# Central Line Insertion: Ensuring Aseptic Placement

* The ideal is **to avoid catheter placement** in the first place. We consider this **Step 0** of CLABSI prevention.1
* **Step 1—**if a central line is necessary**—**is **to ensure aseptic placement**. Best practices should be implemented to prevent CLABSI infection during the insertion.1
* Below are the most widely recognized best practices associated with central line insertion.2-5

## Optimal Site Selection4,6-12

* Site selection matters! Each location has its own risks and should be considered on a case-by-case basis.
  + **Subclavian vein: Considered the best choice for most patients.7**
    - *Risks include: iatrogenic pneumothorax during insertion, central vein stenosis.*
  + **Internal jugular vein:** Generally the second choice after subclavian.
    - *Risks include:**central vein stenosis, catheter-related thrombosis.*
  + **Femoral vein:** Should be avoided if possible, due to significant increase in risk of infection.7
    - *Risks include: infection due to proximity of the groin, catheter-related thrombosis.*
  + **Peripherally inserted central catheter (PICC):** When clinically indicated.
    - Studies show PICCs and conventional central lines result in similar rates of CLABSI.12
    - *Risks include:* *central vein stenosis, catheter-related thrombosis.*

## Proper Hand Hygiene13-14

* Providers must perform proper hand hygiene multiple times throughout the process of inserting the central line. Gloves do not eliminate the need for this practice.
  + **Before and after** palpating catheter insertion sites
  + **Before and after** inserting, replacing, accessing, repairing, or dressing an intravascular catheter

## Chlorhexidine (CHG) Skin Preparation15-17

* Entry site should be cleaned with alcoholic chlorhexidine before insertion of central line.
  + Povidone-iodine preparations should only be considered if use of CHG is contraindicated.17

## Maximal Sterile Barrier Precautions18-19

* Inserter must wear a cap (that fully covers hair), a mask, a sterile gown, and sterile gloves.
* Patient must be completely covered (head to toe) with large sterile drape.

## Use of a Central Line Insertion Checklist5

* The checklist should be completed by a staff member who is not participating in the insertion.
  + This staff member should be empowered to speak up or stop insertion when a breach is observed.
* For links to sample checklists, please refer to the [**CLABSI page on the ICU & Non-ICU Toolkit website**](https://www.ahrq.gov/hai/tools/mrsa-prevention/toolkit/clabsi.html).

## Use of a Central Line Cart or Kit5,20

* Place a fully stocked cart or kit in all units where central lines may be inserted.
* Provide refreshers/re-education whenever the layout or contents of cart/kit are changed.

# References

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