

**HAIs**

**Microspecifications Manual**
**for Reporting of the Healthcare
Associated Infection Quality Data Set**

December 2015

Effective for 1st Quarter 2016 HAI Data

Contents

[LIST OF MEASURES 4](#_Toc438631643)

[ADDITIONAL REGULATORY INFORMATION 5](#_Toc438631644)

[Submission Requirements 5](#_Toc438631645)

[Standards for Data; Notification; Response 5](#_Toc438631646)

[Public Access 6](#_Toc438631647)

[Waivers to Data Submission Requirements 6](#_Toc438631648)

[Compliance 6](#_Toc438631649)

[What’s New in this edition of the manual? 7](#_Toc438631650)

[Changes to the December 2015 Edition 7](#_Toc438631651)

[DEFINITIONS 8](#_Toc438631652)

[“CLALCBSI” Central Line Associated Laboratory Confirmed Bloodstream Infection 8](#_Toc438631653)

[“Central Line Catheters” for CLABSI Rates (HAI-1 and HAI-2) 8](#_Toc438631654)

[“Central Line Catheters - For CL Bundle Compliance (HAI-3 and HAI-4)” 10](#_Toc438631655)

[“Intensive Care Units” (ICU) 10](#_Toc438631656)

[“Neonatal Intensive Care Units” (NICU) 10](#_Toc438631657)

[“Ventilator” or “Mechanical Ventilation” 10](#_Toc438631658)

[INSTRUCTIONS & DATA SPECIFICATIONS 11](#_Toc438631659)

[Determination of Central Line Days 11](#_Toc438631660)

[For HAI-1 (CLABSI): 11](#_Toc438631661)

[For HAI-2 (CLABSI rates for NICUs and high-risk nurseries) 11](#_Toc438631662)

[For HAI-3 (Central line bundle compliance): 11](#_Toc438631663)

[Determination of Ventilator Days in ICUs, Mixed Acuity Units, and
NICUs/High Risk Nurseries 11](#_Toc438631664)

[HAI-1 Central line catheter associated blood stream infection rate for
patients in all adult and pediatric ICUs, Medical Units, Surgical
Units and Medical/Surgical Units, and; 12](#_Toc438631665)

[HAI-2 Central line catheter associated blood stream infection rate for
high-risk nursery patients. 12](#_Toc438631666)

[Numerator 12](#_Toc438631667)

[Denominator 13](#_Toc438631668)

[Exclusions: 13](#_Toc438631669)

[HAI-3 Percent compliance with all five evidence-based interventions for
patients with intravascular central catheters (central line bundle compliance) 13](#_Toc438631670)

[For Hospitals with Fewer than 360 Central Line Days per Year 14](#_Toc438631671)

[Numerator 14](#_Toc438631672)

[Denominator 15](#_Toc438631673)

[Exclusions: 15](#_Toc438631674)

[For Hospitals with 360 Central Line Days or More per Year 15](#_Toc438631675)

[Numerator 15](#_Toc438631676)

[Denominator 17](#_Toc438631677)

[Exclusions: 17](#_Toc438631678)

[HAI-4 Percent compliance with the four insertion-related evidence-based
interventions for patients with intravascular central catheters (central
line bundle compliance) placed preoperatively, in pre-operative areas,
operating rooms, and recovery areas 17](#_Toc438631679)

[For Hospitals with Fewer than 360 Central Line Days per Year 18](#_Toc438631680)

[Numerator 18](#_Toc438631681)

[Denominator 19](#_Toc438631682)

[Exclusions: 19](#_Toc438631683)

[For Hospitals with 360 Central Line Days or More per Year 19](#_Toc438631684)

[Numerator 19](#_Toc438631685)

[Denominator 20](#_Toc438631686)

[Exclusions: 20](#_Toc438631687)

[HAI-5 Percent compliance with all five evidence-based interventions for
patients with mechanical ventilation (ventilator bundle compliance)
in intensive care units. 20](#_Toc438631688)

[For Hospitals with Fewer than 180 Ventilator Days per Year 21](#_Toc438631689)

[Numerator 21](#_Toc438631690)

[Denominator 22](#_Toc438631691)

[Exclusions: 22](#_Toc438631692)

[For Hospitals with 180 Ventilator Days or More per Year 22](#_Toc438631693)

[Numerator 22](#_Toc438631694)

[Denominator 24](#_Toc438631695)

[Exclusions: 24](#_Toc438631696)

[Frequently Asked Questions: HAI-1 through HAI-5 24](#_Toc438631697)

[Appendix A 29](#_Toc438631698)

[Sampling Methods for Bundle Compliance 29](#_Toc438631699)

[Table 1: Random Permutations for Sampling Days of the Week for the
Bundle Compliance Measures 29](#_Toc438631700)

[Appendix B 31](#_Toc438631701)

[File Naming Convention for the submission copy of the data form 31](#_Toc438631702)

[Examples 31](#_Toc438631703)

[Index 33](#_Toc438631704)

**STATUTORY AUTHORITY: 22 M.R.S.A., §8708-A, Chapter 270**

**Healthcare Associated Infection Quality Dataset
Data Collection and Reporting Instructions**

AMENDED: August 2013

In accordance with the above statutory authority, the following instructions are applicable to all Maine acute care hospitals.

# LIST OF MEASURES

For all patients identified as eligible cases in the specific denominator and numerator categories (minus exclusions) specified by the U.S. CDC's National Healthcare Safety Network (NHSN), each hospital or their agent shall report data to the MHDO for the following healthcare associated infection (HAI) quality metrics:

**HAI-1:** Central line catheter associated blood stream infection rate for patients in all adult and pediatric intensive care units, medical units, surgical units and medical/surgical units *(Measure steward: NHSN)*;

***Note****:* The title of this measure has been changed to maintain alignment with the measure steward's decision to expand the list of reportable hospital units.

**HAI-2:** Central line catheter associated blood stream infection rate for high-risk nursery patients *(Measure steward: NHSN)*.

Hospitals submitting HAI-1 and HAI-2 data to the NHSN database are exempt from the requirement to report that data directly to MHDO. However, **all** hospitals must use the *HAI Data Transmittal Workbook* to submit data for HAI-3, HAI-4, and HAI-5 to MHDO.

For all patients identified as eligible cases in the specific denominator and numerator categories listed in the current version of the IHI *5 Million Lives Campaign Getting Started Kit: Prevent Central Line Infections* and *Prevent Ventilator Associated Pneumonia How-to Guides*, each hospital or their agent shall report data to the MHDO for the following healthcare associated infection (HAI) quality metrics:

**HAI-3:** Percent compliance with all five evidence-based interventions for patients with intravascular central catheters (central line bundle compliance) in intensive care units (*Measure Steward: IHI);*

**HAI-4:** Percent compliance with the four insertion related evidence-based interventions for patients with intravascular central catheters (central line bundle compliance) placed preoperatively, in pre-operative areas, operating rooms, and recovery areas (*Measure Steward: IHI);* and

**HAI-5:** Percent compliance with all four evidence-based interventions for patients with mechanical ventilation (ventilator bundle compliance) in intensive care units (*Measure Steward: IHI)*.

# ADDITIONAL REGULATORY INFORMATION

## Submission Requirements

1. **Filing Media.** Each hospital or their agent shall file all applicable data sets on diskette, compact disc, or via electronic transmission provided that such diskette, compact disc, or electronic transmission is compatible with the data processing capabilities of the MHDO.

2. **File Submission.** All data file submissions shall be accompanied by an electronic transmittal sheet containing the following information: identification of the health care facility, file name, data period(s) (quarter/year), date sent, and a contact person with telephone number and E-mail address. The *HAI Data Transmittal Workbook* is posted at the MHDO’s website at: <https://mhdo.maine.gov/quality_data.htm>. The file naming convention for the submission copy of the *Workbook* is presented in Appendix B.

3. **Filing Periods.** Data generated in accordance with the provisions of this manual shall be submitted at the end of the 5th month following the end of each calendar quarter in which the service occurred. The filing periods are as follows:

|  |  |  |
| --- | --- | --- |
| **Collection****Quarter** | **Data Collection Months** | **Submission Date** *(no later than)* |
| 1st Quarter  | January, February, March  | September 1st  |
| 2nd Quarter  | April, May, June  | December 1st  |
| 3rd Quarter  | July, August, September  | March 1st  |
| 4th Quarter  | October, November, December  | June 1st  |

## Standards for Data; Notification; Response

**Standards.** The MHDO or its designee shall evaluate each file submission in accordance with the following standards:

1. For each category of metrics, hospitals shall report each numerator (metric) and denominator (population) as specified in this manual and at the MHDO website at  [https://mhdo.maine.gov/quality\_data.htm](http://mhdo.maine.gov/imhdo/qualitydata.aspx) .
2. Coding values indicating “data not available”, “data unknown”, or the equivalent will not be accepted. However, those hospitals that do not have relevant patient populations for any section of metrics may submit a letter to the MHDO stating there are no appropriate data available and therefore they will not be submitting data for that section of metrics. This will be an annual requirement for those hospitals not submitting data.
3. Notification. Upon completion of this evaluation, the MHDO will notify each hospital and ambulatory surgery facility whose data submissions do not satisfy the standards for any filing period within 90 days of the quarterly submission deadline. This notification will identify the specific file and the data elements within them that do not satisfy the standards.
4. Resubmission. Each hospital and ambulatory surgery facility notified under subsection 9.B. will resubmit the data within 30 days of the notification by making the necessary changes to satisfy the standards.
5. Replacement of Data Files. No hospital may amend its data submission more than one year after the end of the quarter in which the discharge or service occurred unless it can be established by the hospital that exceptional circumstances occurred. Any resubmission of data after the elapse of the one year period must be approved by the MHDO Board.

## Public Access

Information collected, processed and/or analyzed under this rule shall be subject to release to the public or retained as confidential information in accordance with 22 M.R.S.A. § 8707 and Code of Maine Rules 90-590, Chapter 120: Release of Information to the Public, unless prohibited by state or federal law.

## Waivers to Data Submission Requirements

If a hospital or ambulatory surgery facility due to circumstances beyond its control is temporarily unable to meet the terms and conditions of this Chapter, a written request must be made to the Executive Director of the MHDO as soon as it is practicable after the hospital has determined that an extension is required. The written request shall include: the specific requirement to be waived; an explanation of the cause; the methodology proposed to eliminate the necessity of the waiver; and the time frame required to come into compliance. The Executive Director shall present the request to the MHDO Board at its next regularly scheduled meeting where the request shall be approved or denied.

## Compliance

The failure to file, report, or correct quality data in accordance with the provisions of this Chapter may be considered a violation under 22 MRSA Sec. 8705-A.

# What’s New in this edition of the manual?

The *What’s New* section highlights differences between this edition and the August 2013 edition of the HAI Data Microspecifications Manual.

## Changes to the December 2015 Edition

|  |  |  |
| --- | --- | --- |
| **Affected Measures** | **Prior** | **New** |
| HAI-1 | Data collection for HAI-1 was limited to patients in intensive care units. Hospitals that did not have an intensive care unit were instructed to report HAI-1 data for patients in their Mixed Acuity Unit (with the exception of patients in swing beds) | As of January 1, 2015, CMS has expanded HAI-1 data collection to include patients in all adult and pediatric intensive care units, medical units, surgical units and medical/surgical units.[*Please Note* that this change does **not** affect HAI-3 (central line bundle) and HAI-5 (ventilator bundle). Data collection for HAI-3 and HAI-5 is still limited to ICUs. Hospitals without an ICU should report HAI-3 and HAI-5 data for their mixed acuity unit(s), ***including*** swing beds.] |
| HAI-5 | The ventilator bundle was previously described on page 21 as a set of interventions to prevent ventilator-associated pneumonia (VAP). | While there has been no change to the measure specification, the description has been changed to clarify that the ventilator bundle was intended and designed to prevent VAP and other complications, such as peptic ulcers and deep vein thrombosis. |
| 12-month utilization data for central-line days and ventilator days | Hospitals were required to report the number of central-line days and ventilator days in the past 12 months. | Hospitals are no longer required to report 12-month utilization data. However, you should keep in mind that the data collection methods for HAI-3 and HAI-4 differ between hospitals with fewer than 360 central-line days and hospitals with 360 central-line days or more during the 12 months prior to the new reporting quarter. The choice of data collection methods for HAI-5 depends on whether a hospital had fewer or more than 180 ventilator days. |

# DEFINITIONS

Note: Major portions of these definitions are either paraphrased or directly quoted from the *CDC/NHSN Patient Safety Component Protocol Chapter 4, Device-Associated Module CLABSI* (July 2013). You can find a link to Chapter 4 by visiting the MHDO website at  [https://mhdo.maine.gov/quality\_data.htm](http://mhdo.maine.gov/imhdo/quality_data.htm)

## “CLALCBSI” Central Line Associated Laboratory Confirmed Bloodstream Infection

The NHSN defines Central Line Associated Laboratory Confirmed Bloodstream Infections (CLALCBSI) as laboratory-confirmed bloodstream infections (LCBSI) that are not secondary to an infection (meeting CDC/NHSN criteria) at another body site as specified in the current version of the Centers for Disease Control and Prevention’s *National Healthcare Safety Network (NHSN) Patient Safety Component Protocol* (go to the MHDO website at  [https://mhdo.maine.gov/quality\_data.htm](http://mhdo.maine.gov/imhdo/quality_data.htm) to find links to *Chapter 4: Central Line-Associated Bloodstream Infection (CLABSI) Event, and Chapter 17:* *CDC/NHSN Surveillance Definitions for Specific Types of Infections*). Report BSIs that are central line-associated (i.e., a central line or umbilical catheter was in place at the time of, or within 48 hours before, onset of the event).

~~There is no minimum period of time that the central line must be in place in order for the BSI to be considered central line-associated.~~ To count as a CLABSI, the central line or umbilical catheter must have been in place for more than two calendar days on the date of the CLABSI event, with the day of device placement being Day 1. If a patient is admitted or transferred into a facility with a central line in place, (e.g., tunneled or implanted central line), the day of first access is considered Day 1[[1]](#footnote-2)

Cases of “clinical sepsis” central line-associated blood stream infections in neonatal ICU patients are excluded per CDC’s NHSN Patient Safety Component Protocol.

## “Central Line Catheters” for CLABSI Rates (HAI-1 and HAI-2)

The focus of this HAI reporting is to direct surveillance efforts towards those patients with central line catheters most likely to result in unintended nosocomial bloodstream infections. i.

For the purpose of reporting central-line infections and counting central-line days (HAI-1 and HAI-2), a central line catheter is defined using the most current Centers for Disease Control and Prevention’s National Healthcare Safety Network (NHSN) Device-Associated Module for CLABSI Events (see link on the MHDO’s website at:  [https://mhdo.maine.gov/quality\_data.htm](http://mhdo.maine.gov/imhdo/quality_data.htm) .)

**Central line:** An intravascular catheter that terminates at or close to the heart or in one of the great vessels which is used for infusion, withdrawal of blood, or hemodynamic monitoring. The following are considered great vessels for the purpose of reporting central-line BSI and counting central-line days in the NHSN system:

* aorta;
* pulmonary artery;
* superior vena cava;
* inferior vena cava;
* brachiocephalic veins;
* internal jugular veins;
* subclavian veins;
* external iliac veins;
* common iliac veins;
* femoral veins; and
* in neonates, the
umbilical artery/vein.

Tunneled catheters (i.e., ports or portacaths such as those used for [hematology](http://en.wikipedia.org/wiki/Hematology) and  [oncology](http://en.wikipedia.org/wiki/Oncology) patients) are included.

**NOTES:**

1. Neither the insertion site nor the type of device may be used to determine if a line qualifies as a central line. The device must terminate in one of these vessels or in or near the heart to qualify as a central line.
2. An introducer is considered an intravascular catheter, and depending on the location of its tip and use, may be a central line.
3. Pacemaker wires and other non-lumened devices inserted into central blood vessels or the heart are not considered central lines, because fluids are not infused, pushed, nor withdrawn through such devices.
4. The following devices are not considered central lines:
* Extracorporeal membrane oxygenation (ECMO)
* Femoral arterial catheters
* Intraaortic balloon pump (IABP) devices.[[2]](#footnote-3)

**Infusion:** The introduction of a solution through a blood vessel via a catheter lumen. This may include continuous infusions such as nutritional fluids or medications, or it may include intermittent infusions such as flushes or IV antimicrobial administration, or blood, in the case of transfusion or hemodialysis

**Umbilical catheter:** A central vascular device inserted through the umbilical artery or vein in a neonate.

**Temporary Central Line:** A non-tunneled or implanted catheter.

**Permanent Central Line** includes:

* Tunneled catheters, including certain dialysis catheters
* Implanted catheters (including ports) .[[3]](#footnote-4)

##  “Central Line Catheters - For CL Bundle Compliance (HAI-3 and HAI-4)”

For the purpose of reporting central-line bundle compliance measures (HAI-3 and HAI-4) a central line catheter is defined as an intravascular non-tunneled catheter as defined above. Tunneled catheters (i.e., ports or portacaths such as those used for hematology and [oncology](http://en.wikipedia.org/wiki/Oncology) patients) are excluded. For this reporting effort the more long-term type of vascular access device whose proximal end is tunneled subcutaneously from the vascular insertion site and brought out through the skin at an exit site are excluded because these devices are typically inserted in the surgical settings under sterile conditions.

Central lines inserted in emergency situations (e.g., in cases of severe trauma or when cardio pulmonary resuscitation is required) are also excluded from bundle compliance (excluded from the numerator and denominator). Also central lines inserted for diagnostic purposes (e.g., right heart catheterization, pulmonary angiography) that are normally removed directly after insertion, are also excluded from bundle reporting.

## “Intensive Care Units” (ICU)

The NHSN defines an ICU as, “A nursing care area that provides intensive observation, diagnosis, and therapeutic procedures for adults and/or children who are critically ill. An ICU excludes nursing areas that provide step-down, intermediate care or telemetry only. Specialty care areas are also excluded.”

NOTE: NHSN defines “specialty care area” as a hospital location providing specialized care for solid organ transplants or inpatient acute dialysis.

## “Neonatal Intensive Care Units” (NICU)

The NHSN defines a NICU as, “A hospital unit organized with personnel and equipment to provide continuous life support and comprehensive care for extremely high-risk newborn infants and those with complex and critical illness. There are two types of NICU in NHSN: combined Level II/III NICU and Level III NICU.” The CDC/NHSN Patient Safety Component Protocol provides detailed definitions of Levels II and III.

## “Ventilator” or “Mechanical Ventilation”

A ventilator is a device to assist or control respiration continuously, inclusive of the weaning period, through a tracheostomy or by endotracheal intubation. Lung expansion devices such as intermittent positive-pressure breathing (IPPB); nasal positive end-expiratory pressure (PEEP); and continuous nasal positive airway pressure (CPAP, hypoCPAP) are not considered ventilators unless delivered via tracheostomy or endotracheal intubation (e.g., ET-CPAP).

# INSTRUCTIONS & DATA SPECIFICATIONS

## Determination of Central Line Days

At the same time each day, the number of patients with one or more central lines (tunneled and non-tunneled including ports and portacaths) should be counted and at the end of the month these counts are summed. At the end of the quarter these monthly counts are summed and used as the quarterly denominators for reporting temporary central line days.

If a patient has more than one central line on a given day, this is counted only as one central line day. If a patient has both a non-umbilical central line and an umbilical catheter on a given day, this is counted as one central line day. Time of day for recording the number of patients with central lines/umbilical catheters should be within a four hour period of the same time each day.

### For HAI-1 (CLABSI):

Count the number of central line days for all patients in adult and pediatric ICUs, Medical Units, Surgical Units and Medical/Surgical Units (hospitals that have none of those units should substitute their Mixed Acuity Unit);

### For HAI-2 (CLABSI rates for NICUs and high-risk nurseries)

In NICUs and high risk nurseries the number of non-umbilical central line/umbilical catheter days will be stratified and reported separately by birth weight categories (<750 gm, 751-1000 gm, 1001-1500 gm, 1501-2500 gm, and >2500 gm).

### For HAI-3 (Central line bundle compliance):

Count the number of central line days for all patients in all ICUs. If a facility doesn’t have a designated ICU, they will report Utilization Data/Central Line Days for every critical care and acute care patient in their mixed acuity unit(s). This includes swing bed patients.

Data collections forms are available for the collection of the number of central line days at the Centers for Disease Control and Prevention’s National Healthcare Safety Network (NHSN) Members website (see link on the MHDO’s website at:  [https://mhdo.maine.gov/quality\_data.htm](http://mhdo.maine.gov/imhdo/qualitydata.aspx) .) These forms may be edited, and customized by both NHSN member and non-member hospitals for their use in collecting the number of central-line days or umbilical catheter days.

## Determination of Ventilator Days in ICUs, Mixed Acuity Units, and NICUs/High Risk Nurseries

At the same time each day, the number of patients with a “ventilator” or “mechanical ventilation” should be counted and at the end of the month these counts are summed. At the end of the quarter these monthly counts are summed and used to report the number of ventilator days in the past 12 months.

Time of day for recording the number of patients with ventilators should be within a four hour period of the same time each day.

Data collections forms are available for the collection of the number of ventilator days at the Centers for Disease Control and Prevention’s National Healthcare Safety Network (NHSN) Members website which can be accessed from a link on the MHDO website. These forms may be edited, and customized by both NHSN member and non-member hospitals for their use in collecting the number of ventilator days.

HAI-1 Central line catheter associated blood stream infection rate for patients in all adult and pediatric ICUs, Medical Units, Surgical Units and Medical/Surgical Units, and;

HAI-2 Central line catheter associated blood stream infection rate for high-risk nursery patients.

Hospitals will submit data for each Central Line Associated Laboratory Confirmed Bloodstream Infection (CLALCBSI) defined as a laboratory-confirmed bloodstream infection (LCBSI) in patients with a risk factor of having a central line or umbilical catheter having been in place for more than two calendar days on the date of the CLABSI event, with the day of device placement being Day 1. This is regardless of where the central line was inserted in the reporting hospital. If a patient is admitted or transferred into a facility with a central line in place, (e.g., tunneled or implanted central line), the day of first access is considered Day 1[[4]](#footnote-5).

### Numerator

Using the MHDO HAI Data Collection Form found at the MHDO website at  [https://mhdo.maine.gov/quality\_data.htm](http://mhdo.maine.gov/imhdo/quality_data.htm) , hospitals will report by numerator the number of CLALCBSI. Every patient who has had a central line (or umbilical catheter) in place anytime in the 48 hours prior to the infection regardless of whether they still have the central line (or umbilical catheter) inserted, will be counted. At the end of the quarter these counts are summed and used as the quarterly numerators for reporting CLALCBSIs.

In NICUs and high risk nurseries the number of CLALCBSI will be stratified and reported separately by birth weight categories (<750 gm, 751-1000 gm, 1001-1500 gm, 1501-2500 gm, and >2500 gm).

The hospital will develop a system for collection of the number of patients with LCBSIs from the patient charts. Data collections forms are available for the collection of numerator data at the Centers for Disease Control and Prevention’s National Healthcare Safety Network (NHSN) Members website (which can be accessed from a link on the MHDO website). These forms may be edited and customized by both NHSN member and non-member hospitals for their use in collecting the number of LCBSIs in their facilities.

### Denominator

Using the MHDO HAI Data Collection Form found at the MHDO website at <https://mhdo.maine.gov/quality_data.htm> , hospitals will report by denominator the number of central line (or umbilical catheter) days in that quarter.

### Exclusions:

* Infections that are present on admission are not considered HAIs and therefore excluded from the numerator.[[5]](#footnote-6)
* Cases of “clinical sepsis” in neonatal ICU patients are excluded from the numerator.

HAI-3 Percent compliance with all five evidence-based interventions for patients with intravascular central catheters (central line bundle compliance)

The five evidence-based interventions for the prevention of central line associated blood stream infections for acute care and critical care patients are referred to as the Central Line Bundle elements. These five interventions include:

* Hand hygiene
* Maximal barrier precautions upon insertion
* Chlorhexidine skin antisepsis
* Optimal Catheter site was selected. To reduce infectious complications, the subclavian is preferred over the jugular or femoral site in the adult population. Other factors to consider include potential for mechanical complications, the risk of subclavian vein stenosis, and catheter operator skill.
* Daily review of line necessity with prompt removal of unnecessary lines

The core aspect of the optimal site selection is the risk/benefit analysis by a physician as to which vein is the most appropriate for the patient. “If there is dialogue among the clinical team members as to the selection site and rationale, and there is documentation as to the reasons for selecting a specific vessel, this aspect of the bundle should be considered as in compliance.” [[6]](#footnote-7)

Each element of the bundle must be documented, “on the daily goals sheet, central line checklist, patient’s medical record or other documentation tool”,[[7]](#footnote-8) as being completed. It is not sufficient to note in the chart, “Central Line Bundle was followed.”

### For Hospitals with Fewer than 360 Central Line Days per Year

### Numerator

Using the MHDO HAI Data Collection Form found at the MHDO website at  [https://mhdo.maine.gov/quality\_data.htm](http://mhdo.maine.gov/imhdo/qualitydata.aspx) , hospitals with less than 360 temporary central line days per year as measured in the previous year will report by numerator the number of critical or acute care patients in ICUs or mixed acuity units with a temporary central line inserted in that unit for whom all elements of the ICU Central Line Bundle are documented. Swing bed patients are included.

Evaluation of compliance with bundle elements will be done one day per week, thirteen weeks per quarter (52 weeks per year). Weekly data will be summed for quarterly reporting. The choice of the day of the week to conduct the compliance evaluation will be at the discretion of the hospital but evaluation on the same day of the week each week is strongly recommended.

After selecting the day of the week to conduct the compliance evaluation, the hospital will pull the chart for each patient present in the ICU or mixed acuity unit at any time during the previous seven days with a temporary central line that was inserted on that unit. Each chart and/or bundle worksheet will be reviewed to determine whether all four insertion related central line bundle elements were completed and documented for the insertion (e.g., a checklist for the insertion process). The chart will also be review for compliance with the fifth bundle element (daily review for necessity) for the first full day of care following insertion (i.e., was the clinician’s review of central line need documented in the chart for that day).

Using this method, hospitals with less than 360 central line days per year will evaluate every patient located in ICUs/mixed acuity units during the previous seven days with a central line for compliance with the first four bundle elements of insertion but the daily review of necessity bundle element will be a sample of that patient’s central line days – specifically, only the first full day of care following insertion.

Compliance with the all five bundle elements will be evaluated for compliance only if the central line was inserted in the ICU or mixed acuity unit (not if inserted elsewhere in the hospital). Central lines inserted outside of the ICU or mixed acuity unit are excluded from bundle compliance evaluation.

If the central line was removed before the first full day of care following insertion, this is an indication that the daily review for necessity was done and the line was removed, therefore the fifth bundle element should be considered compliant.

If the patient was transferred to another facility or to another unit within the facility (not an ICU or mixed acuity unit) before the first full day of care, compliance would be evaluated for the first four bundle elements of insertion only. The fifth bundle element would be excluded from bundle compliance for purposes of compliance evaluation since the patient was not present for a full day to receive this element of care.

If a patient in the ICU or mixed acuity unit has a temporary central line for multiple weeks and is present on multiple compliance evaluations, they will be only be evaluated for compliance to the central line bundle during the first weekly compliance evaluation in which they are present. This is because the insertion occurred once and the daily assessment of line necessity (fifth bundle element) is only evaluated for the first full day of care following the insertion. They will not be counted in the numerator or denominators in future compliance evaluations unless they have a new line inserted in the ICU/mixed acuity unit. Then they would be treated as a new central line patient.

Bundle compliance is an “all or nothing” indicator. If any of the elements are not documented for that patient, do not count the patient in the numerator. If a bundle element is contraindicated for a particular patient and this is documented in their chart, then the bundle can still be considered compliant with regards to that element.

Hospital should design their own forms to document bundle elements in the patient’s chart to allow them to assess whether the four elements of central line insertion and the daily review of central line need were completed. Daily charting to account for the clinician’s review of central line need is strongly recommended.

Examples of checklists for the insertion process and for daily charting of review of line necessity may be found on the IHI 5M Lives Campaign, Getting Started Kit: Prevent Central Line Infections How-to Guide as found at the MHDO website at  [https://mhdo.maine.gov/quality\_data.htm](http://mhdo.maine.gov/imhdo/qualitydata.aspx) .

### Denominator

Using the MHDO HAI Data Collection Form found at the MHDO website at  [https://mhdo.maine.gov/quality\_data.htm](%20http%3A//mhdo.maine.gov/imhdo/quality_data.htm), hospitals will report by denominator the total number of ICU/mixed acuity unit patients with a temporary central line that was inserted in those units each week in which the compliance evaluation is conducted for each of the thirteen weeks in the reporting quarter. Patients in the ICU or mixed acuity unit with central line catheters inserted for multiple weeks will only be counted during the first week in which their bundle compliance was evaluated unless they have a new line inserted in the ICU or mixed acuity unit. Then they would be treated as a new central line patient.

### Exclusions:

* Patients whose lines were not inserted in the ICU or mixed acuity unit
* Patients less than 18 years of age at the date of ICU or mixed acuity unit admission[[8]](#footnote-9)

### For Hospitals with 360 Central Line Days or More per Year

### Numerator

Using the MHDO HAI Data Collection Form found at the MHDO website at  [https://mhdo.maine.gov/quality\_data.htm](http://mhdo.maine.gov/imhdo/qualitydata.aspx), hospitals with greater than or equal to 360 temporary central line days per year as measured in the previous year will report by numerator the number of patients present in ICUs or mixed acuity units with a temporary central line inserted in that unit for whom all elements of the ICU Central Line Bundle are documented on a once per week point prevalence survey.

Evaluation of compliance with bundle elements will be done one day per week (on rotating days of the week), thirteen weeks per quarter. Weekly data will be summed for quarterly reporting. The choice of the day of the week to conduct the evaluation will be determined using the Sampling Methods for Bundle Compliance as found in Appendix A. This sampling methodology is based upon the Joint Commission (JC) Specifications Manual for National Hospital Quality Measures, Sampling Methods for the ICU Measure Set. However, it has been modified to include only Monday through Friday (Saturday and Sunday are excluded).

After selecting the day of the week to conduct the point prevalence survey, the hospital will pull the chart for each patient present in ICUs or mixed acuity units on that day with a temporary central line that was inserted in those units. Each chart and/or bundle worksheet will be reviewed to determine whether all four insertion related central line bundle elements were completed and documented for the insertion. The chart will also be review for compliance with the fifth bundle element, daily review of line necessity, for the day of the prevalence survey (i.e., was the clinician’s review of central line need documented in the chart for that day).

If the central line was inserted on the same day as the point prevalence survey, this is an indication that the daily review for necessity of the line was completed since the decision was made to insert the line, and therefore the fifth bundle element should be considered compliant.

If the central line was removed before the first full day of care following insertion (inserted and removed on the same day), this is an indication that the daily review for necessity was done and the line was removed, therefore the fifth bundle element should be considered compliant.

If the patient was transferred to another facility or to another unit within the facility (not an ICU or mixed acuity unit) before the first full day of care, compliance would be evaluated for the first four bundle elements of insertion only. The fifth bundle element would be excluded from bundle compliance for purposes of compliance evaluation since the patient was not present for a full day to receive this element of care.

Using this method, the hospitals with greater than or equal to 360 central line days per year will sample compliance one day per week for every patient with a central line in ICUs or mixed acuity units on that day of the week. Compliance will be evaluated for the four insertion elements regardless of the day the insertion occurred and for daily review for necessity on the day of the prevalence survey. Compliance with the all five bundle elements will be evaluated for compliance only if the central line was inserted in the ICU or mixed acuity unit (not if inserted elsewhere in the hospital).

If a patient in the ICU or mixed acuity unit has a temporary central line for multiple weeks and is present on multiple prevalence survey days, they will be evaluated for compliance to the central line bundle for each week in which a compliance evaluation is conducted when they were present and had the central line. This means the same patient could be counted multiple times towards a hospital’s ICU central line bundle compliance percentage.

Bundle compliance is an “all or nothing” indicator. If any of the elements are not documented for that patient, do not count the patient in the numerator. If a bundle element is contraindicated for a particular patient and this is documented in their chart, then the bundle can still be considered compliant with regards to that element.

Hospital should design their own forms to document elements in the patient’s chart to allow them to assess whether the four elements of central line insertion and the daily review of central line need were completed. Daily charting to account for the clinician’s review of central line need is strongly recommended. Monthly data will be summed for quarterly reporting.

### Denominator

Using the MHDO HAI Data Collection Form found at the MHDO website at  [https://mhdo.maine.gov/quality\_data.htm](http://mhdo.maine.gov/imhdo/qualitydata.aspx) , hospitals will report by denominator the total number of ICU or mixed acuity unit patients with temporary central lines inserted in those units each day of the weekly prevalence survey for each of the thirteen weeks in the reporting quarter. The quarterly denominator is the sum of the population present for each point prevalence survey for each of the thirteen weeks of the quarter.

### Exclusions:

* Patients whose lines were not inserted in the ICU or mixed acuity unit
* Patients less than 18 years of age at the date of ICU or mixed acuity unit admission

HAI-4 Percent compliance with the four insertion-related evidence-based interventions for patients with intravascular central catheters (central line bundle compliance) placed preoperatively, in pre-operative areas, operating rooms, and recovery areas

The four insertion related evidence-based intervention for the prevention of central line associated blood stream infections for acute care and critical care patients for temporary central lines inserted perioperatively are referred to as the Perioperative Central Line Bundle elements and include:

* Hand hygiene
* Maximal barrier precautions upon insertion
* Chlorhexidine skin antisepsis
* Optimal Catheter site was selected. To reduce infectious complications, the subclavian is preferred over the jugular or femoral site in the adult population. Other factors to consider include potential for mechanical complications, the risk of subclavian vein stenosis, and catheter operator skill

**NOTE:** Perioperative central line bundle elements does not include the daily review of line necessity with prompt removal of unnecessary lines although this is included in the ICU central line bundle elements.

The core aspect of the optimal site selection is the risk/benefit analysis by a physician as to which vein is the most appropriate for the patient. It is not the intent of the bundle to force a physician to take an action that he or she feels is not clinically appropriate.

Each element of the bundle must be documented as being completed. It is not sufficient to note in the chart, “Central Line Bundle was followed.”

For the purposes of this reporting effort, central lines inserted for diagnostic purposes (e.g., right heart catheterization, pulmonary angiography) in catheterization labs, interventional radiology units or other procedure areas that are normally removed directly after insertion are not included in HAI reporting.

However, therapeutic lines inserted for infusion, withdrawal of blood, or hemodynamic monitoring by practitioners in perioperative settings (pre-operative areas, operating rooms, or recovery areas) or in procedural areas (catheterization labs) are included in reporting (e.g. an interventional radiologist in a catheterization lab inserting a central line in a great vessel would be included).

### For Hospitals with Fewer than 360 Central Line Days per Year

### Numerator

Using the MHDO HAI Data Collection Form found at the MHDO website at  [https://mhdo.maine.gov/quality\_data.htm](http://mhdo.maine.gov/imhdo/qualitydata.aspx), hospitals with less than 360 temporary central line days per year as measured in the previous year will report by numerator the number of patients with temporary central lines inserted perioperatively, in pre-operative areas, operating rooms and recovery areas for whom all elements of the Perioperative Central Line Bundle are documented. This includes any patient having a temporary central line inserted in relation to any surgeries performed in any of the hospital’s operating rooms including day surgeries and outpatient surgeries. This does not include central lines inserted in the patient’s room prior to transport to the operating room.

Sampling will not be permitted for hospitals with less than 360 central line days per year; every patient receiving a temporary central line inserted perioperatively will have bundle compliance evaluated for the four insertion related evidence-based elements. Collection of data for perioperative central line bundle compliance may be done weekly or monthly as the hospital chooses. Data will be summed for quarterly reporting.

Hospitals will pull the chart for each patient receiving a temporary central line in relation to a surgery performed in that hospital. Each chart and/or bundle worksheet will be reviewed to determine whether all four insertion related perioperative central line bundle elements were completed and documented for the insertion (e.g., a checklist for the insertion process).

Bundle compliance is an “all or nothing” indicator. If any of the four perioperative central line bundle elements are not documented for that patient, do not count the patient in the numerator. If a bundle element is contraindicated for a particular patient and this is documented in their chart, then the bundle can still be considered compliant with regards to that element.

Hospital should design their own forms to document elements in the patient’s chart to allow them to assess whether the four elements of central line insertion were completed (e.g., a checklist for the insertion process). Examples of checklists for the insertion process may be found on the IHI 5M Lives Campaign, Getting Started Kit: Prevent Central Line Infections How-to Guide as found at the MHDO website at  [https://mhdo.maine.gov/quality\_data.htm](http://mhdo.maine.gov/imhdo/qualitydata.aspx) .

### Denominator

Using the MHDO HAI Data Collection Form found at the MHDO website at  [https://mhdo.maine.gov/quality\_data.htm](http://mhdo.maine.gov/imhdo/qualitydata.aspx), hospitals will report by denominator the total number of patients with temporary central lines inserted preoperatively, in pre-operative areas, operating rooms and recovery areas for the reporting quarter. This includes any patient having a temporary central line inserted in relation to any surgeries performed in any of the hospital’s operating rooms including day surgeries and outpatient surgeries.

### Exclusions:

* Patients whose lines were inserted in their room prior to transport to the operating room
* Patients less than 18 years of age at the date of line insertion

### For Hospitals with 360 Central Line Days or More per Year

### Numerator

Using the MHDO HAI Data Collection Form found at the MHDO website at  [https://mhdo.maine.gov/quality\_data.htm](http://mhdo.maine.gov/imhdo/qualitydata.aspx), hospitals with greater than or equal to 360 temporary central line days per year as measured in the previous year will report by numerator the number of patients with temporary central lines that are inserted preoperatively in pre-operative areas, operating rooms and recovery areas for whom all elements of the Perioperative Central Line Bundle are documented on the once per week point prevalence survey. This includes any patient having a temporary central line inserted in relation to any surgeries performed in any of the hospital’s operating rooms including day surgeries and outpatient surgeries. This does not include central lines inserted in the patient’s room prior to transport to the operating room.

Evaluation of compliance with bundle elements will be done one day per week (on rotating days of the week), thirteen weeks per quarter. Weekly data will be summed for quarterly reporting. The choice of the day of the week to conduct the compliance evaluation will be determined using the Sampling Methods for Bundle Compliance as found in Appendix A. This sampling methodology is based upon the Joint Commission (JC) Specifications Manual for National Hospital Quality Measures, Sampling Methods for the ICU Measure Set. However, it has been modified to include only Monday through Friday (Saturday and Sunday are excluded).

After selecting the day of the week to conduct the prevalence survey, the hospital will pull the chart for each patient receiving a temporary central line in relation to a surgery in the hospital on that day. Each chart and/or bundle worksheet will be reviewed to determine whether all four insertion related perioperative central line bundle elements were completed and documented for the insertion (e.g., a checklist for the insertion process).

Bundle compliance is an “all or nothing” indicator. If any of the four perioperative central line bundle elements are not documented for that patient, do not count the patient in the numerator. If a bundle element is contraindicated for a particular patient and this is documented in their chart, then the bundle can still be considered compliant with regards to that element.

Hospital should design their own forms to document elements in the patient’s chart to allow them to assess whether the four elements of perioperative central line insertion were completed. Examples of checklists for the insertion process may be found on the IHI 5M Lives Campaign, Getting Started Kit: Prevent Central Line Infections How-to Guide as found at the MHDO website at https://mhdo.maine.gov/quality\_data.htm.

### Denominator

Using the MHDO HAI Data Collection Form found at the MHDO website at  [https://mhdo.maine.gov/quality\_data.htm](http://mhdo.maine.gov/imhdo/qualitydata.aspx), hospitals will report by denominator the total number of patients with temporary central lines inserted preoperatively, in pre-operative areas, operating rooms and recovery areas on the day of the weekly prevalence survey for each of the thirteen weeks in the reporting quarter. This includes any patient having a temporary central line inserted in relation to any surgeries performed in any of the hospital’s operating rooms including day surgeries and outpatient surgeries on the day of the weekly compliance evaluation. Each patient having a central line inserted related to surgery on the day of the weekly compliance evaluation will be evaluated for compliance to the bundle. The quarterly denominator is the sum of the patients having perioperative central lines inserted on the day of each point prevalence survey for each of the thirteen weeks of the quarter.

### Exclusions:

* Patients whose lines were inserted in their room prior to transport to the operating room
* Patients less than 18 years of age at the date of line insertion

HAI-5 Percent compliance with all five evidence-based interventions for patients with mechanical ventilation (ventilator bundle compliance) in intensive care units.

The five evidence-based interventions for the prevention of ventilator associated pneumonia, peptic ulcers and deep vein thrombosis are referred to the Ventilator Bundle elements and include:

* Head of the bed elevation (HOB) to between 30 and 45 degrees
* Daily “sedative interruption” and daily assessment of readiness to extubate
* PUD (peptic ulcer disease) prophylaxis
* DVT (deep venous thrombosis) prophylaxis
* Daily oral care with chlorhexidine

Each chart and/or bundle worksheet will be reviewed to determine whether all five bundle elements were completed and documented. Daily charting to account for the each of the bundle elements is strongly recommended. This charting should account for verification of practitioner orders regarding “readiness to extubate.” It is not sufficient to note in the chart, “Ventilator Bundle was followed.”

Please note that the second bundle element consists of two parts – “sedative interruption” (or “sedation vacation”) and assessment of readiness to be removed from mechanical ventilation. Assessing the need for extubation alone is insufficient. Research has shown that daily lightening of sedation results in a marked and highly significant reduction in time on mechanical ventilation (except where sedation vacation medically contraindicated e.g., trauma patient in a medically induced coma).

### For Hospitals with Fewer than 180 Ventilator Days per Year

### Numerator

Using the MHDO HAI Data Collection Form found at the MHDO website at  [https://mhdo.maine.gov/quality\_data.htm](http://mhdo.maine.gov/imhdo/qualitydata.aspx), hospitals with less than 180 ventilator days per year as measured in the previous year will report by numerator the number of patients in the ICUs and mixed acuity units with a “ventilator” or “mechanical ventilation” for which all elements of the ICU Ventilator Bundle are documented.

Evaluation for compliance with bundle elements will be done one day per week thirteen weeks per quarter (52 weeks per year). Weekly data will be summed for quarterly reporting. The choice of the day of the week to conduct the compliance evaluation will be at the discretion of the hospital but evaluation on the same day of the week each week is strongly recommended.

After selecting the day of the week to conduct the compliance evaluation, the hospital will pull the chart for each patient present in the ICU or mixed acuity unit on a ventilator at any time during the previous 7 days. Each chart and/or bundle worksheet will be reviewed to determine whether all five ventilator bundle elements were completed and documented for the first full day of care following intubation. Each patient in the ICU or mixed acuity unit having a ventilator at any time during the previous 7 days will be evaluated for compliance to the ICU ventilator bundle for their first full day of care after intubation.

Using this method, the hospitals with less than 180 ventilator days per year will have every patient with a ventilator evaluated for compliance with all five of the ventilator bundle elements but only for a sample of the patient’s ventilator days – specifically, only for the first full day of care following intubation.

If the patient was intubated and extubated within a twelve hours period, the patient is excluded from bundle compliance evaluation.

If the patient was transferred to another facility before one full day of care, the patient is excluded from bundle compliance evaluation.

If the patient was on mechanical ventilation for more than twelve hours but was extubated before the first full day of care, this is an indication that the daily “sedative interruption” and assessment of readiness to extubate was done and mechanical ventilation was removed, therefore the second bundle element should be considered compliant.

For the purposes of bundle compliance evaluation, if PUD and DVT prophylaxis and daily oral care were documented as ordered in the patient’s chart, these bundle elements are considered compliant.

If a patient in the ICU or mixed acuity unit is on mechanical ventilation for multiple weeks and is present on multiple compliance evaluations, they will only be evaluated for compliance to the ventilator bundle during the first weekly compliance evaluation in which they are present. This is because the bundle is only evaluated for the first full day of care following intubation. They will not be counted in the numerator or denominator in future compliance evaluations unless they are extubated and re-intubated. Then they would be treated as a new ventilator patient.

Bundle compliance is an “all or nothing” indicator. If any of the elements are not documented for that patient, do not count the patient in the numerator. If a bundle element is contraindicated for a particular patient and this is documented in their chart, then the bundle can still be considered compliant with regards to that element.

Hospital should design their own forms to document elements in the patient’s chart to allow them to assess whether the five elements of the ICU ventilator bundle were completed. Daily charting is strongly recommended.

Examples of checklists for the bundle charting process may be found on the IHI 5M Lives Campaign, Getting Started Kit: Prevent Ventilator Associated Pneumonia How-to Guide as found at the MHDO website at  [https://mhdo.maine.gov/quality\_data.htm](http://mhdo.maine.gov/imhdo/qualitydata.aspx) .

### Denominator

Using the MHDO HAI Data Collection Form found at the MHDO website at  [https://mhdo.maine.gov/quality\_data.htm](http://mhdo.maine.gov/imhdo/qualitydata.aspx) , hospitals will report by denominator the total number of patients with a ventilator in the ICUs and mixed acuity units each week in which the compliance evaluation is conducted for each of the thirteen weeks in the reporting quarter. Patients in the ICU or mixed acuity unit on mechanical ventilation for multiple weeks will only be counted during the first week in which their bundle compliance was evaluated unless they are extubated and re-intubated. Then they would be treated as a new ventilator patient.

### Exclusions:

* Patients less than 18 years of age at the date of admission
* Patients on mechanical ventilation for less than twelve hours

### For Hospitals with 180 Ventilator Days or More per Year

### Numerator

Using the MHDO HAI Data Collection Form found at the MHDO website at  [https://mhdo.maine.gov/quality\_data.htm](http://mhdo.maine.gov/imhdo/qualitydata.aspx) , hospitals with greater than or equal to 180 ventilator days per year as measured in the previous year will report by numerator the number of patients in the ICUs and mixed acuity units with a ventilator or mechanical ventilation for whom all elements of the ICU Ventilator Bundle are documented on the once per week point prevalence survey.

Evaluating for compliance with bundle elements will be done one day per week (on rotating days of the week), thirteen weeks per quarter. Weekly data will be summed for quarterly reporting. The choice of the day of the week to conduct the compliance evaluation will be determined using the Sampling Methods for Bundle Compliance as found in Appendix A. This sampling methodology is based upon the Joint Commission (JC) Specifications Manual for National Hospital Quality Measures, Sampling Methods for the ICU Measure Set. However, it has been modified to include only Monday through Friday (Saturday and Sunday are excluded).

After selecting the day of the week to conduct the point prevalence survey, the hospital will pull the chart for each patient present in the ICU or mixed acuity unit with a ventilator on that day. Each chart and/or bundle worksheet will be reviewed to determine whether all five ICU ventilator bundle elements were completed and documented for the day of the prevalence survey.

If the patient was intubated and extubated within a twelve hours period, the patient is excluded from bundle compliance evaluation.

If the patient was transferred to another facility before one full day of care, the patient is excluded from bundle compliance evaluation.

If the patient was on mechanical ventilation for more than twelve hours but was extubated before the first full day of care, this is an indication that the daily “sedative interruption” and assessment of readiness to extubate was done and mechanical ventilation was removed, therefore the second bundle element should be considered compliant.

For the purposes of bundle compliance evaluation, if PUD and DVT prophylaxis were documented as ordered in the patient’s chart, these bundle elements are considered compliant.

Using this method, the hospitals with greater than or equal to 180 ventilator days per year will sample all five elements of bundle compliance one day per week for every patient with a ventilator in the ICUs and mixed acuity units on that day of the week.

If a patient in the ICU or mixed acuity unit and on mechanical ventilation for multiple weeks and is present on multiple prevalence survey days, they will be evaluated for compliance to the ventilator bundle for each week in which a compliance evaluation is conducted in which they were on the ventilator. This means the same patient could be counted multiple times towards a hospital’s ICU ventilator bundle compliance percentage.

Bundle compliance is an “all or nothing” indicator. If any of the elements are not documented for that patient, do not count the patient in the numerator. If a bundle element is contraindicated for a particular patient and this is documented in their chart, then the bundle can still be considered compliant with regards to that element.

Hospital should design their own forms to document elements in the patient’s chart to allow them to assess whether the five elements of the ICU ventilator bundle were completed. Daily charting is strongly recommended.

Examples of checklists for the bundle charting process may be found on the IHI 5M Lives Campaign, Getting Started Kit: Prevent Ventilator Associated Pneumonia How-to Guide as found at the MHDO website at  [https://mhdo.maine.gov/quality\_data.htm](http://mhdo.maine.gov/imhdo/qualitydata.aspx) .

### Denominator

Using the MHDO HAI Data Collection Form found at the MHDO website at  [https://mhdo.maine.gov/quality\_data.htm](http://mhdo.maine.gov/imhdo/qualitydata.aspx) , hospitals will report by denominator the total number of ICU or mixed acuity patients with a ventilator each day of the weekly prevalence survey for each of the thirteen weeks in the reporting quarter. The quarterly denominator is the sum of the population present for each point prevalence survey for each of the thirteen weeks of the quarter.

### Exclusions:

* Patients less than 18 years of age at the date of ICU or mixed acuity unit admission

# Frequently Asked Questions: HAI-1 through HAI-5

 1. We had a patient who was intubated on March 7th and then extubated on March 8th (greater than 12 hours after intubation). The patient did poorly and required re-intubation 90 minutes later. Successful extubation after the second ventilation occurred on March 10th. Do we count this as two separate events and measure compliance with two bundles? Do we count this as four vent days?

For the compliance measure (HAI-5) for a hospital with <180 ventilator days per year the manual states that patients on a ventilator for multiple weeks are not counted on separate weeks unless extubated and re-intubated (a separate intubation of the same patient is a separate measurement and should be captured). Because the first intubation was greater than 12 hours this period of intubation should be counted. The question remains whether one should combine the two periods into one. We suggest not. Here’s how this scenario should be classified.

Evaluate whether 1) the head of the bed was elevated, whether 2) the PUD prophylaxis was ordered in chart, 3) whether the DVT prophylaxis was ordered in chart for the first period of intubation, and 4) whether daily oral care with chlorhexidine was documented. Obviously 5) the “sedative interruption” and daily assessment of need to extubate was completed because you chose to extubate.

After the patient was re-intubated 90 minutes later (still on the 8th) they should be again be evaluated (as a second case in your denominator) for this second intubation period for all five elements and this patient will be counted twice in the HAI-5 denominator.

To determine the number of ventilator days to report for Utilization Data (number of ventilator days in the past 12 months), we would count based on the normal routine for counting ventilator days. According to page 9 of the manual,

“At the same time each day, the number of patients with a ‘ventilator’ or ‘mechanical ventilation’ should be counted and at the end of the month these counts are summed. At the end of the quarter these monthly counts are summed and used to report the number of ventilator days in the past 12 months. Time of day for recording the number of patients with ventilators should be within a four hours period of the same time each day.”

So number of ventilator days depends on whether this patient was on the ventilator at the time you normally did the “census” of patients on ventilators during the first intubation (might have missed this period) or during the second intubation (might have made one or both days’ census counts in this period). One would expect them to be counted as between 1 and mores (likely 2 vent. days) for the number of ventilator days.

 2. If a triple lumen catheter is inserted in the OR and the patient is transferred to ICU – do we only count the first 4 bundle elements since insertion occurred in the peri-operative setting?

Yes this is an HAI-4 bundle measure and should be evaluated for compliance only with first 4 central line bundle elements. This is because the central line was not inserted in the ICU and only those inserted in ICU (or mixed acuity unit) are measured for the daily assessment of need under HAI-3 bundle compliance.

 3. If a PICC is inserted in the OR by interventional radiologist and the patient is transferred to ICU – do we only count the first 4 bundle elements since insertion occurred in the peri-operative setting?

Yes - this is another HAI-4 bundle measure (without daily assessment of need). Quoting from the HAI Manual, HAI-4 Section (pg. 17):

 “However, therapeutic lines inserted for infusion, withdrawal of blood, or hemodynamic monitoring by practitioners in perioperative settings (pre-operative areas, operating rooms, or recovery areas) or in procedural areas (catheterization labs) are included in reporting (e.g. an interventional radiologist in an operating room inserting a central line in a great vessel would be included).”

 4. Please will you clarify if PICC insertions for "Outpatients" are counted in the bundle measure? I interpret the standards to exclude them since these are not acute care/critical care patients.

We understand why you would think the bundle would be limited to acute care patients but we DO include outpatient surgery central lines. Our manual states (pg. 17, HAI-4 Numerator section)

 “This includes any patient having a temporary central line inserted in relation to any surgeries performed in any of the hospital’s operating rooms including day surgeries and outpatient surgeries.”

We try to balance the need to mandate measures broadly enough to provide benefits to as many patients as possible yet narrow enough to ensure they are applied appropriately. We did discuss this balance in the Definition section for “Temporary Central Line Catheters” (page 6-7):

 “The focus of this HAI reporting is to direct surveillance efforts towards those patients with central line catheters most likely to result in unintended nosocomial bloodstream infections. All patients at risk, regardless of their location in the hospital or the location of the insertion of their central line catheter, should receive the benefits of surveillance. However, due to the limited resources within hospitals, HAI data reporting is limited to central lines inserted in intensive care units (ICUs) for those hospitals with designated critical care units, in mixed acuity units for those hospitals without designated critical care units, or in perioperative areas (in pre-operative areas, operating rooms, and recovery areas).”

 “Because the evidence-based bundle elements from literature demonstrated benefits of bundle compliance for critical care or acute care patients and because the risks of central line infections differ in critical care patients and those of lower acuity, this reporting effort is limited to central line catheters inserted in critical care or acute care patients. Swing bed patients are included.”

So although we did try to limit to critical or acute care patients, we did intend that the measures be applied to those cases most likely to result in unintended nosocomial bloodstream infections. And although some outpatient surgery patients may not be critical/acute care patients in the strictest sense, any central line associated with a surgical procedure (even one where the patient doesn’t stay overnight) is appropriate for bundle compliance. So we extended the measure to any perioperatively inserted central line.

 5. Please will you clarify whether reporting of bundle compliance for our Med/Surg unit should occur? I interpret the standards for HAI-3 to include our “mixed acuity” unit only – not our Med/Surg unit. Although our process is to follow the bundle process hospital wide (Med/Surg and OB units), I do not believe this information is to be included on the report which is submitted to the State.

Correct. You should measure and report bundle compliance for your ICU if you have a dedicated one and, if not, report for your mixed acuity unit only.

 6. Regarding HAI 4, should we now submit bundle data on lines inserted by our interventional radiologist? Please will you confirm that although we count “bundle” data under the peri-op measure we only include number of central line days for this patient if they reside in our mixed acuity unit. We do not count number of central line days for this patient if the patient resides on our Med Surg unit or OB?

Correct. This is because the number of central line days should only be collected and reported for the same units being reported under HAI-3.

As stated under Utilization Data/Central Line and Ventilator Days on pg. 8,

 “If a facility has one or more designated intensive care units (ICUs), they will report Utilization Data/Central Line and Ventilator Days for all their ICU patients (should include all patients in all ICUs). If a facility also has a Neonatal Intensive Care Unit (NICU)/high risk nursery, they will also report Utilization Data for these patients. If a facility doesn’t have a designated ICU, they will report Utilization Data/Central Line and Ventilator Days for every critical care and acute care patient in their mixed acuity unit(s). This includes swing bed patients. Utilization Data/Central Line and Ventilator Days should be reported for the same units for which a hospital is reporting HAI measures.”

 7. Can you clarify the types of catheters that are included in the definition of Central Line Catheters for CLABSI Rate reporting (HAI-1 and HAI-2)?

Both tunneled and non-tunneled catheters are included. Non-tunneled catheters are defined as vascular access devices inserted by a puncture directly through the skin and to the intended vascular location without passing through subcutaneous tissue. Examples include but are not limited to more short-term types of catheters, i.e. peripherally inserted central catheters (PICC) and subclavian single, double, or triple lumens. Introducers in great vessels and umbilical catheters and non-umbilical central lines in neonates (per CDC’s NHSN Patient Safety Component Protocol) are also included.

Tunneled catheters are defined as a vascular access device whose proximal end is tunneled subcutaneously from the vascular insertion site and brought out through the skin at an exit site. Types of tunneled catheters include but are not limited to more long-term types, i.e. Hickman, Broviac, Raaf, and Groshong. Permanent central lines including certain dialysis catheters and implanted catheters (e.g., ports or portacaths such as those used for  [hematology](http://en.wikipedia.org/wiki/Hematology) and  [oncology](http://en.wikipedia.org/wiki/Oncology) patients) are also included.

However, pace-maker wires and other non-lumened devices inserted into central blood vessels or the heart are NOT included because fluids are not infused, pushed, nor withdrawn through such devices.

Also central lines inserted for diagnostic purposes (e.g., right heart catheterization, pulmonary angiography) that are normally removed directly after insertion, are NOT included in HAI reporting because these lines are not the most likely to cause local or systemic complications.

 8. Can you clarify the types of catheters that are included in the definition of Central Line Catheters for CL Bundle Compliance (HAI-3 and HAI-4)?

For the purpose of reporting central-line bundle compliance measures (HAI-3 and HAI-4) a central line catheter is defined for CLABSI Rate reporting (HAI-1 and HAI-2) above EXCEPT tunneled catheters are excluded (e.g., ports or portacaths such as those used for  [hematology](http://en.wikipedia.org/wiki/Hematology) and [oncology](http://en.wikipedia.org/wiki/Oncology) patients). The more long-term type of vascular access device whose proximal end is tunneled subcutaneously from the vascular insertion site and brought out through the skin at an exit site are excluded because these devices are typically inserted in the surgical settings under sterile conditions.

Also central lines inserted in emergency situations (e.g., in cases of severe trauma or when cardio pulmonary resuscitation is required) are EXCLUDED from bundle compliance (excluded from the numerator and denominator). As noted in the CDC Healthcare Infection Control Practices Advisory Committee’s Guidelines for Prevention of Intravascular Catheter-Related Infections (2011), “When adherence to aseptic technique cannot be ensured (i., e., catheters inserted during a medical emergency), replace the catheter as soon as possible, i.e., within 48 hours.” Central lines inserted for diagnostic purposes (e.g., right heart catheterization, pulmonary angiography) that are normally removed directly after insertion, are also EXCLUDED from bundle reporting.

 9. We had a patient who was classified as brain dead and was being maintained on a ventilator only until the family could arrive from Canada. They did not receive PUD prophylaxis because it was meaningless to do so (they would expire as soon as the family authorized removal of the ventilator). Typically these patients are not on a ventilator more than 24 hours (and would not be included in data reporting) but in this case there were on several hours beyond the initial 24. Do we count this as bundle failure?

When hospitals have unique situations that don’t meet the normal pattern of care, they should contact the MHDO for clarification on appropriate coding on a case-by-case basis.

 10. How do you count central line days for patients with tunneled catheters (ports or portacaths). This is especially relevant for chemo patients who are admitted with these permanent lines which might not be access during their entire stay.

You should count the tunneled central line from the first day the line is accessed and continue to count throughout the entire stay (unless the line is removed during stay).

So as this relates to chemo patients that have these permanent lines which might not be access during their stay; if the line is never accessed, they are not counted. But once accessed by your staff, your facility is deemed responsible for infections to the line until discharged. And each day after it is accessed will be counted as a central line day.

# Appendix A

## Sampling Methods for Bundle Compliance

**From the Joint Commission Specifications Manual for National Hospital Quality Measures, Sampling Methods for the ICU Measure Set**

The day of the week is the sampling unit used for the bundle compliance measures. To be able to analyze day of the week variability in the measure rates within a month, it is desirable to sample a different day of the week for each week of the month. The most efficient way to do this is to randomly sample a sequence of days of the week for each month, one day sampled for each week of the month, here called a random permutation. Once a permutation is sampled, the sampling plan is set for the month. A table of random permutations which can be used for this purpose is given in Table 1.

The sampling procedure is to randomly choose a number from 1 to 35. Locate this number under the permutation column in Table 1. Starting with week 1 and continuing through week 4, find the day of the week to collect data for each week in the four week period under the sampled permutation. For example, say that the number 25 was randomly chosen. Then looking at permutation 25 in Table 1, we would collect the bundle data on Wednesday in week 1, Friday in week 2, Monday in week 3, and Tuesday in week 4. Once the four sampled collection days have been used, then redraw for the next four week sample. Do this every four weeks throughout the year.

## Table 1: Random Permutations for Sampling Days of the Week for the Bundle Compliance Measures

| Permutation | Week 1 | Week 2 | Week 3 | Week 4 |
| --- | --- | --- | --- | --- |
| 1  | Fri | Mon | Tue | Wed |
| 2  | Thu | Tue | Mon | Fri |
| 3  | Thu | Fri | Tue | Wed |
| 4  | Tue | Mon | Wed | Fri |
| 5  | Tue | Wed | Fri | Thu |
| 6  | Mon | Tue | Thu | Fri |
| 7  | Mon | Wed | Tue | Thu |
| 8  | Wed | Tue | Fri | Thu |
| 9  | Fri | Thu | Wed | Mon |
| 10  | Fri | Wed | Mon | Tue |
| 11  | Thu | Wed | Fri | Mon |
| 12  | Wed | Fri | Thu | Tue |
| 13  | Mon | Tue | Thu | Wed |
| 14  | Mon | Fri | Thu | Wed |
| 15  | Fri  | Mon  | Tue  | Thu  |
| 16  | Fri  | Tue  | Wed  | Mon  |
| 17  | Tue  | Mon  | Fri  | Thu  |
| 18  | Mon  | Fri  | Thu  | Tue  |
| 19  | Wed  | Thu  | Mon  | Tue  |
| 20  | Tue  | Wed  | Mon  | Fri  |
| 21  | Wed  | Mon  | Fri  | Thu  |
| 22  | Wed  | Tue  | Thu  | Mon  |
| 23  | Wed  | Thu  | Tue  | Fri  |
| 24  | Mon  | Fri  | Tue  | Thu  |
| 25  | Wed  | Fri  | Mon  | Tue  |
| 26  | Tue  | Thu  | Fri  | Mon  |
| 27  | Wed  | Tue  | Fri  | Thu  |
| 28  | Tue  | Fri  | Mon  | Wed  |
| 29  | Wed  | Tue  | Fri  | Mon  |
| 30  | Tue  | Thu  | Mon  | Wed  |
| 31  | Thu  | Fri  | Mon  | Tue  |
| 32  | Fri  | Mon  | Wed  | Thu  |
| 33  | Thu  | Wed  | Tue  | Mon  |
| 34  | Tue  | Mon  | Wed  | Thu  |
| 35  | Mon  | Fri  | Wed  | Tue  |

# Appendix B

## File Naming Convention for the submission copy of the data form

After you've entered your data in the *HAI Data Transmittal Workbook*, you'll need to save a submission copy in the Excel 97-2003 format (.xls) and name it according to MHDO's **File** **Name Format** as illustrated in the table, below. The filename needs to follow the format exactly. Otherwise, the software that imports your data into the MHDO Quality Indicator database won't be able to recognize and read your workbook file.

However, the *HAI Data Transmittal Workbook* has a simple **Lock and Save** button that will automatically name the submission copy for you and save it to your Windows Desktop. Or if you have a desktop-based email program, such as *Outlook*, you can click the **Lock, Save and Email** button to save the file and attach it a pre-addressed email all in one step.

|  |  |  |
| --- | --- | --- |
| File Name Format | For data from: | Deliver to MHDO by |
| HAI-xxxxxx-2016QTR1.xls | January, February & March, 2016  | 9/1/2016 |
| HAI-xxxxxx-2016QTR2.xls | April, May & June, 2016 | 12/1/2016 |
| HAI-xxxxxx-2016QTR3.xls | July, August & September, 2016 | 3/1/2017 |
| HAI-xxxxxx-2016QTR4.xls | October, November & December, 2016 | 6/1/2017 |

 *(Where "xxxxxx" is the hospital’s MHDO ID number listed in the table at the bottom of this page.)*

### Examples

**Correct**: HAI-200089-2016QTR4.xls

**Wrong**: HAI-200089-2016-QTR4.xls *extra hyphen*

 HAI-200089-QTR42016.xls *QTR4 and 2016 in wrong order*

 HAI-20089-2016Q4.xls *missing digit*

 HAI-200089-2016QTR4.xlsx *wrong file format, please use
 the Word 97-2003 file format*

| MHDO ID Number | Hospital |
| --- | --- |
| 200004 | Acadia Hospital |
| 200018 | Aroostook Medical Center |
| 200051 | Blue Hill Memorial Hospital |
| 200007 | Bridgton Hospital |
| 200023 | C.A. Dean Memorial Hospital |
|  |  |
|  |  |
| 200055 | Calais Regional Hospital |
| 200031 | Cary Medical Center |
| 200024 | Central Maine Medical Center |
| 200057 | Dorothea Dix Psychiatric Center |
| 200027 | Down East Community Hospital |
| 200033 | Eastern Maine Medical Center |
| 200037 | Franklin Memorial Hospital |
| 200026 | Houlton Regional Hospital |
| 200041 | Inland Hospital |
| 200006-D | Lincoln Health |
| 200050 | Maine Coast Memorial Hospital |
| 200009 | Maine Medical Center |
| 200015 | MaineGeneral Medical Center |
| 200066 | Mayo Regional Hospital |
| 200008 | Mercy Hospital |
| 200044 | Mid Coast Hospital |
| 200003 | Millinocket Regional Hospital |
| 200038 | Mt. Desert Island Hospital |
| 200010 | New England Rehabilitation Hospital |
| 200052 | Northern Maine Medical Center |
| 200063 | Penobscot Bay Medical Center |
| 200062 | Penobscot Valley Hospital |
| 200012 | Redington-Fairview General Hospital |
| 200056 | Riverview Psychiatric Center |
| 200016 | Rumford Hospital |
| 200028 | Sebasticook Valley Health |
| 200019-BH | Southern Maine Health Care - Biddeford |
| 200019-SH | Southern Maine Health Care - Sanford |
| 200067 | Spring Harbor Hospital |
| 200001 | St. Joseph Hospital |
| 200034 | St. Mary's Regional Medical Center |
| 200032 | Stephens Memorial Hospital |
| 200013 | Waldo County General Hospital |

# Index

blood stream infection 4, 8, 9, 17

BSI *See* blood stream infection

central line *See* central line catheters

Central Line Associated Laboratory Confirmed Bloodstream Infection 8, 12

central line bundle compliance 4, 13, 16, 17, 18

central line catheter 4, 8, 10, 12, 25, 26, 27, 28

central line catheter associated
blood stream infection 4, 8, 12, 27

central line days 11, 14, 15, 18, 19

CLABSI
*See* Central line catheter
associated blood stream infection

CLALCBSI
*See* Central Line
Associated Laboratory
Confirmed Bloodstream Infection

critical care units 26

day of the week 14, 16, 19, 21, 23, 29

due dates, data delivery 31

Excel file naming convention 31

failure to file 6

Filing media 5

Filing periods 5

HAI-1 4, 8, 12, 24, 27

HAI-2 4, 8, 12, 27

HAI-3 4, 10, 13, 25, 26, 27

HAI-4 4, 10, 17, 25, 27

HAI-5 4, 20, 24

hemodialysis 9

*IHI 5 Million Lives Campaign
Getting Started Kit* 4

infusion 9

insertion site 9, 10, 27

intensive care units 4, 10, 11, 13, 14, 15, 16, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 29

legal compliance 6

MHDO hospital ID numbers 31

Mixed acuity unit 11, 14, 15, 16, 17, 21, 22, 23, 24, 25, 26, 27

National Healthcare
Safety Network 4, 8, 11, 12

Neonatal intensive care unit 10, 11, 12, 27

pacemaker wires 9

portacaths 9, 10, 11, 27, 28

ports *See* portacaths

public access to data 6

resubmission, data 6

sampling methods 16, 19, 23, 29

submission requirements 5, 6, 31

transfusion 9

tunneled catheters 9, 10, 27, 28

umbilical catheter 8, 9, 11, 12, 13

ventilator 10

ventilator bundle 4, 20, 21, 22, 23

ventilator days 11, 21, 22, 26, 27

waivers 6

1. CDC/NHSN Patient Safety Component Protocol Chapter 4: Central Line-Associated Bloodstream Infection (CLABSI) Event, p. 4-3. [↑](#footnote-ref-2)
2. Ibid, p. 4-2. [↑](#footnote-ref-3)
3. Ibid. [↑](#footnote-ref-4)
4. CDC/NHSN Patient Safety Component Protocol Chapter 4: Central Line-Associated Bloodstream Infection (CLABSI) Event, p. 4-3. [↑](#footnote-ref-5)
5. *CDC/NHSN Patient Safety Component Protocol Chapter 4, Device-Associated Module CLABSI* (July 2013), p.4-1. [↑](#footnote-ref-6)
6. Institute for Healthcare Improvement*, Measure Information Form: Central Line Bundle Compliance,* *Version 05*, (October 2008). [↑](#footnote-ref-7)
7. Ibid. [↑](#footnote-ref-8)
8. Ibid. [↑](#footnote-ref-9)