				
2.7 Advances the sheath and dilator together as a unit over the guide wire, using a slight rotational motion and counter traction.				

THE NURSE DID:	DATE: _____	DATE: _____	DATE: _____	RELATED QUESTIONS
2.8 If resistance is encountered when attempting to advance dilator sheath and introducer assembly, demonstrates appropriate troubleshooting techniques: a. Separates dilator sheath and introducer assembly and attempts insertion with dilator sheath only. b. Re-assembles dilator sheath and introducer (ensure they are locked) and attempt re-insertion. c. If necessary, make a small skin nick (dermatotomy) using # 11 blade adjacent to the guide wire to facilitate insertion of the sheath and dilator.				What would be another technique to help dilate the skin to facilitate insertion of the sheath and dilator unit?
2.9 Releases tourniquet though sterile draping maintaining sterility of the field.				
2.10 Demonstrates visualization and securement of the wire at all times.				
2.11 Prepares PICC catheter. Measure, calculate and cut PICC if required (proximal valve or open PICC only). Do NOT cut PICC with stiffening wire in place to the end of catheter. Flush all lumens of the catheter with normal saline to prime and evaluate valve function (flush and aspirate).				
2.12 Withdraws the vein dilator and guide wire, maintaining intravascular position of the peel-away sheath, leaving the sheath in place.				
2.13 Place a finger over the orifice of the sheath to minimize blood loss and decrease the risk of air embolism. (the application of the Valsalva Maneuver reduces the risk of air embolism.				

SECTION 3: Traditional Introducer Technique (Large-bore cannula)

THE NURSE DID:	DATE: _____	DATE: _____	DATE: _____	RELATED QUESTIONS
3.1 Performs venipuncture and advances introducer into the vein.				
3.2 Releases the tourniquet while maintaining sterility of gloves.				
3.3 Removes the needle from the introducer.				
3.4 Flush introducer with NS to secure patency. Cap or cover between use to prevent bleeding or air embolism.				

SECTION 4: Advancing the PICC or Threading the PICC

THE NURSE DID:	DATE: _____	DATE: _____	DATE: _____	RELATED QUESTIONS
4.1 Taking the primed and prepared PICC, advances the PICC to pre-determined length while positioning patient's head towards the insertion side.				
4.2 Check tip direction and final location using technology as required. (ECG technology +/- navigation). Max p-wave AND p-wave deflection must be identified.				What actions would you take if PICC goes into the internal jugular vein?
4.3 Flush to ensure function. Aspirates to ensure good blood return.				

SECTION 5: PICC IN PLACE

THE NURSE DID:	DATE: _____	DATE: _____	DATE: _____	RELATED QUESTIONS
5.1 Removes the stiffening stylet and guidance wires from catheter lumen(s).				

5.2 For BARD Groshong non power injectable Single lumen only: Attach the hub to catheter – trimming catheter prior to hub attachment)				
5.3 Aspirates for blood return.				
5.4 Applies needleless connector(s) to clean catheter hub(s) and flushes PICC with NS.				
5.5 Apply securement mechanism to the PICC (Securacath or StatLock).				
5.6 **When using tissue adhesive or glue: apply manual pressure to insertion site for minimum 3 minutes to stop bleeding. Apply glue to site to form seal.**				
5.7 **Applies sterile dressing according to policy.**				
5.8 Maintains sterile technique throughout entire procedure.				
5.9 Documents the procedure and catheter details or tip position according to hospital policy.				
5.10 Reports to MRP and primary care RN or staff any complications or difficulties that occurred during placement and expected patient criteria to monitor.				

EVALUATION

1. Skill tested in lab setting, may initiate PICC under supervision of Educator or Trainer.

   Staff Nurse: _____

   Educator or Trainer: _____

   DATE_____

2. Certified competent to insert PICC (completion of 3 Successful PICC Insertions and Skills Checklist).

   Staff Nurse: _____

   Educator or Trainer: _____

   DATE_____

PERFORMANCE CHECKLIST ANSWER SHEET

Peripherally Inserted Central Catheter (PICC) insertion

QUESTIONS	ANSWER
1. What factors must be considered and assessed prior to insert a PICC?	Review the patient's medical history, current medications, and recent laboratory results to determine whether any contraindications are present or precautions should be considered Diagnosed bacteremia not treated with effective antibiotic therapy for minimum 24 hours. Dermatitis, burns or cellulitis at or around the site of line insertion. • Presence of A-V fistula or potential use of the arm for A-V fistula formation. Caution may be required in patients with previous bilateral mastectomies and/or lymph node dissections. Ipsilateral Pacemaker PICC unsuitable for phenytoin, apheresis, hemodialysis, or CVP monitoring Caution is required in patients with stage 4 or 5 chronic kidney disease (eGFR less than 30 mL/min)
2. What information should the clinician communicate to the patient prior to insertion?	The patient must be informed of what a PICC is, the reason for the PICC insertion, risks, benefits and the possible complications related to the insertion procedure and ongoing PICC related risks
3. What considerations must be addressed in selecting an appropriate vein?	Measure diameter of vein for insertion and ensure catheter-to-vein ratio is 45 percent or less. Consider catheter-to-vein ratio equal to, or less than, 3 percent especially in patient with cancer diagnosis or hypercoagualopathy. If vein is of inadequate size, plan for alternative access. Ensure vein is patent (soft, compressible) along its duration up to axilla. Identify nerve bundle to avoid nerve injury during cannulation and access.

4. Approximately what area should be cleansed around the intended puncture site?	Starting at insertion site and covering from mid upper to mid lower arm. Repeat with one or two 2 percent CHG or 70 percent alcohol swab sticks. Clean area using friction or scrubbing.
5. What are two complications of venipuncture? Describe nursing interventions for each complication	**Through Puncture** as evidenced by a developing hematoma. Interventions: Remove needle, apply manual pressure to the site. **Arterial Puncture** as evidenced by blood (brighter red) flowing forcefully into the tubing. Interventions: Remove needle, apply manual pressure to the site (minimum seven minutes), apply pressure bandage as needed.
6. How many attempts can be made to obtain venipuncture?	No more than 2 attempts to cannulate the vein (gain venous access) will be made by the same RN, and a third attempt will only be made if the patient agrees.
7. What would be another technique to help dilate the skin to facilitate insertion of the sheath and dilator unit?	Take apart sheath from dilator and insert dilator into insertion site over guide wire. Rotate and ease dilator into skin at insertion site – try to make opening as large as possible. Remove dilator, maintaining your guide wire insitu than re assemble sheath and dilator together. Using a slight rotational motion, introduce re-assembled through skin into vein.
8. What actions would you take if PICC goes into the internal jugular vein?	If PICC turns towards IJ, have patient turn his or her head to shoulder of the insertion arm and lower chin to shoulder. This head position is theorized to decrease chance of PICC migration up into jugular vein. Other strategies (remove pillow, deep breath, valsava, turn to opposing side)

First Released Date:	16-OCT-2020	
Posted Date:	16-OCT-2020	
Last Revised:	16-OCT-2020	
Last Reviewed:	16-OCT-2020	
Approved By: *(committee or position)*	PHC	VCH
	PHC Professional Practice Standards Committee	**Targeted Endorsement Read:** • Operations Director and Site Lead UBC Hospital and Medical Infusion Clinic and Vascular Access Team, VGH • Director, Transitional Care or Medicine Unit • Prof Practice Director, Nursing and Allied Health, Professional Practice Admin • Manager for Pediatric, Perinatal, Oncology, and Ambulatory Care, Acute Services • Executive Director, CST, Director, Emergency, Critical Care, Trauma, STS, Acute, Ambulatory and Maternity and Pediatrics, WHCC and PHCC, Corporate Office • Director, Professional Practice for Nursing and Allied Health, Professional Practice • Nursing Practice Initiatives Lead, Professional Practice • Director Medicine Services, Administration • Director Professional Practice, Administration
Owners: *(optional)*	PHC	VCH
	Development Team members: • Clinical Nurse Specialist chemo, oncology or IV therapy SPH	**Developer Lead:** • Vascular Access Team VGH **Development Team member(s):** • Clinical Nurse Resource Infusion and Vascular Access Team RH • Clinical Educator Vascular Access Team LGH • Clinical Nurse Resource Infusion/Vascular Access Team RH • Clinical Educator Vascular Access Team VGH