VANDERBILT UNIVERSITY MEDICAL CENTER

Guideline: Adult Central Line Guideline

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I. Population:

The following protocol applies to burn patients in the Burn ICU.

II. General Principals

- All non-tunneled lines placed at an outside facility should be considered for removal at the earliest opportunity.
- All intravascular catheters not placed under strict sterile conditions (pre-arrival at VUMC, or emergently in the trauma bay or placed under time-critical conditions in a patient with profound physiologic instability or undergoing active cardiopulmonary resuscitation) must be removed within 48 hours.
- Antibiotic impregnated catheters should be utilized.
- Ultrasound guidance is expected for IJ placements and encouraged for subclavian and femoral placements.
- All central lines should be removed at the earliest opportunity once they are no longer clinically indicated or alternative PIV access can be established.
- When long term venous access is indicated, a Midline catheter is preferred over a PICC unless a specific need for central venous access is required for therapeutic administration.
- Central line catheter tips are not to be sent for routine culture.
- Central line port hubs should be protected with an antimicrobial cap when not in use and properly scrubbed according to hospital policy when disconnected and accessed.

III. Insertion Site Selection

- Central lines will be inserted in non-burned areas when available, preferably >5cm from the nearest burn to decrease risk of bacterial contamination/colonization.
- Femoral site is preferred if through unburned skin.
- If multiple sites are available, consider operator skill and technique in the selection process with Subclavian and IJ sites preferred over femoral placement due to increasing infection risk.

IV. Technique

- VUMC principals of insertion technique should be followed according to VUMC Policy Manual
- General components of Insertion Technique include:
    - Informed Consent
    - Time-out
    - Pain management
    - Patient positioning (Trendelenburg for lines above the diaphragm)
    - Patient monitoring with telemetry
    - Sterile Technique with full barrier precautions and PPE
    - Skin prep with CHG or Betadine if patient is undergoing Cultured Epithelial Autografting.
    - Confirmation of venous puncture through transduction or direct ultrasonographic visualization of the wire within the vein prior to dilation of the puncture.
    - Secure with 2-0 silk sutures at a minimum of three points
    - Cover with site appropriate anti-infective dressing

  - Confirm central line placement of Subclavian and IJ lines by CXR prior to infusion.
  - Exchange over wire technique using Double Gloves
- Lines being exchanged over a wire require **double sterile glove** technique for placement, where the outermost glove is to be removed following removal of the existing catheter and prior to handling the new catheter.

V. Management, Maintenance and Care

Line inserted through burned skin:

- When it is necessary to insert lines through burned skin, these lines will be changed every 8 days with one exchange over a wire if no suspicion of central line infection exists followed by a new site.
- In pediatric patients requiring new or changing access, a new site stick is preferred to exchange-over-wire. Refer to PICU specific guidelines.
- Dressing: If standard CHG dressing will not remain intact, cover insertion site with Mepilex AG cut to fit as a drain sponge dressing. Change dressing daily or PRN if soiled.

Femoral lines:

- Femoral lines are preferred if other sites would be through burned skin.
- Femoral central lines will be rotated every 8 days, once by new catheter exchange over wire then followed by a new site stick.

Subclavian and IJ lines:

- Central lines placed under sterile technique through unburned skin >5cm from the nearest burn will be evaluated every shift and maintained per VUMC policy with CHG barrier clear occlusive dressing. Routine catheter changes are not required.
- Malfunctioning lines are eligible for exchange over wire under double glove sterile technique.
- Lines suspected of infection should be exchanged for a new catheter at a new site. If the new site is contraindicated, exchange over wire may be performed.
- Evidence of local catheter infection such as purulence, erythema, or tenderness, mandates a catheter change to a new site.

Lines suspected of infection:

- When there are signs of active infection around the central line insertion site, the line should be removed as soon as possible.
- Lines suspected of infection are not eligible for exchange over a wire.
- Patients with evidence of bloodstream infection and SIRS/Sepsis require a CVC line change to a new site.

VI. Special considerations

Patients with Deep Venous Thrombosis

- Consider Interventional Radiology consultation for placement if the access site would pass through the clot burden.

Patients on anticoagulants

- Select a compressible site for insertion when available.
- Utilize micro-puncture technique for access.

VII. References

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Universal Protocol - Identification of Correct Patient, Procedure, Site/Side (Time Out)
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