# **Central Venous Access**

**PERFORMANCE EXCELLENCE 2020** 

This advisory for the management of Central Venous Access devices were developed jointly by the MLH process improvement team, Infection Prevention, Vascular Access Team (VAT) and Committee, nursing leadership and physician partners. Multiple sources were used, including expert opinion, CDC Clinical Practice Guidelines, Association of Vascular Access (AVA) Practice Guidelines, and Joint Commission resources.

## **KEY POINTS**

Be a hero

- Consider all venous access alternatives before placing a central line or PICC
- Only place a central line or PICC if approved clinical indications are met ٠
- Avoid wire exchanges when inserting central lines
- Avoid drawing blood from central lines and PICCs —
- Never draw blood cultures from a central line or PICC ٠
- Document and update daily the indication, length of dwell, and ٠ plan for removal of each central line or PICC in progress note
- Maintain open communication and collaboration to reduce CLABSIs

### Why focus on CLABSI reduction?

- CLABSIs result in thousands of deaths each year and billions in added costs
- 65-70% of CLABSIs are preventable by implementing leading practice guidelines
- MLHS had 21 CLABSIs between April '16—March '17 (more than expected)

### GOALS

- Eliminate central line associated blood stream infections (CLABSIs)
- Reduce central line and PICC utilization by 10%

### **PROCESS MEASURES**



- 2. Documented central line or PICC necessity in Invasive Lines Assessment daily by bedside RN
- 3. Documented clinical indication for central line or PICC, length of dwell, and plan for removal daily by clinician in progress note
- 4. Ordered blood draws from a central line or PICC by clinician
- 5. Placed alcohol-impregnated caps on all needleless connectors









Process Measure

**Target Zero** 

#### Safe and Careful Insertion — Important Points (a)

Physician, VAT (Vascular Access Team), NP, PA

- Insert a central line only if patient meets MLH-approved indications (b)
- Choose line with the least number of lumens as appropriate
- Avoid placing a line at a femoral site and avoid line exchanges over a wire
- Perform non-emergent insertion procedures always with two people: operator and assistant; the latter retains the ability to stop the procedure if sterile technique is not being followed
- Perform hand hygiene and use maximum sterile technique, including utilizing the assistance of ultrasound
- Draw blood only from a newly inserted line at a new anatomical location
- Avoid using sutures for central line stabilization, suture-less securement devices are preferred . Note: this does not pertain to hemodialysis catheters nor sheath introducer catheters

Process Measure

Process Measure

- Place an antimicrobial securement dressing over line after insertion (i.e. CHG)
- Place alcohol-impregnated caps on all needleless connectors -
- Obtain a chest x-ray to confirm placement
- Document procedure completion using the *Line Insertion Checklist* (see page 4)

#### VAT

- Discuss vascular access needs and alternatives to PICCs with ordering provider prior to placement (c)
- Perform a Time Out and place central venous access using standard insertion kit

#### **Consistent Maintenance**

#### Physician, VAT, NP, PA

- Remove emergently placed central lines within 24 hours of placement (or earlier if the patient clinically stabilizes) to reduce the possibility of a blood stream infection
- Remove femoral central lines within 72 hours; if clinical indications are met, place a new line (b)
- Monitor line insertion site routinely for signs of dislodgement, infection, and bleeding

#### <u>Bedside RN</u>

- Perform hand hygiene
- Ensure alcohol-impregnated caps are present on all needleless connectors; these are single use and must be discarded once removed and replaced with a new protector
- Disinfect needleless connector with alcohol for 15 seconds before accessing the line

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#### Safe and Careful Insertion Notes

(a) Detailed Insertion Steps PICC Insertion: <u>http://procedures.lww.com/lnp/view.</u> <u>do?pId=166655</u> Central Line Insertion: <u>https://mainlinehealth.ellucid.</u> <u>com/documents/view/15615</u>

#### (b) Indications for Central Venous Access

- Hemodynamic monitoring
- Rapid fluid administration
- Infusion of vasoactive medication
- Total parenteral nutrition (TPN)
- Chemotherapy
- Transvenous pacing

#### (c) Vascular Access Options and Alternatives

#### **Peripheral**

- Short dwell catheter most commonly used, change when clinically indicated
- Extended dwell catheter placed by VAT using ultrasound guidance, change when clinically indicated
- Midline extended length, up to 20cm, may remain in place for 30 days, placed by VAT under sterile conditions using ultrasound guidance

#### <u>Central</u>

- Peripherally Inserted Central Catheter (PICC) single or multiple lumen device, inserted via peripheral vein
- Central Venous Catheter non-tunneled single or multiple lumen device that is percutaneously inserted into the central vasculature (internal jugular, subclavian or femoral vein)
- Tunneled Central Venous Catheter single or multiple lumen device surgically tunneled through subcutaneous tissue to an exit site on the chest or abdominal wall

\*Dialysis catheters fall into the above two categories depending on duration of need. These <u>may only be accessed</u> by hemodialysis staff, except in emergencies

 Implanted Port — An implanted device surgically placed subcutaneously in the chest or arm, attached to a catheter with the tip dwelling in the central vasculature

#### Consistent Maintenance Continued

#### Bedside RN

- Bathe patients with central venous catheters with CHG on a daily basis
- Change needleless connectors every week on Tuesdays and Fridays
- Change dressing and perform insertion site care with CHG every 7 days, or as needed following assessment
- Change tubing per MLH policy (d)
- Report device malfunctions immediately to the vascular access team (VAT)

#### **Evaluation of Necessity and Timely Removal**

#### Physician, NP, PA

- Document daily in a progress note: 1) indication, 2) duration of dwell, and 3) plan for removal Process Measure
- Assess clinical indications for central lines daily and remove lines when indication is no longer met. If on the seventh day of dwell, central venous access is indicated, remove the line(s) and place a new line(s) in a new location with the fewest number of lumens possible; PICCs are preferable if clinically appropriate (e)

#### Bedside RN

- Discuss central line or PICC necessity and plan for removal at all handoffs and at the safety huddle
- Review central line or PICC necessity with clinician and document it on a daily basis by completing "necessity assessed" in the Invasive Line Assessment charting (see Page 4)
- Consider alternatives to central venous access and line indications as often as possible, suggesting line removal to clinician when the line is no longer clinically indicated (f)

#### **Blood Draws**

#### Physician, VAT, NP, PA

- Avoid drawing blood from central lines and PICCs; draw blood peripherally to avoid increasing the risk of infection
- Never draw blood cultures from a central line or PICC; consider ultrasound for a peripheral sample, and if unsuccessful, perform an arterial puncture at least invasive anatomical location

#### Bedside RN

- Avoid accessing the line as much as possible; do not draw blood from an existing indwelling central line nor PICC, unless a **one-time** order has been placed (g) (h) (i)
- If a peripheral sample cannot be obtained, contact the VAT for further assistance (including additional attempts with ultrasound guidance) before contacting the attending or designee

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#### **Consistent Maintenance Notes**

#### (d) Tubing Changes

Change tubing every 72 hours, except:

- Lipid tubing is changed every 24 hours
- Blood infusion tubing is changed after every infusion
- When a new central venous access device is placed

#### **Evaluation of Necessity and Timely Removal**

(e) Excludes immunocompromised patients, patients with coagulopathy, thrombocytopenia (platelets < 50k) and/or on ECMO

(f) If question arises regarding continued necessity or concern over any line not meeting clinical indications, any provider should contact their local MLHS Infection Preventionist (IP)

#### **Blood Draw Notes**

(g) If multiple peripheral attempts were unsuccessful, physician may be required to perform arterial puncture

(h) Batch routine blood draws and call the lab to determine if tests can be added to existing sample

(i) Acceptable reasons to draw off the line without a provider order:

- other critical emergencies
- Patients on ECMO •
- Patients with severe coagulopathy or thrombocytopenia (platelet count less than 10,000)

#### MLH Policies (http://procedures.lww.com)

- Disinfecting Port Protectors
- Guidelines for Flush and Maintenance of Access Sites
- Central Venous Access Catheter Needless Connector Change
- Central Venous Access Catheter Blood Sampling
- IV Administration set (tubing) change
- Central Venous Access Device Dressing Change











Process Measure

#### MLH System Clinical Advisory — CENTRAL VENOUS ACCESS

Bedside RN must confirm that the device was accessed daily for necessity by completing the "Necessity" section in *Invasive Lines Assessment* 



Physician, VAT, NP, PA must document procedure completion using the *Line Insertion Checklist* (see below):



This advisory for the management of Central Venous Access devices is based on the best available scientific evidence at the time of publication. It is not a prescription for every physician, every patient, nor does it replace clinical judgment.

For questions or concerns, please contact your campus' Infection Preventionist (IP) available at <a href="http://intranet/infectionprevention/">http://intranet/infectionprevention/</a>.

#### References

- APIC Association for Professionals in Infection Control and Epidemiology (APIC). 2015. "APIC Implementation Guide: Guide to Preventing Central Line-Associated Bloodstream Infections." Web 6-78.
- CDC Centers for Disease Control and Prevention. Central Line-Associated Bloodstream Infections: Resources for Patients and Healthcare Provider, 2011.
- AVA Association of Vascular Access. <u>http://www.ava.org/</u>
- Ann V Chopra et al. The Michigan Appropriateness Guide
- Intern for Intravenous Catheters (MAGIC): Results from a
- Med Multispecialty Panel Using the RAND/UCLA Appropriateness Method. Ann Intern Med. 2015; 163:S1-S39.
- TJC The Joint Commission. Preventing Central Line-Associated Bloodstream Infections: Useful Tools, An International Perspective. Nov 20, 2013. www.jointcommission.org/assets/1/18 CLAB-SI\_Monograph.pdf

#### **Additional Resources**

Infection Prevention Website: <u>http://intranet/infectionprevention/</u> PICC Excellence: <u>https://www.piccexcellence.com/</u> Infusion Nurses Society: <u>http://www.ins1.org/</u>

http://intranet/pfed/files: PICC MidlineCath Guide March 2015.pdf

Blood Stream Infection Pt Educ Guide.pdf

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#### MLH System Clinical Advisory — CENTRAL VENOUS ACCESS

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### **EPIC Documentation**

Bedside RN must confirm that the device was accessed daily for necessity by completing the ....