Preventing CLABSIs: Tales From the Front Line

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Our Hospital's Success

Advocate
BroMenn Medical Center

- Early adopters of best practice
- Culture of safety with transparency and "just culture"
- Community hospital with great results
- Share our journey

Central Line Use

- Central lines are necessary to provide lifesaving medications and treatment to patients.
- Central lines can be a source of infection that harm patients.
- Central Line-Associated Blood Stream Infections (CLABSIs) are preventable when evidence-based guidelines are used.[1-3]
- Implementation of EBP policies, education of and monitoring compliance with central line best practice is critical to eliminating CLABSIs.[4]

CLABSI Prevention Literature Review

- Central line insertion and maintenance guidelines
- Supplemental strategies
  - Considered if basic practices are not eliminating CLABSIs
- Education of guidelines and expectations
- Safety culture where concerns and suggestions are welcomed and supported by leadership
- Auditing of central line care
  - Peer-to-peer feedback

Expectation is to Have 0!

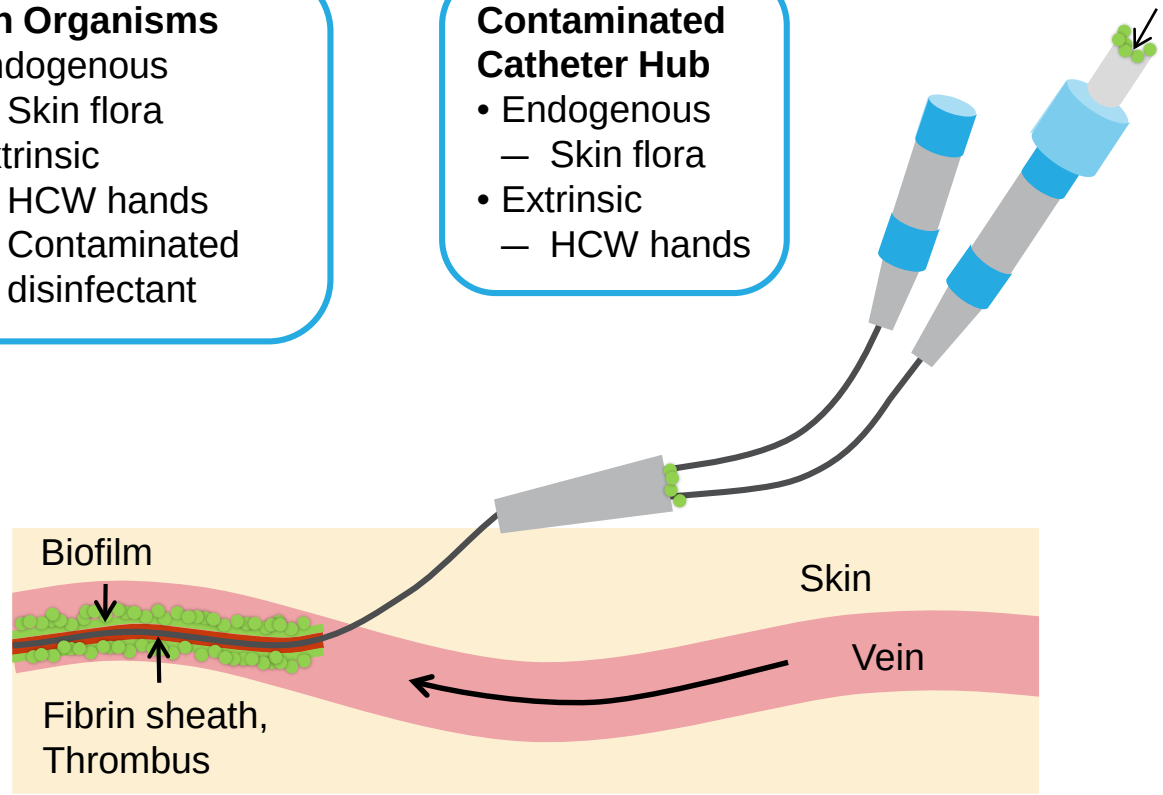
- Financial
- Mortality
- Patient satisfaction
- Leadership engagement is important
- Multidisciplinary representatives such as an infection preventionist, bedside staff, venous access team, documentation specialists must be involved in prevention planning[3]
- Policies and procedures developed from evidence-based practice

Sources of Central Line Colonization[3,5,8]

Skin Organisms
- Endogenous
  - Skin flora
- Extrinsic
  - HCW hands
  - Contaminated disinfectant

Contaminated Catheter Hub
- Endogenous
  - Skin flora
- Extrinsic
  - HCW hands

Contaminated Infusate
- Fluid
- Medication
- Extrinsic
- Manufacturer



Hematogenous - from a distant infection

Intraluminal: Where We Have the Most Risk, Control, and Opportunity

- HAND HYGIENE - including the patient
- Minimal manipulation of catheter and related devices
- Rigorous disinfectant practices when catheter or related devices must be manipulated[3]

Application of Guidelines

- Develop policies that focus on the components of the guidelines and basic care of central lines
- Educate upon hire; consider regular refreshers
  - Include hands-on activities
  - Establish expectations
  - Everyone has the same knowledge
- Compliance and accountability is essential
- Educate patient and family as appropriate

INSERTION
BEST PRACTICE

Insertion Best Practice

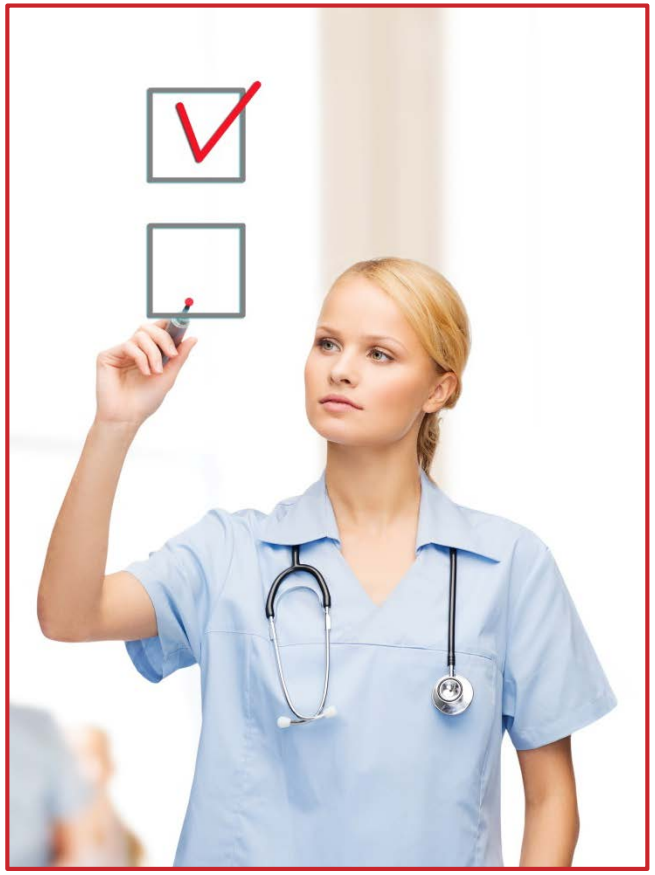
- Ensure central line is needed[6]
  - Total Parenteral Nutrition (TPN)
  - Vasopressors
  - Highly noxious agents
- Could a PICC central line meet the needs?[7]
  - Safer insertion site
  - Compatible with care in non-ICU areas and at home
- Could a midline meet the needs?[6]
  - With advancement in ultrasound guidance, midline and short venous catheters are increasingly possible

Insertion Best Practice

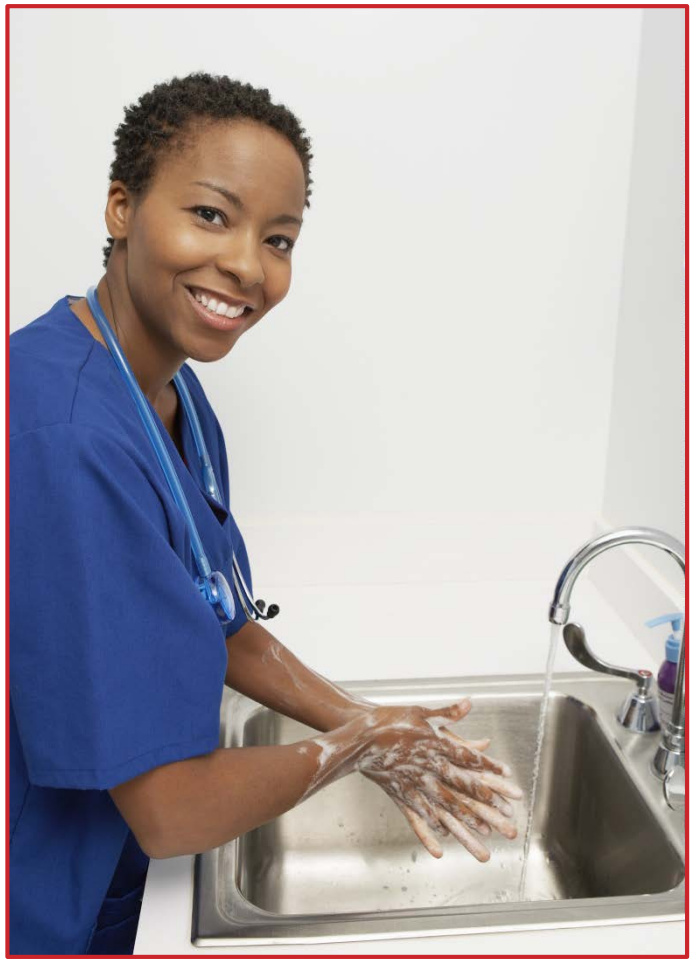
- Ensure aseptic insertion practices
  - Healthcare personnel, who are trained in insertion practices to observe insertion
  - Empower healthcare personnel to stop the insertion procedure if aseptic technique is not followed[3,8]

Insertion Best Practice

- Use an all-inclusive catheter cart or kit
- Choose the best site to minimize infections and mechanical complications
- Use ultrasound guidance insertion
- Use an alcohol chlorhexidine antiseptic for skin preparation[3,8]



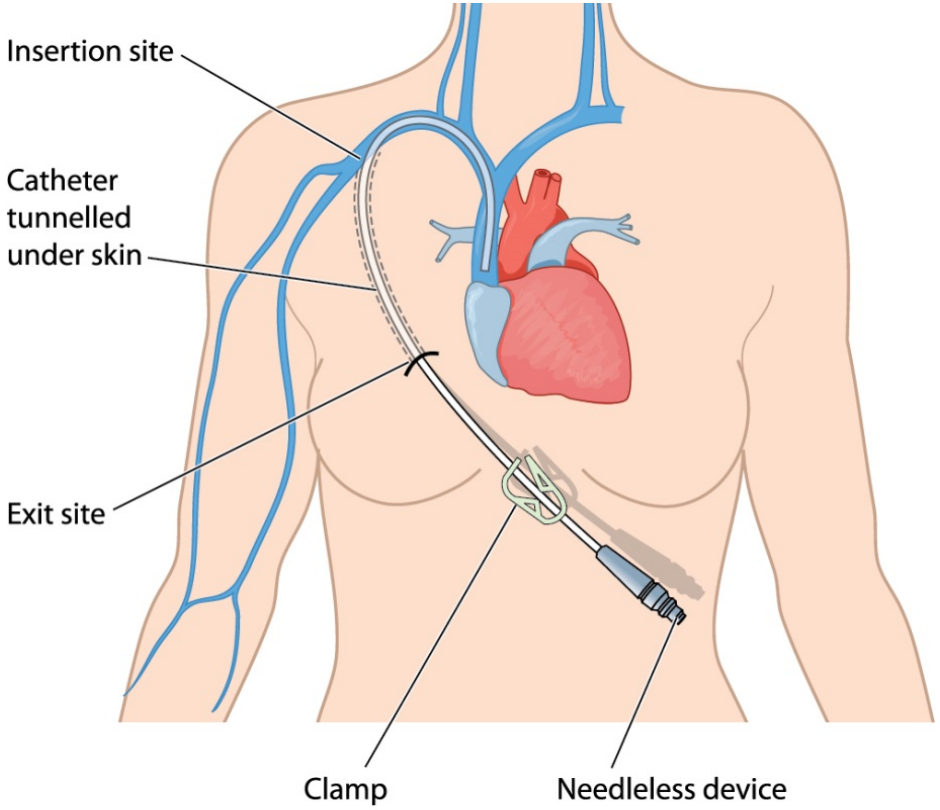
Insertion Best Practice



- Perform hand hygiene before insertion and before any contact with the central line or its attachments.[3,8]

Insertion Best Practice

- Choose the best site to minimize infections and mechanical complications
- PICC lines are ***not*** an alternative[3,8]



Insertion Best Practice

- Use maximal sterile barrier precautions[3,8]
  - Sterile full body drape
  - Mask, cap, gown, sterile gloves

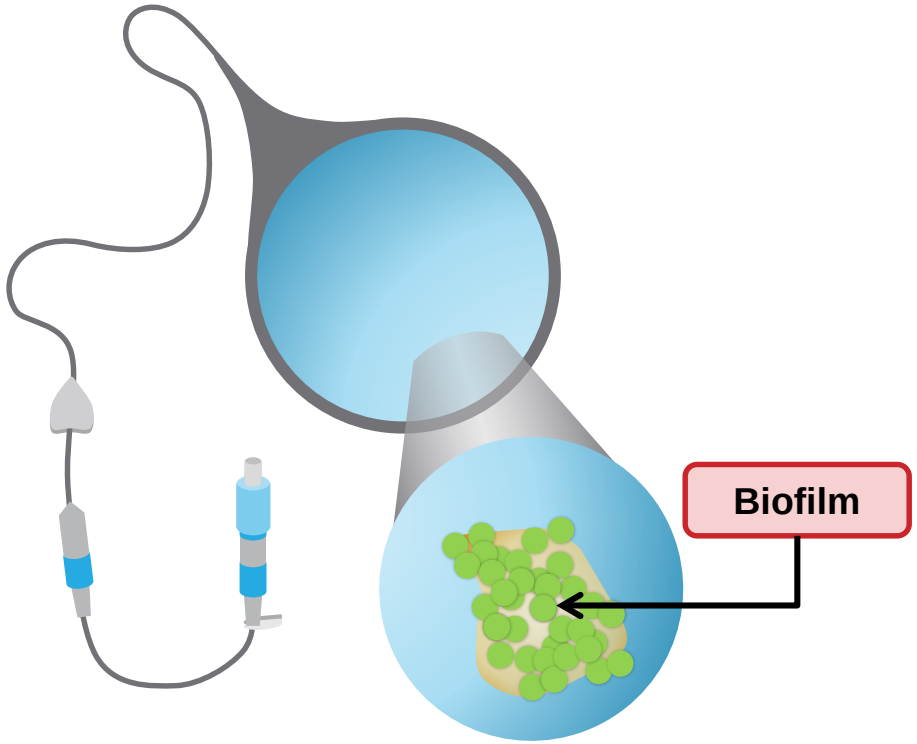
MAINTENANCE BEST PRACTICE

Maintenance Best Practice

Maintenance care
of a central line
is as important
as the insertion.

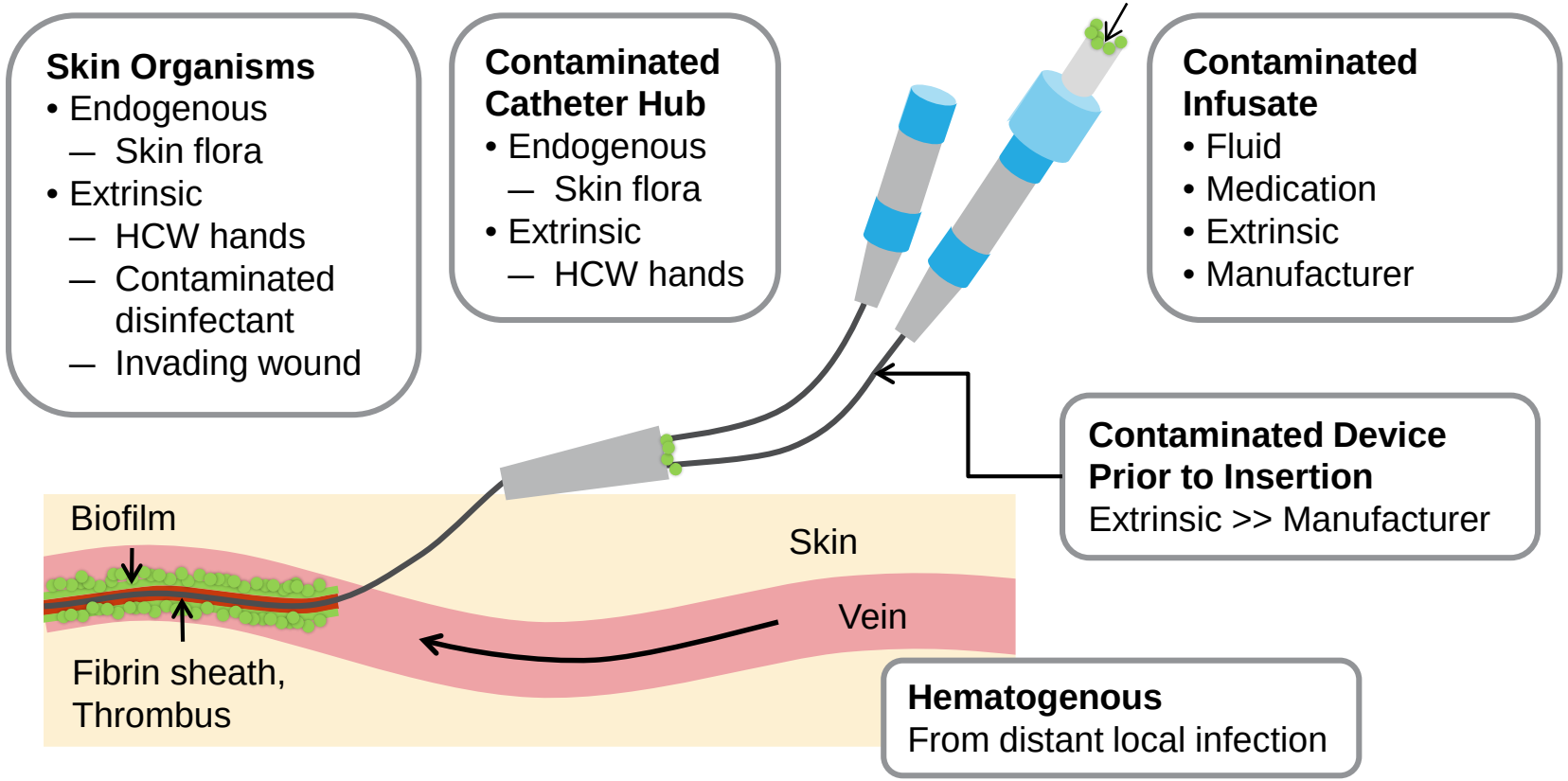
Maintenance Best Practice

- The longer a central line is in, the more chance of infection.



Maintenance Best Practice

- Biofilm begins forming shortly after insertion resulting in colonization of the catheter[3,18-19]



Maintenance Best Practice

- Assess the need for the central line daily[3,8]
  - Have a list of reasons to leave CVC in such as:
    - Infusion of harsh medications, hemodynamic instability, long term medication administration
  - Do not use for routine blood draws[6,8]
    - If the patient has veins, poke them

Maintenance Best Practice

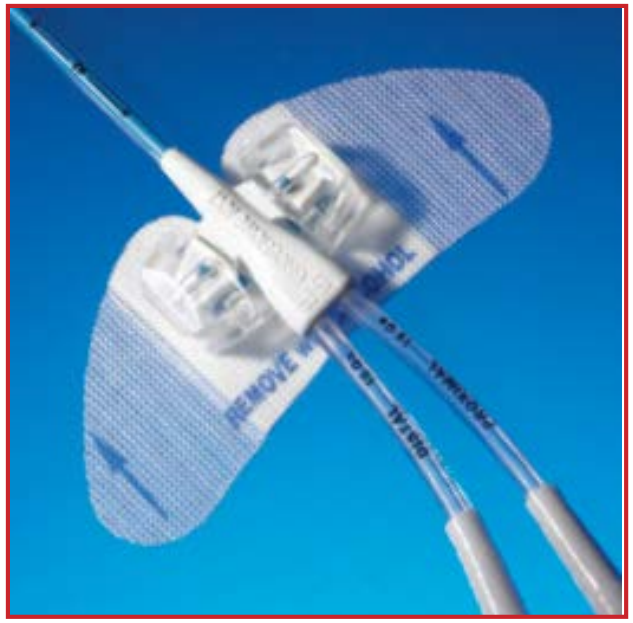
- Disinfect ANY point of connection on the catheter, tubing, or attachment before accessing[10]
  - Use a new disinfectant pad before EACH entry
  - Apply mechanical friction for at least 5 seconds

- Needleless connectors/positive pressure caps
  - Consider: disinfecting the junction of the needleless connectors BEFORE disconnecting

Maintenance Best Practice

- Change transparent dressing and perform site care with CHG-based antiseptic every 7 days or immediately if the dressing is soiled, loose, or damp.[3,8]
- Use CHG sponge or impregnated dressing at insertion site.[5,11]
- Have a dressing change supply kit.
- Change gauze dressing every 2 days or earlier if soiled, loose, or damp.[3,8]

Maintenance Best Practice

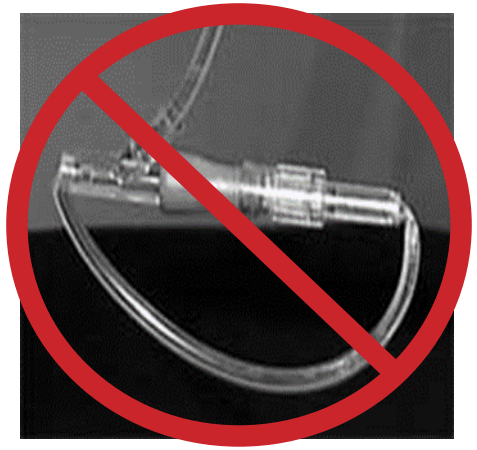


Securement

- Use a securement device[12,13]
- Skin remains intact to prevent introduction of bacteria under skin surface
- Fewer unplanned removals

Maintenance Best Practice

- Replace administration sets not used for blood products, lipid, or TPN no more than every 96 hours.[3]
- Use sterile cap to cover the end of a disconnected IV tubing.[14]
- If any administration set is disconnected, change it every 24 hours.[8]

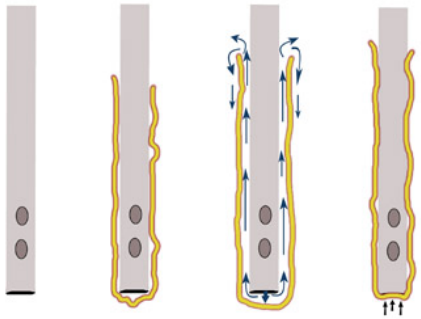


Maintenance Best Practice

- CHG bathing every day when a central line is present[15,16]
- ICU and non-ICU patients
- Skin is a reservoir for pathogens associated with CLABSI.
- Several studies have shown daily CHG bathing reduces CLABSI or infections.

Maintenance Best Practice

- Assess line patency every 8 hours.
  - Insure blood return as well as flush ability
  - This is a catheter function issue as well as an infection risk issue
- If unable to get blood return, treat line.[17]
- Blood clot and fibrin on end of catheter can be growing ground for bacteria.[18,19]



Supplemental Strategies When Best Practices are Not Enough to Eliminate CLABSI[8,20]

- There are some populations of patients that may benefit from supplemental strategies.
  - Alcohol caps
  - Silver, antibiotic, CHG-coated catheters
- But first, you must ensure compliance with best practice.

Ensuring Compliance

- Ensure compliance with care expectations[21]
- Leadership engagement[22]
  - Verbalize expectations
- Audits
- One-on-one feedback[24-25]
- Support transparency

Ensuring Compliance

- Engaged frontline staff (ICU and non-ICU) to perform audits to ensure proper CVC maintenance.
- Empowered the auditors to speak peer-to-peer regarding deficits found.
- Shared the data from the audits and CVC use with frontline staff.

Maintenance Best Practice

- Audit: Gather data regarding CVC use[8]
  - Include documentation of care and necessity of CVC
  - Add site specific maintenance care items to intervention lists to ensure proper care
  - Observe compliance with cleaning of hubs/access points
  - Observe condition of dressing and associated components (tubing, securement device, caps)

Maintenance Best Practice

- Have an interdisciplinary team review the data, set goals, assist with development and implementation of processes to improve CVC care[8]
- Look for ‘workarounds’ and use them to identify solutions
- Develop order sets or nurse-driven protocols that include care elements

Safety Journey

- Expect zero CLABSI
- Ensure you have adopted all best practice.
- Examine factors if a CLABSI occurs
- Encourage nurses to speak up when best practice is not followed
- Enable bedside nurses to audit and speak to peers to praise their great care or to re-educate the expectations when there are OFIs

Get to Know Merit Medical

QUESTIONS?

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