Central Line Insertion Practices (CLIP) Adherence Monitoring

Introduction: Central line-associated bloodstream infections (CLABSIs) can be prevented through proper placement and management of the central line. The CDC's Healthcare Infection Control Practices Advisory Committee (CDC/HICPAC) *Guidelines for the Prevention of Intravascular Catheter-Related Infections*, 2011[1] recommend evidence-based central line insertion practices known to reduce the risk of subsequent central line-associated bloodstream infection. These include hand hygiene by inserters, use of maximal sterile barriers during insertion, proper use of a skin antiseptic prior to insertion, and time to allow the skin antiseptic to dry before catheter insertion.
Several centers have found it useful to monitor adherence to evidence-based central line insertion practices as a method for identifying quality improvement opportunities and strategically targeting interventions. Feedback of adherence data has been a component of multifaceted interventions that have successfully reduced CLABSI rates.

Participation in NHSN CLIP surveillance enables participating facilities and CDC to:

- Monitor central line insertion practices in individual patient care units and facilities and provide aggregate adherence data for all participating facilities. Facilities have the option of recording inserter-specific adherence data.
- Facilitate quality improvement by identifying specific gaps in adherence to recommended prevention practices, thereby helping to target intervention strategies for reducing CLABSI rates.

Participating facilities may perform surveillance for insertion practices during the following:

- a month when concurrent CLABSI surveillance is being conducted;
- a month when no CLABSI surveillance is being conducted; and
- in locations where CLABSI are not monitored (e.g., emergency department, operating room, etc.).

If participating facilities wish to identify associations between insertion practices and outcomes (i.e., CLABSI), surveillance for insertion practices and CLABSI must be done concurrently.

Settings: Surveillance may occur in any type of patient care location where central lines are inserted.

Numerator and Denominator Data: The *Central Line Insertion Practices Adherence Monitoring Form* (CDC 57.125) is used to collect and report central line insertion practices for every central line insertion attempt, including unsuccessful attempts, occurring during the month in the unit(s) selected for surveillance. The *Table of Instructions for Completion of the Central Line Insertion Practices Adherence Monitoring Form* contains directions for collection and entry of each data element on the form. The form can be completed at or near

the time of insertion either by the inserter or an observer present at the insertion (e.g., nurse assisting with the catheter insertion), or the form can be completed from documentation in the patient chart (only if all elements of the monitoring form have been incorporated into standard central-line insertion procedure notes). The form includes information pertaining to demographics of the patient, information pertaining to the inserter, information on maximal sterile barriers used, the reason for central line insertion, whether the insertion was successful, skin antisepsis, hand hygiene practice before insertion, type of central line including whether it was antimicrobial coated, insertion site and, if placed because of suspected existing central line infection, the use of a guide wire. Elements of these data will be used to calculate adherence to recommended insertion practices.

Data Analyses: Adherence rates for specific insertion practices will be calculated by dividing the number of central line insertions during which the recommended practice was followed by the total number of central line insertions and multiplying the result by 100. Such calculations can also be done for a bundle of practices that have been shown to reduce the incidence of CLABSI (i.e. NHSN CLIP Bundle). In NHSN for CLIP insertions dated January 1, 2014 and forward, adherence to the bundle requires a "Yes" to all of the following:

- Hand hygiene performed
- Appropriate skin prep*
    - Chlorhexidine gluconate (CHG) for patients ≥60 days old
    - CHG for patients < 60 days old when either there is no contraindication to CHG or contraindication is unknown
    - Povidone iodine, alcohol, CHG, or other specified for children <60 days old when there is a contraindication to CHG
- Skin prep agent has completely dried before insertion
- **All** 5 maximal sterile barriers used
    - Sterile gloves
    - Sterile gown
    - Cap
    - Mask worn
    - Large sterile drape (a large sterile drape covers the patient's entire body)

Note: These calculations are performed separately for different types of locations in the institution. Participants have the option of calculating inserter-specific adherence rates.

*The Food and Drug Administration (FDA) has labeled CHG to be used with care in premature infants and infants < 2 months of age. Therefore, for patients < 60 days NHSN will accept documented use of any of the listed skin prep agents as an acceptable portion of the NHSN CLIP Bundle adherence when there is a contraindication to CHG. Acceptance of CHG use for adherence to the CLIP bundle in this patient population does not reflect a recommendation of its use by the NHSN.

REFERENCES

[1]O'Grady, NP., Alexander, M., Burns, LA., Dellinger, EP., Garland, J., Heard, SO., Maki, DG., et al. "Guidelines for the Prevention of Intravascular Catheter-related Infections". *Clinical Infectious Diseases* 52 (a): (2011): 1087-99.

1 Instructions for Completion of the Central Line Insertion Practices Adherence Monitoring Form (CDC 57.125)

Data Field	Instructions for Form Completion
Facility ID	The NHSN-assigned facility ID will be auto-entered by the computer.
Event #	Event ID number will be auto-entered by the computer.
Patient ID	Required. Enter the alphanumeric patient ID number. This is the patient identifier assigned by the hospital and may consist of any combination of numbers and/or letters.
Social Security #	Optional. Enter the 9-digit numeric patient Social Security Number.
Secondary ID	Optional. Enter the alphanumeric ID number assigned by the facility.
Medicare #	Conditionally required. Enter the patient's Medicare number for all events reported as part of a CMS Quality Reporting Program.
Patient name: Last, first, middle	Optional. Enter the last, first, and middle name of the patient.
Gender	Required. Check Female, Male or Other to indicate the gender of the patient.
Date of Birth	Required. Record the date of the patient birth using this format: MM/DD/YYYY.
Ethnicity	Optional. Specify if the patient is either Hispanic or Latino, or Not Hispanic or Not Latino.
Race (specify)	Optional. Check all the boxes that apply to identify the patient's race.
Event Type	Required. CLIP.
Location	Required. Enter the location of the patient at the time of the central line insertion.
Date of insertion	Required. Enter the date of central line insertion (MM/DD/YYYY).
Person recording insertion practice data	Required. Select inserter or observer.
Central line inserter ID	Optional. Enter the HCW ID# of the person inserting the central line.
Name, Last, First	Optional. Enter last name and first name of person inserting the central line.
Occupation of inserter	Required. Check the occupational category of the person inserting the central line: Fellow; Medical student; Other student; Other medical staff; Physician assistant; Attending physician; Intern/resident; Registered Nurse, Advanced Practice Nurse; Other. If Other, please specify.
Was inserter a member of PICC and/or IV Team?	Required. Select Y if the inserted was a member of PICC/IV team; otherwise select N.
Reason for insertion	Required. Check the primary reason for inserting the central line: New indication (e.g., hemodynamic monitoring, fluid/medication administration,

	etc.); Replace malfunctioning central line; Suspected central line-associated infection. If Other, please specify.
If Suspected central line-associated infection, was the central line exchanged over a guidewire?	Conditionally required. Answer this only if reason for insertion is suspected central line-associated infection. Check Y if the central line was exchanged over a guidewire; otherwise Check N.
Inserter performed hand hygiene prior to central line insertion	Required. Check Y if the inserter appropriately performed hand hygiene prior to inserting central line; otherwise check N. Appropriate hand hygiene includes the use of alcohol-based hand rub or soap and water hand wash. If not observed directly, ask inserter.
Maximal sterile barriers used	Required. Indicate whether each of the 5 barriers was used appropriately, by checking Y or N. **NOTE:** If inserter wore either a mask or a mask with eye shield, the Y box for Mask should be checked.
Skin preparation	Required. Check all that apply: Chlorhexidine gluconate; Povidone iodine; Alcohol; Other. If Other is chosen, specify prep used.
If skin prep choice was not chlorhexidine gluconate, was there a contraindication to chlorhexidine gluconate?	Conditionally required. Answer this only if chlorhexidine gluconate (CHG) was not used as the skin prep. Check Y if the patient did have a contraindication to CHG; Check N if the patient did not have a contraindication to CHG; Check U if CHG contraindication was unknown. If contraindication to chlorhexidine, choose at least one of the following: For patients < 60 days old on the date of event any skin prep documented will fulfill the skin prep portion of the CLIP bundle. For patients ≥ 60 days old on the date of event, CHG must be one of the preps used UNLESS one of the following is a documented contraindication: 1)Patient has a documented/known allergy/reaction to CHG based products that would preclude its use, or 2) Facility restrictions or safety concerns for CHG use in premature infants precludes its use.
Was skin preparation agent completely dry at time of first skin puncture?	Required. Check Y if the skin prep agent was allowed to dry completely at the time of first skin puncture; otherwise select N. If not observed directly, ask inserter.
Insertion site	Required. Check the site of insertion of the central line: Femoral; Jugular; Lower extremity; Scalp; Subclavian; Umbilical; Upper extremity.
Antimicrobial coated catheter used	Optional. Check Y if antimicrobial coated catheter was used; otherwise check N.
Central line catheter type	Required. Check the type of central line inserted:

	Non-tunneled (other than dialysis); Tunneled (other than dialysis); Dialysis non-tunneled; Dialysis tunneled; PICC; Umbilical. If other, please specify. 'Other' should only be marked when none of the other options apply and should not be used to specify brand names or number of lumens. Most lines can be categorized accurately by selecting from the options provided.
Did this insertion attempt result in a successful central line placement?	Required. Check Y if attempt was successful; otherwise check N.
Custom Fields	Optional. Up to 50 fields may be customized for local or group use in any combination of the following formats: date (MMDDYYYY), numeric, or alphanumeric. **NOTE:** Each Custom Field must be set up in the Facility/Custom Options section of NHSN before the field can be selected for use. Data in these fields may be analyzed.
Comments	Optional. Enter any additional information on the central line insertion.