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Toolkit for Data Quality Checks for Reporting Facilities

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NHSN Data Quality Guidance and Toolkit

Healthcare facilities participate in healthcare-associated infections (HAI) surveillance via Centers for Disease Control and Prevention's (CDC) National Healthcare Safety Network (NHSN) for several purposes:

- Monitor HAIs and the impact of their own prevention efforts
- Benchmark facility performance against risk-adjusted national data
- Fulfill state-mandated reporting requirements, and/or to comply with the Centers for Medicare and Medicaid Services (CMS) Hospital Inpatient Quality Reporting Program requirements

Data Quality of HAI surveillance reflects the consistency, completeness, and timeliness of HAI data reported to NHSN and overall builds confidence in the user for their own facility's data. Hence for the above-mentioned reasons, data quality is an integral part of the HAI surveillance via NHSN. Regardless of the reasons for participation, facilities that report to NHSN are required to follow NHSN methods and to use NHSN definitions and criteria. The principal source of information on NHSN methods, definitions, and criteria for reporters is the NHSN Patient Safety Component (PSC) Manual. This data quality toolkit describes implementation practices for reporting facilities that support high quality surveillance data when reporting to NHSN.

Who Needs the Data Quality Toolkit?

The intended audience of the data quality toolkit are nurses, infection preventionists, or quality of care professionals at facilities, including acute care hospitals, inpatient rehabilitation hospitals, and long-term acute care facilities, reporting selected data to NHSN. Routine planned data quality checks are useful for several purposes:

- Identify and understand systematic weaknesses in facility specific HAI reporting
- Assure that the facility's surveillance data are of high quality: complete, timely, and accurate
- Promote building coordination and partnership with stakeholders
- Build confidence in your own facility data

How the Toolkit Works

This toolkit provides guidance for data quality activities suggested to be conducted annually, quarterly/monthly, and routinely by healthcare facilities to ensure that data reported to NHSN are accurate. The data quality components and tools are specific to the following seven HAI metrics: Central Line-Associated Bloodstream Infections (CLABSI), Catheter-Associated Urinary Tract Infections (CAUTI), selected Surgical Site Infections (SSI), (following colon (COLO) and abdominal hysterectomy (HYST) procedures), Methicillin-resistant *Staphylococcus aureus* (MRSA) Bacteremia LabID Event, *Clostridioides difficile* infection (CDI) LabID Event, and Ventilator-Associated Event (VAE). Data quality checklists for each of the HAI metrics listed above provide a list of metrics which facilities are encouraged to implement and review on their data prior to quarterly data submission deadline. Data Quality survey tools for the HAI metrics are encouraged to be implemented annually to understand the knowledge and practices of HAI data collection at the facility and identify gaps and needs for additional staff training in NHSN protocol and methods.

Note that while not included in this document, validation guidance for the Antimicrobial Use and Resistance (AUR) Module is available here:

- AU Implementation Validation: https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/aur/AU-Option-Implementation-Data-Validation-P.pdf
- AU Annual Validation: https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/aur/annual-au-data-validation-508.pdf.
- AR Validation: https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/aur/ar-validation-508.pdf

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I. Annual Data Quality Assessment Activities

Development of annual HAI surveillance and validation plan

Healthcare facilities are recommended to develop an annual surveillance and data validation plan. This activity should be conducted at the beginning of the year and the annual surveillance plan should be the framework of the monthly HAI reporting plan. An annual validation plan should list the frequency and types of data quality checks and identify individuals responsible for implementing these activities.

Determine facility's surveillance program competencies

Quality HAI surveillance requires rigorous adherence to standard NHSN protocols, surveillance methods, and NSHN definitions as written. Facilities assuring data quality must be trained in NHSN specifications; remain up to date when changes are made; and commit to using appropriate NHSN methods and definitions to validate HAI data reported to the system. The infection prevention program should assure the facility-level competencies for NHSN CLABSI, CAUTI, VAE, SSI, and LabID events surveillance and validation activities.

CLABSI and CAUTI

- Completion of annual facility survey and accurate collection of risk-adjustment information:
    - Assurance of appropriate collection of facility-specific risk-adjustment elements (for example, facility bed size, location mapping, and teaching hospital affiliation). If new units have been added in a facility, they must be accurately mapped and if units are no longer in operation, they must be inactivated in NHSN. These variables must be checked annually for accuracy and entered completely in the annual facility survey. (Additional details about risk-adjustment factors for CLABSI and CAUTI are available in the NHSN's Guide to the SIR, https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/nhsn-sir-guide.pdf).
- Denominators: Ability to generate correct denominator data (CLABSI: central line days and patient days; CAUTI: indwelling urinary catheter days and patient days)
    - Assurance that persons counting patient days, central line days, and/or indwelling urinary catheter days have good knowledge of NHSN methods and definitions pertaining to denominators
    - For manual denominator counting, determine the facility's infrastructure and capacity for daily or sampled method (once/week) for locations other than specialty care areas/oncology (SCA/ONC) and NICUs (for example, ICUs, step-down units, wards). Additional details are available in the NHSN PSC Manual Chapter 4 (BSI) and Chapter 7 (UTI) (available at https://www.cdc.gov/nhsn/pdfs/pscmanual/pcsmanual_current.pdf)
    - Before reporting electronically counted denominator data, document validation of accuracy (within 5% of manual counts for at least 3 consecutive months for every reporting location). Use Appendix B Documentation of Electronic CLABSI/CAUTI/VAE Denominator Validation Template, to document validation of accuracy prior to reporting electronic data
    - Use the CLABSI/CAUTI/VAE Surveillance Coordinator Survey (Appendix A) to determine current denominator counting practices and training needs for staff
- Numerators - CLABSI: Ability to identify CLABSI events correctly and completely in real time
    - Awareness and investigation of all positive blood specimens among patients with central lines
    - Capacity to reproduce a complete list of positive blood specimens collected from patients assigned to facility surveillance location(s) to facilitate internal or external audits
    - Documentation of candidate CLABSI events and relevant decisions leading to reporting outcomes

  - Ability to correctly apply BSI case definitions, including ability to differentiate between primary and secondary bloodstream infections, in accordance with NHSN protocols in the NHSN PSC Manual Chapter 4 (BSI) (available at https://www.cdc.gov/nhsn/pdfs/pscmanual/pcsmanual_current.pdf)
    - Current rules for assigning a bloodstream isolate to an alternative primary site-specific infection are detailed in Chapter 4 (BSI) Appendix B: Secondary BSI Guide
    - Of note, NHSN definitions for alternative primary infection sites must be met to assign bloodstream infections as secondary. Up-to-date alternative primary infection site definitions are available in the NHSN PSC Manual Chapter 17 (available at https://www.cdc.gov/nhsn/pdfs/pscmanual/pcsmanual_current.pdf)
- Numerators - CAUTI: Ability to identify CAUTI events correctly and completely in real time
  - Awareness and investigation of all positive urine cultures among patients with indwelling urinary catheters
  - Capacity to reproduce a complete list of positive urine cultures collected from patients assigned to facility surveillance location(s) to facilitate internal or external audits
  - Documentation of candidate CAUTI events and relevant decisions leading to reporting outcomes
  - Ability to correctly apply UTI case definitions in accordance with NHSN protocols in the NHSN PSC Manual Chapter 7 (UTI) (available at https://www.cdc.gov/nhsn/pdfs/pscmanual/pcsmanual_current.pdf)

VAE

- Completion of annual facility survey and accurate collection of risk-adjustment information:
  - Assurance of appropriate collection of facility-specific risk-adjustment elements (for example, facility bed size, location mapping, and teaching hospital affiliation). If new units have been added in a facility, they must be accurately mapped and if units are no longer in operation, they must be inactivated in NHSN. These variables must be checked annually for accuracy and entered completely in the annual facility survey. (Additional details about risk-adjustment factors for VAE are available in the NHSN's Guide to the SIR, https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/nhsn-sir-guide.pdf)
- Denominators: Ability to generate correct denominator data (ventilator days and patient days)
  - Assurance that persons counting patient days, ventilator days have good knowledge of NHSN methods and definitions pertaining to denominators
  - Before reporting electronically counted denominator data, document validation of accuracy (within 5% of manual counts for at least 3 consecutive months for every reporting location). Use Appendix B, Documentation of Electronic CLABSI/CAUTI/VAE Denominator Validation Template, to document validation of accuracy prior to reporting electronic data
  - Use the CLABSI/CAUTI/VAE Surveillance Coordinator Survey (Appendix A) to determine current denominator counting practices and training needs for staff
- Numerators - VAE: Ability to identify VAE events correctly and completely in real time
  - Awareness of all mechanically ventilated patients in adult surveillance locations, and ability to monitor daily ventilator settings, accurately determine daily minimum PEEP and FiO_2 values, review antimicrobial administration data, and have access to review eligible laboratory test results
  - Ability to identify patients on excluded modes of ventilation and those on Airway Pressure Release Ventilation (APRV) and similar modes of mechanical ventilation

- Capacity to reproduce a complete list of mechanically-ventilated patients assigned to facility surveillance location(s) to facilitate internal or external audits
- Documentation of candidate VAE and relevant decisions leading to reporting outcomes
- Ability to correctly apply VAE algorithms, in accordance with NHSN protocols in the NHSN PSC Manual Chapter 10 (VAE) (available at https://www.cdc.gov/nhsn/pdfs/pscmanual/pcsmanual_current.pdf)

SSI

- Risk-adjustment: Ability to correctly report SSI risk-adjustment variables (for example, ASA score, diabetes, closure technique) for all operative procedures. (Additional details about risk-adjustment factors for SSI are available in the NHSN's Guide to the SIR, https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/nhsn-sir-guide.pdf)
- Denominators: Ability to generate and report monthly procedure denominators completely and correctly for procedures under surveillance
- Numerators: Evaluation of all potential admission and readmission infections in real time during the prescribed SSI surveillance period (30 or 90 days, based on the procedure category); post-discharge surveillance tracking outpatient SSI events and reports of re-admissions to other facilities during the SSI surveillance period
  - Ability to identify all readmissions among patients undergoing surveillance procedures during the SSI surveillance period (30 or 90 days, based on the procedure; for COLO and HYST the SSI surveillance period is 30 days)
  - Ability to correctly classify SSI cases in accordance with NHSN definitions as either Superficial Incisional, Deep Incisional, or Organ/Space SSI Events in accordance with the NHSN protocols in the NHSN PSC Manual Chapter 9 (SSI) (available at https://www.cdc.gov/nhsn/pdfs/pscmanual/pcsmanual_current.pdf)
  - Ability to correctly apply the NHSN Principal Operative Procedure Category Selection Lists when attributing SSI events in the context of multiple concurrent NHSN operative procedures

LabID Event

- Risk-adjustment: Assurance of accurate collection of risk-adjustment elements. (Additional details about risk-adjustment factors for MDRO/CDI are available in the NHSN's Guide to the SIR, https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/nhsn-sir-guide.pdf)
- Denominators: Ability to generate correct monthly summary denominator data (FacWideIN patient days, admissions to inpatient locations, and encounters from the emergency department, 24-hour observation units, and other affiliated outpatient locations)
- Numerators: Ability to comprehensively identify and correctly assign positive laboratory tests as reportable vs. duplicate
  - Understanding of and ability to correctly apply LabID Event following NHSN protocols in the NHSN PSC Manual Chapter 12 (MDRO/CDI) (available at https://www.cdc.gov/nhsn/pdfs/pscmanual/pcsmanual_current.pdf)
  - Awareness of MRSA-positive blood specimens and toxin-positive CDI test results among inpatient, emergency department, and 24-hour observation patients

- Ability to identify MRSA-positive blood specimens and toxin-positive CDI test results obtained in facility-affiliated outpatient clinics on the day of admission to an inpatient location
- Tracking relevant decisions for positive laboratory tests leading to reporting outcomes
- Capacity to produce a complete list of MRSA-positive blood specimens and/or CDI-positive test results from stool specimens by location for all NHSN inpatient, emergency department, and 24-hour observation units to facilitate internal or external audits.

The next sections of the toolkit provide guidance to ensure accurate collection of risk-adjusted variables, denominator data, and screening of all potential HAI events as they relate to case status and case classification.

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Facility Self-Validation Guidance

Validation component	Items to review	Suggested method
Annual surveillance and validation plan	☐ Patient care locations where CLABSI CAUTI and VAE surveillance are planned ☐ Types of surgical procedures followed for SSI surveillance ☐ Sources of information for surgical procedures, surgical readmissions, and post-discharge surveillance ☐ Source of inpatient admissions and patient days as defined for LabID Event ☐ Laboratory capacity to produce specified line listings by location or house-wide ☐ Ability to link laboratory and admissions/discharges/transfer (ADT) data ☐ IT support, especially if electronic reporting will be introduced ☐ Training needs: ☐ Staff training for denominator counting: CLABSI, CAUTI ☐ Staff training for NHSN operative procedure reporting	1. On an annual basis, integrate internal validation/quality assurance process into facility risk assessment program: a. Staffing and training needed for quality data collection b. Plan for staff training and assessment c. Consider whether burden of manual data collection justifies establishing and validating manual daily or weekly sampled or electronic denominator reporting for each surveillance location d. Assess adequacy of facility infrastructure, EMR or vendor systems, and practices for documenting device use, placement, and removal e. Evaluate access to IT and other support services for planned data checks; line listings from laboratory information system, linkage to ADT data for surgical readmissions, and counting of inpatient days and admissions f. Determine which facility information systems include patient days and admissions with and without observation patients to assure that LabID Event denominators are being counted correctly and encounters from the emergency department and 24-hour observation units are also identified and included

CDC

Validation component	Items to review	Suggested method
	☐ NHSN training updates and case-studies for NHSN reporters	
Facility and location information reported to NHSN	☐ Facility level information reported to NHSN ☐ Teaching hospital status ☐ Number of facility beds	1. The NHSN Patient Safety Component includes separate annual surveys for Acute Care Hospitals/Facilities (Patient Safety Component – Annual Hospital Survey, 57.103), Long-term Acute Care Facilities (Patient Safety Component – Annual Facility Survey for LTAC, 57.150), and Inpatient Rehabilitation Facilities (Patient Safety Component – Annual Facility Survey for IRF, 57.151) a. On an annual basis, review and confirm that teaching status and number of beds (ICU vs. all other inpatient location beds) are accurate (see below) **Note:** If facilities that share a single CCN (CMS certification number) are in physically separate buildings from each other, whether on the same property or over multiple campuses, they should be enrolled separately in NHSN. Each distinct facility should have its own unique NHSN OrgID and have its own annual survey entered.
	☐ Patient location level mapping information reported to NHSN ☐ Facility location label and CDC location description ☐ The number of beds reported for ICU and non-ICU location types	On an annual basis, review data for each patient care location entered into NHSN using up-to-date information on patient demographics by location (objective data may be available from bed control or a chief nursing officer) to confirm the following: 1. The CDC location label assigned meets the CDC 80% rule for the assigned CDC location description (See NHSN PSC Manual Chapter 15, available at https://www.cdc.gov/nhsn/pdfs/pscmanual/pcsmanual_current.pdf). **Note:** Annually review NHSN mapping guidance for updates and changes. 2. The combined number of ICU beds and non-ICU beds is correct 3. Physically separate acute care IRF/IPF/SNF units are enrolled and mapped according to NHSN guidance
CLABSI and CAUTI denominator data	☐ Patient days, central line days, and indwelling urinary catheter days. Use Appendix C, CLABSI and CAUTI Denominator Counting Survey with Key to assess the current knowledge of	**1. Regardless of type of denominator data collection (manual or electronic):** a. For CLABSI and CAUTI denominator data assure that each month is correctly listed as in-plan b. For each in-plan month assure that denominator data (patient days, central line days, and indwelling urinary catheter days) have been entered into NHSN **2. If manual daily or weekly sampled denominator data collection is used:**

Validation component	Items to review	Suggested method
	denominator data collection methodology and to identify further training needs.	a. Assure that staff members collecting denominator data know correct NHSN procedures and definitions for this task and are following the Chapter 4 and 7 NHSN protocols (https://www.cdc.gov/nhsn/pdfs/pscmanual/pcsmanual_current.pdf). Appendix C of this document contains a survey that may be adapted for evaluation of denominator collection practices for CLABSI and CAUTI denominators. b. Conduct data quality checks of manual denominator data periodically (for example, for one week annually in each location type) by performing concurrent independent patient-level data collection (for example, room number, room occupied, patient name/MRN, and central line present or absent). This is particularly important when training new denominator counting personnel. c. The IP should review the corresponding data to determine if standard data collection is correct and compliant with NHSN protocols for the patient location (for example, NICUs, specialty care areas, other). Results should be shared with staff for recognition of good work or to modify practices for collecting data if necessary. If problems are found manual validation should be repeated. State Health Department validators may ask to see results of data quality checks and may assess staff knowledge and practices. d. Periodically assess completeness and reliability of denominator data collected/reported to NHSN. Using denominator logs calculate % of days per year that: i. patient days were not collected ii. central line days were not collected iii. indwelling urinary catheter days were not collected iv. be prepared to share your data logs and analysis with reviewers during external validation **3. If electronic data capture is used:** a. The NHSN CLABSI and CAUTI protocols state "when denominator data are available from electronic databases these sources may be used as long as the counts are not substantially different (+/- 5%) from manually-collected counts" (https://www.cdc.gov/nhsn/pdfs/pscmanual/pcsmanual_current.pdf). This guideline is important because unexamined electronic counts may be seriously flawed and can be difficult

Validation component	Items to review	Suggested method
		to align with NHSN reporting definitions. For each reporting location where electronic databases are used to obtain counts of patient days and/or device days, determine if initial data validation was performed according to this guidance. If electronic counts were not validated or not within 5% of manual counts, resume manual counting and continue working with IT staff to improve design of electronic denominator data extraction (while reporting manual counts) until concurrent counts are within 5% for 3 consecutive months. Once an individual reporting location's electronic counts are within 5% of manual counts for 3 consecutive months, electronic counts may be used for that location. Continue concurrent counts for remaining locations until their electronic counts are also within 5% of their manual counts for 3 consecutive months. b. When converting from one electronic counting system to another electronic counting system, the new electronic system should be validated against manual counts as above. If electronic counts for the new electronic system are not within 5% of manual counts, resume manual counting and continue working with IT staff to improve design of electronic denominator data extraction (while reporting manual counts) until concurrent counts are within 5% for 3 consecutive months. **Note:** This guideline is important because validating a new electronic counting system against an existing electronic system can magnify errors and result in inaccurate denominator counts. c. Because electronic systems are subject to change and can result in disrupted or inaccurate data streams, best practices for use of electronic data capture also require: i. vigilance for aberrant data that could result from changes to electronic medical records or related systems ii. periodic spot checks of electronic data to assure continued good performance d. A report of successful alignment of electronic denominator counting at two related facilities has been published (Tejedor SC, et al. Infect Control Hosp Epidemiol 2013; 34:900-907).

Validation component	Items to review	Suggested method
CLABSI and CAUTI numerator data	☐ Complete ascertainment of candidate CLABSIs and candidate CAUTIs in surveillance locations	1. Assure that the microbiology laboratory tracks and reports patient care location at the time of specimen collection and not at the time of final report for surveillance purposes. 2. Consider documentation of surveillance decisions, for example: a. Keep a record/line-listing of positive blood specimens and decision making about CLABSI, particularly in surveillance locations. Patients without a recent or current central line can quickly be eliminated from consideration for CLABSI. For any positive blood specimens that meet the definition of laboratory-confirmed bloodstream infection (LCBI types 1, 2, or 3) in a surveillance location, document the LCBI, presence or absence of a central line, why you consider the event to be either healthcare-associated (HA) or non-HA, primary or secondary, and whether or not the event was reported as a CLABSI to NHSN. b. Keep a record/line listing of positive urine cultures and decision making about CAUTI, particularly in surveillance locations. Patients without a recent or current indwelling urinary catheter can quickly be eliminated from consideration for CAUTI. For any positive urine cultures that meet the definition of asymptomatic bacteremic urinary tract infection (ABUTI) or specific symptomatic urinary tract infection types (SUTI1a, SUTI1b or SUTI2), document the urinary tract infection (UTI), presence or absence of an indwelling urinary catheter, why you consider the event HA or non-HA, and whether or not the event was reported as a CAUTI to NHSN. 3. Periodically assure that all positive blood specimens and urine cultures have been reviewed by requesting a surveillance location line list for comparison to the record.

VAE denominator data	☐ Patient days and ventilator days. Use Appendix C, CLABSI, CAUTI, and VAE Denominator Counting Survey with Key to assess the current knowledge of denominator data collection methodology and to identify further training needs.	**1. Regardless of type of denominator data collection (manual or electronic):** a. For VAE denominator data assure that each month is correctly listed as in-plan. b. For each in-plan month assure that denominator data (patient days and ventilator days) have been entered into NHSN. **2. If daily manual denominator or episodes of mechanical ventilation (EMV) data collection is used:** a. Assure that staff members collecting denominator data know correct NHSN procedures and definitions for this task and are following the Chapter 10 NHSN protocol (https://www.cdc.gov/nhsn/pdfs/pscmanual/pcsmanual_current.pdf). Appendix C of this document contains a survey that may be adapted for evaluation of denominator collection practices for VAE denominators. b. Conduct data quality checks of manual denominator/EMV denominator data periodically (for example, for one week annually in each location type) by performing concurrent independent patient-level data collection (for example, room number, room occupied, patient name/MRN, and mechanical ventilator present or absent). This is particularly important when training new denominator counting personnel. c. The IP should review the corresponding data to determine if standard data collection is correct and compliant with NHSN protocols for the patient location (for example, adult ICUs, specialty care areas, other). Results should be shared with staff for recognition of good work or to modify practices for collecting data if necessary. If problems are found manual validation should be repeated. State Health Department validators may ask to see results of data quality checks and may assess staff knowledge and practices. d. Periodically assess completeness and reliability of denominator data collected/reported to NHSN. Using denominator logs calculate % of days per year that: i. patient days were not collected ii. mechanical ventilator days were not collected iii. be prepared to share your data logs and analysis with reviewers during external validation **3. If electronic data capture is used:** a. The NHSN VAE protocol states “when denominator data are available from electronic sources, these sources may be used as long as the counts are not substantially different (+/- 5%) from manually-collected counts” (https://www.cdc.gov/nhsn/pdfs/pscmanual/pcsmanual_current.pdf). This guideline is

		important because unexamined electronic counts may be seriously flawed and can be difficult to align with NHSN reporting definitions. For each reporting location where electronic databases are used to obtain counts of patient days and/or device days, determine if initial data validation was performed according to this guidance. If electronic counts were not validated or not within 5% of manual counts, resume manual counting and continue working with IT staff to improve design of electronic denominator data extraction (while reporting manual counts) until concurrent counts are within 5% for 3 consecutive months. Once an individual reporting location's electronic counts are within 5% of manual counts for 3 consecutive months, electronic counts may be used for that location. Continue concurrent counts for remaining locations until their electronic counts are also within 5% of their manual counts for 3 consecutive months. b. When converting from one electronic counting system to another electronic counting system, the new electronic system should be validated against manual counts as above. If electronic counts for the new electronic system are not within 5% of manual counts, resume manual counting and continue working with IT staff to improve design of electronic denominator data extraction (while reporting manual counts) until concurrent counts are within 5% for 3 consecutive months. **Note:** This guideline is important because validating a new electronic counting system against an existing electronic system can magnify errors and result in inaccurate denominator counts. c. Because electronic systems are subject to change and can result in disrupted or inaccurate data streams, best practices for use of electronic data capture also require: i. vigilance for aberrant data that could result from changes to electronic medical records or related systems ii. periodic spot checks of electronic data to assure continued good performance d. A report of successful alignment of electronic denominator counting at two related facilities has been published (Tejedor SC, et al. Infect Control Hosp Epidemiol 2013; 34:900-907).
VAE numerator data	☐ Complete ascertainment of candidate VAEs (VAC, IVAC, and PVAP) in surveillance locations	1. Assure access to daily mechanical ventilation settings for all patients eligible for VAE surveillance for purposes of determining daily minimum PEEP and FiO_2 values. 2. Assure access to the Medication Administration Record to determine which antimicrobial agents were actually administered to the patient (orders and dispensing information are not sufficient).

		3. Assure that the microbiology laboratory tracks and reports patient care location at the time of specimen collection and not at the time of final report for surveillance purposes. 4. Consider documentation of surveillance decisions, for example: a. Keep a record/line-listing of patients on mechanical ventilation and decision making regarding VAE in surveillance locations. Document or have access to electronic capture of daily minimum FiO_2 and PEEP for all patients eligible for VAE surveillance. For any patients meeting VAC - document temperature, WBC count, and antimicrobial administration. For any patients meeting IVAC - document applicable laboratory findings. For any patient that meets the definition of VAE - document the VAE event met (VAC, IVAC, or PVAP) and whether or not the event was reported as a VAE to NHSN.
SSI denominator data	☐ Surgical procedures under NHSN surveillance for SSI. Use Appendix D, Surgical Procedure and SSI Surveillance Methods Survey with Key to determine current knowledge and practices of SSI reporting and to identify training needs.	1. Regardless of type of denominator data collection (manual or electronic): a. As part of annual surveillance and validation planning, determine which surgical procedures will be reported to NHSN, whether inpatient, outpatient, or both, and note the assigned surveillance period (30 or 90 days) for each procedure. b. Identify all primary sources of information about procedures for which you will conduct surveillance. ICD-10-PCS and/or CPT operative procedure codes are required to determine the correct NHSN operative procedure category to be reported. Cross-referencing of sources (for example, OR procedure records plus ICD-10-PCS/CPT operative procedure codes assigned after discharge) is the best way to assure complete denominator. c. It is prudent to scrutinize the list of ICD-10-PCS and/or CPT procedure codes used by the OR system to identify procedures of interest for completeness. Failure to include one or more specified codes for designated procedures in the denominator can lead to the appearance of falsely higher SSI rates. d. Assure that all persons collecting data for procedures are familiar with NHSN definitions for Denominator for Procedure Details (https://www.cdc.gov/nhsn/pdfs/pscmanual/pcsmanual_current.pdf), and ensure that processes are in place to capture this data accurately and completely. 2. If either manual or electronic denominator data entry is used: a. Manual data entry is subject to keystroke errors, omissions, and duplications during data entry; thus, data validation may include double checking of multiple data elements by two persons (for example, one reading the OR record and one reading the NHSN record).

		b. Both manual and electronic denominator data quality are subject to error at the source of information and to systematic error. In either case, data quality may be monitored by one of several internal validation methods: i. double checking of procedure record completeness by two persons (for example, one reading the ICD-10-PCS and/or CPT procedure code list and one reading the NHSN record list) ii. monthly NHSN analysis prior to data transmission to check for duplicate procedure entry, consistency, and logical quality of entered data (for example, unusual ASA scores or duration of procedures), with investigation and resolution of outliers iii. cross checking a second data source to identify discordant records that may have been missed or reported in error, and to identify errors leading to large errors (such as omitting a required ICD-10-PCS and/or CPT procedure code) iv. periodic (at least annual) download from the OR system to confirm that procedure data for individual days or weeks were not missed during the interval
SSI Event numerator data	☐ Sources of information for surgical infection events and surgical readmissions	1. Identify information sources to identify infections among post-operative surgical inpatients, for example pharmacy, radiology, laboratory, and/or microbiology data. 2. Assure identification of surgical readmissions during the post-operative surveillance period (30 or 90 days) and screen for infection as a cause of re-admission. 3. Optimize post-discharge surveillance methods. 4. Cooperate with other facilities to notify one another of SSIs following procedures at another facility.
	☐ Concurrent and post-discharge surveillance methods for identification of SSI events	1. Assure a mechanism to routinely identify surgical readmissions and complete post-discharge surveillance during the 30-day SSI surveillance period following COLO and HYST procedures. 2. Investigate options for optimal post-discharge SSI surveillance, including cross-facility communications and reporting of SSIs identified by other facilities. Multiple networked surveillance modalities (for example, readmissions, surgical nursing contacts, surgical rounds, surgeon inquiry, chart review, patient survey) typically provide more complete information. Consult with other hospital IPs to consider best practices for inter-facility communication of SSIs (reports that you provide to other facilities that performed a procedure and for SSIs that are reported by other facilities to your facility). For example, the referring IP can provide details regarding the SSI event to assist with completion of the SSI event form (such as date of event, signs/symptoms, etc).

LabID Event denominator data	☐ NHSN inpatient admissions and patient days include observation patients who are located in inpatient locations	1. LabID Event denominators: facility-wide admissions and inpatient days (as defined by NHSN to include observation patients located in inpatient locations) normally are derived electronically. Determine how to assure inclusion of observation patients that are located in inpatient locations in denominator data counts. 2. Some systems (typically vendor and ADT systems) can be adjusted to count observation patients in inpatient locations, but facilities relying on billing data must be careful to include observation patients from inpatient locations, who may be billed separately. 3. Denominator validation can be accomplished using manual counting of patient days and admissions in three specified location types for one month each: one ICU, one Labor/Delivery/Recovery/Post-Partum (LDRP) location (if available), and one or more wards where observation patients are frequently located. Facilities with inpatient rehabilitation facility (IRF) and/or inpatient psychiatric facility (IPF) locations with separate CCNs and facilities with baby-based locations (for example, NICU, well baby nursery, etc.) should also validate these locations. Validated counts should be within 5% of the referent (usual) electronic counts or an evaluation of why they differ should be conducted. This internal validation process may be requested or required by state health departments. Use Appendix F, LabID Event Facility-Wide Inpatient (FacWideIN) Denominator Validation Template to determine accuracy of validation using electronic counts.
LabID Event numerator data	☐ Assure that any reporter(s) overseeing LabID Event reporting understand rules for duplicate reporting and include laboratory reports from affiliated outpatient locations on admission date. Appendix E, LabID Event Surveillance Methods Survey with Key to determine current knowledge and practices of LabID reporting and to identify training needs.	1. Assure that the microbiology laboratory tracks and reports patient care location at the time of specimen collection, not at the time of final report to infection control. a. **Note:** For LabID Event, laboratory tests taken on the day of admission in affiliated facility-associated outpatient locations (for example, clinics) should be included for accurate tracking of community-onset (CO) LabID Events. 2. Consider periodic internal auditing (for example, duplicate audit or abstraction of candidate events).

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II. Data Quality Survey Tools

Data quality survey tools include surveillance surveys with answer keys which can be implemented by the facility annually to identify and learn current HAI data collection knowledge and practices, and to identify gaps in knowledge and need for additional training among staff responsible for HAI data collection and reporting via NHSN. These survey tools can be used as frequently as needed by the facility and define the training needs for staff. Appendix B and Appendix F for documentation of electronic denominator validation should be completed when switching from manual to electronic denominator data collection and also when switching from one electronic denominator collection method to another electronic method to document that data collection is accurate and within the tolerable level of margin of error. Documentation of completion of Appendix B and Appendix F must be maintained at the facility since this may be requested by state health department during an external audit.

Appendix A: CLABSI/CAUTI/VAE/SSI/LABID Surveillance Coordinator Survey

OrgID/Name of Hospital _____ Date of Survey _____

Instructions: *Administer this survey to the person who oversees NSHN surveillance and denominator counting*		
1. Which best describes your facility's training for CLABSI, CAUTI and VAE Denominator counters? *(select all that apply)*		
	No specific training is provided or required	
	Peer training (person who previously counted) trains new staff	
	Training is provided by IP	
	Training by NHSN (for example, online training) is required	
	Annual training updates are required/provided	
	Other (describe):	
2. Do you conduct periodic spot-checks or otherwise validate CLABSI, CAUTI and VAE denominator counts? *(select all that apply)*		
	Not currently	
	Yes, when we have a new denominator counter	
	Yes, when I have concerns	
	Yes, routinely	
3. Which best describes your own training for 2022 NHSN surveillance? *(select all that apply)*		
	No specific training for 2022	Select Training Modules Taken

	CDC-sponsored 2022 training webinar (live or on-line)	☐ CLABSI ☐ CAUTI ☐ VAE ☐ SSI ☐ LabID Event
	CDC-sponsored on-line case-studies	☐ CLABSI ☐ CAUTI ☐ VAE ☐ SSI ☐ LabID Event
	CDC-sponsored 2022 online self-paced interactive multimedia instruction trainings	☐ CLABSI ☐ CAUTI ☐ VAE ☐ SSI ☐ LabID Event
	State-sponsored 2022 NHSN training event(s)	☐ CLABSI ☐ CAUTI ☐ VAE ☐ SSI ☐ LabID Event
	Other (describe):	
4. Which staff member(s) is/are responsible for entering CLABSI (numerator) events data into NHSN?		☐ IP ☐ Clerical support ☐ Other
5. Which staff member(s) is/are responsible for entering CAUTI (numerator) events data into NHSN?		☐ IP ☐ Clerical support ☐ Other
6. Which staff member(s) is/are responsible for entering VAE (numerator) events data into NHSN?		☐ IP ☐ Clerical support ☐ Other
7. Is entered data checked for errors or validated by analysis?		☐ Yes ☐ No ☐ Unknown
a. If yes, describe what is done:		

8. How many persons typically review a medical record before an event is reported to NHSN?	☐ One reviewer typically decides, with internal (for example, second reviewer) adjudication when needed ☐ Two or more persons typically review and agree before reporting ☐ One reviewer typically decides, with external (for example, CDC NHSN) adjudication when needed ☐ Approval is required (for example, from physician or administrator) before events are reported ☐ Other (explain):
9. Is there ever pressure (for example, from administrators or physicians) to not report a CLABSI, CAUTI, VAE (or other NHSN) event?	☐ Yes ☐ No ☐ Unsure Comment:
10. In cases of ambiguity, who makes the final decision regarding the determination of whether an infection should be reported?	

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Appendix B: Documentation of Electronic CLABSI/CAUTI/VAE Denominator Validation Template

OrgID/Name of Hospital: _____ Date of Survey: _____

Instructions: NHSN requires that the monthly electronic denominator count falls within a 5% tolerance interval of the monthly manual denominator count for 3 consecutive months before reporting electronic denominator counts for CLABSI/CAUTI/VAE. (*If there is no electronic denominator counting at this facility, skip this survey.)*

Note: Validation of electronic denominator counting against manual denominator counting is required

a. when transitioning from manual counts to electronic counts
b. when transitioning from one electronic counting system to a new electronic counting system

If electronic device denominator counting is used for reporting at this facility, document the NHSN-required validation results below:

Initial electronic denominator validation (when electronic denominator reporting began):

		Manual count	*Calculated 5% tolerance interval	Electronic count
Location name:				
Month/year:	Patient days			
	Central line days			
	Indwelling urinary catheter days			
	Ventilator days			
Location name:				
Month/year:	Patient days			
	Central line days			
	Indwelling urinary catheter days			
	Ventilator days			
Location name:				
	Patient days			

Month/year:	Central line days			
	Indwelling urinary catheter days			
	Ventilator days			
If available, document additional information for any more recent electronic denominator validation:				
		Manual count	*Calculated 5% tolerance interval	Electronic count
Location name:				
Month/year:	Patient days			
	Central line days			
	Indwelling urinary catheter days			
	Ventilator days			
Location name:				
Month/year:	Patient days			
	Central line days			
	Indwelling urinary catheter days			
	Ventilator days			
Location name:				
Month/year:	Patient days			
	Central line days			
	Indwelling urinary catheter days			
	Ventilator days			

*Equation for calculating 5% tolerance interval: manual count ± (manual count * 0.05). Example calculations where manual count = 164 and electronic count = 178:

Eligible 5% tolerance interval = [164±(164*0.05)]=155.8 to 172.2

Electronic count 178 falls outside the tolerance interval.

Appendix C: CLABSI, CAUTI, and VAE Denominator Counting Survey (with Key)

OrgID/Name of Hospital _____ Date of Survey _____

Instructions: *Administer in person or by telephone, directly to individuals responsible for denominator counting. This form is divided into 3 sections for facilities where these tasks are performed by different persons. The first section,* ***PATIENT DAYS****, contains questions applicable to both CLABSI, CAUTI and VAE denominator collection (questions 1-9). The second section,* ***CENTRAL LINE DAYS****, contains questions applicable to CLABSI denominator collection (questions 10-22). The third section,* ***INDWELLING URINARY CATHETER DAYS****, contains questions applicable to CAUTI denominator collection (questions 23-29). The fourth section,* ***MECHANICAL VENTILATOR DAYS****, contains questions applicable to VAE denominator collection (questions 30 – 36).*

Facility OrgID:	Name/ID of individual interviewed:	Position: ☐ IP ☐ Clerical ☐ Nursing ☐ Other (explain)	Interviewer initials:	Date of survey:
(*circle*): CLABSI, CAUTI, VAE	NHSN location(s) covered:			

PATIENT DAYS *(for CLABSI, CAUTI, and VAE denominator counters)*			***Answer Key/Rationale***
1. How are patient days usually collected? *(choose one)*			*VAE is excluded from once weekly sampling of denominator data*
	Electronically (*document the software system utilized and skip to Q8*):		
	Manually (daily/weekly)		
	Some units electronic and some units manual		
	Comment:		
2. Is there a specified time when the denominator count is taken?		☐ Yes ☐ No	*The answer should be Yes.*
3. When is it done?			*Counts should be done at a specific time daily, preferably at nearly the same time throughout the facility to avoid errors when patients transfer.*
4. Describe the method used to count **patient days**:			*From NHSN: Denominator data (patient days and device days) should be collected at the same time, every day, for each location performing surveillance to ensure that differing collection methods don't inadvertently result in device days being > patient days.*
	Count the number of patients assigned to a unit bed at the same time central line/indwelling urinary catheter/mechanical ventilator counts are conducted		
	Other *(specify)*:		

5.	When reporting monthly patient day total, what is done if there are missing **patient days** data? *(choose one)*	*NHSN issued specific guidance on imputing values for missing device-associated denominator data https://www.cdc.gov/nhsn/pdfs/gen-support/MissingDenomData-508.pdf)*
	Report the sum of available daily counts with no adjustment for missing data	
	Estimate or re-create missing data from existing information using our own methods	
	Impute missing values using recent CDC/NHSN guidance	
	Other (specify):	
6.	Which best describes your training for denominator (patient days and central line or indwelling urinary catheter or mechanical ventilator days) counting? *(select all that apply)*	
	No specific training was provided	*Formal training by NHSN or NHSN-trained IP is recommended due to technical aspects of definitions (for example, central line, permanent line, temporary line) and methods (for example, when to count lines, how many to count).*
	Peer training (person who previously counted explained their approach to new staff)	
	Formal training by IP	
	Formal training by NHSN (for example, online training)	
	Annual training updates	
	Other (describe):	
7.	Which staff member counts patient days and central line or indwelling urinary catheter or mechanical ventilator days when the "regular" data collector(s) is/are not working?	☐ IP ☐ Another trained counter ☐ Nobody ☐ Other (specify)
8.	Does your facility have a mechanism in place for quality control of denominator data? *(Select one):*	
	(Electronic data) Yes, data submitted electronically is periodically checked using manual methods	
	(Manual data) Yes, manually collected data are periodically counted by more than one staff member	
	Yes, other *(explain)*	
	No formal quality control process	
9.	Which staff member(s) is/are responsible for entering reporting locations patient days and central line or indwelling urinary catheter or mechanical ventilator day data into NHSN?	☐ IP ☐ Counter ☐ Clerical ☐ Other (specify)

CENTRAL LINE DAYS (*for CLABSI denominator counters only*)			***Answer Key/Rationale***
10. How are **central line days** collected for the unit(s) you oversee? (*choose one*)			
	Electronically (*specify software system utilized*):		
	Manually (daily/weekly)		
	Some units electronic and some units manual		
	Comment:		
11. Identify the method used to count **central line days**: (*choose one*)			*A daily count of the number of patients with a central line in the patient care location during a time period, which is summed for the monthly total*
	Count the number of patients with at least one central line at the time surveillance rounds are conducted		
	Count the number of central lines that are in place at the time surveillance rounds are conducted		
	Count the number of central lines that are in use at the time surveillance rounds are conducted		
	Other (specify):		
12. When reporting monthly **central line day** total, what is done if there are missing **central line day** data? *(choose one)*			*NHSN issued specific guidance on imputing values for missing device-associated denominator data https://www.cdc.gov/nhsn/pdfs/gen-support/MissingDenomData-508.pdf)*
	Report the sum of available daily counts with no adjustment for missing data		
	Estimate or re-create missing data using existing information (for example, medical records), then sum		
	Impute missing values using recent CDC/NHSN guidance for missing denominator data		
13. A patient has a radial arterial line and a peripheral IV. How many denominator device days are counted for this patient on this day?			*Zero. The radial arterial line and peripheral IV are not central lines.*
14. A patient has a temporary central line and a permanent central line that have both been used during this hospitalization. How many denominator device days are counted for this patient on this day?			*One. Although the patient has two central lines, a device day is defined as the number of patients who have the device, not the number of devices.*
15. The patient above with the temporary central line and the permanent central line is on an oncology ward. Should you report one temporary line day, one permanent line day, or both a temporary and a permanent line day?			*When a patient in an oncology location has both temporary and permanent lines, the line day is reported as a temporary line day because it is associated with a higher risk of bloodstream infection.* *(This information is detailed in the NHSN Manual, Instructions for Form 57.117)*
16. A patient has a port-a-cath that has not been accessed during this hospital stay, and a peripheral IV that is in use. How many denominator device days are counted for this patient on this day?			*One. Beginning in January 2018, central lines that are present on admission should be included in device day counts beginning on the day of admission to an inpatient location. This is regardless of access of the central line. The peripheral IV is not a central line.*

17. A port-a-cath was inserted during this admission for planned chemotherapy. It is not in use. How many denominator device days are counted for this patient on this day?		*One. If a central line was accessed via placement in an inpatient location during the current admission, it is counted in the denominator device day count each day that it remains in place, whether in use or not.*
18. A patient has a central line that was accessed for a blood draw in the ICU yesterday but is not currently in use, and a peripheral IV that is in use. How many central line days are counted for this patient on this day?		*One. The central line was accessed in an inpatient location during this stay. All central lines should be included in denominator device day counts once the patient locates to an inpatient location. This is regardless of access of the central line.*
19. A patient has a central line that was accessed once for a blood draw in the ED during evaluation leading to admission. The patient is now admitted to an inpatient location, but the line is not currently in use. How many denominator device days are counted for this patient on this day?		*One. Starting in 2018, all central lines should be included in denominator device day counts once the patient locates to an inpatient location. This is regardless of access of the central line.*
20. If a central line is removed at 2PM and replaced at 8PM. The central line day count is done at 5PM, should the line be counted?	☐ Yes ☐ No ☐ Unknown	*No. Central line must be in place at time of count.*

NICU-Specific Central Line Questions (*Optional: Check here and skip section if NICU questions do not apply to your job*) ☐)		
21. When reporting central line (CL) days in neonates, which neonatal weight is used for reporting? *(select one)*	☐ Birth weight ☐ Current weight	*Birth weight*
22. Neonates with both a CL and an umbilical catheter (UC) are included in the daily count as: *(select one)*	☐ UC only ☐ CL only ☐ 2 separate lines	*CL only. No separate reporting of UCs; UCs are considered CLs Although the patient has two central lines, a device day is defined as the number of patients who have the device, not the number of devices. When reporting the central line, it should be stratified by birth weight.*

INDWELLING URINARY CATHETER DAYS *(for CAUTI denominator counters only)*		***Answer Key/Rationale***
23. How are **indwelling urinary catheter days** collected for the units you oversee? (choose one)		
	Electronically (*specify software system utilized)*:	
	Manually (daily/weekly)	
	Some units electronic and some units manual	
	Comment:	
24. Identify the method used to count **indwelling urinary catheter days**: (*choose one*)		*Count the number of patients on the unit with an indwelling catheter or indwelling three-way (infusion) catheter used for bladder irrigation.* ***Note****: Indwelling urinary catheter: A drainage tube that is inserted into the bladder through the urethra, left in place, and connected to a drainage bag, including urinary catheters that are used for intermittent or continuous irrigation, but excluding suprapubic, condom, or straight in-and-out catheters.*
	Count the number of patients on the unit with a urine collection bag	
	Count the number of patients on the unit with an indwelling urinary catheter or condom catheter	
	Count the number of patients on the unit with an indwelling urinary catheter, condom catheter, or suprapubic catheter	
	Count the number of patients on the unit with an indwelling catheter or indwelling urethral three-way (infusion) catheter used for bladder irrigation	
	Other (specify):	
25. When reporting monthly **indwelling urinary catheter day** total, what is done if there are missing **urinary catheter day** data? *(choose one)*		*NHSN issued specific guidance on imputing values for missing device-associated denominator data https://www.cdc.gov/nhsn/pdfs/gen-support/MissingDenomData-508.pdf)*
	Report the sum of available daily counts with no adjustment for missing data	
	Estimate or re-create missing data using patient information (for example, medical records), then sum	
	Impute missing values using recent CDC/NHSN guidance for missing denominator data	
26. A patient has a draining ureteral stent and an indwelling urinary catheter; each one is connected to a collection bag. How many urinary catheter days are counted for this patient on this day?		*One. Ureteral stents are not counted because they are not urethral catheters.*
27. A patient has a three-way indwelling urinary catheter used for irrigation after surgery to prevent blood in the bladder from clotting, and to provide for urinary drainage. How many urinary catheter days are counted for this patient on this day?		*One. Catheters to be counted include indwelling urethral catheters used for intermittent or continuous irrigation, as well as those used for drainage.*
28. A patient on the unit has a supra-pubic urinary catheter. How many urinary catheter days are counted for this patient on this day?		*Zero. Supra-pubic catheters are not urethral catheters because they enter the bladder through the abdominal wall.*
29. A patient's indwelling urinary catheter is removed at noon (12PM) and replaced at 5PM. Daily indwelling urinary catheter counts take place at 2PM. How many urinary catheter days are reported for this patient on this day?		*None. There was no indwelling urinary catheter in place at the time of the daily denominator count.*

MECHANICAL VENTILATOR DAYS *(for VAE denominator counters only)*		***Answer Key/Rationale***
30. How are **ventilator days** collected for the units you oversee? (choose one)		Note: EMV is not a replacement for vent days
	Electronically (*specify software system utilized)*:	
	Manually (daily)	
	Some units electronic and some units manual	
	Episodes of Mechanical Ventilation (EMV) are collected along with daily ventilator counts	
	Comment:	
31. Identify the method used to count **ventilator days**: (*choose one*)		*Count the number of patients on the unit who are receiving mechanical ventilation through an endotracheal or tracheostomy tube at the time of the daily ventilator count.* ***Note**: Ventilator is a device used to support, assist, or control respiration (inclusive of the weaning period) through the application of positive pressure to the airway when delivered via an artificial airway, specifically oral/nasal endotracheal or tracheostomy tube.*
	Count the number of patients on the unit with a mechanical ventilator in the room.	
	Count the number of patients on the unit receiving positive-pressure ventilation with a mechanical ventilator via an artificial airway and patients receiving positive-pressure ventilation with a CPAP/BiPAP machine via a full-face mask.	
	Count the number of patients on the unit receiving mechanical ventilation via an artificial airway using a conventional mode of ventilation only.	
	Count the number of patients on the unit receiving mechanical ventilation via an artificial airway on any mode of ventilation.	
	Other (specify):	
32. When reporting monthly **ventilator day** total, what is done if there are missing **ventilator day** data? *(choose one)*		*NHSN issued specific guidance on imputing values for missing device-associated denominator data https://www.cdc.gov/nhsn/pdfs/gen-support/MissingDenomData-508.pdf)*
	Report the sum of available daily counts with no adjustment for missing data	
	Estimate or re-create missing data using patient information (for example, medical records), then sum	
	Impute missing values using recent CDC/NHSN guidance for missing denominator data	
33. A patient has been on mechanical ventilation for only one day. How many ventilator days are counted for this patient on this day?		*One. All ventilator days are counted, including ventilator days for patients on mechanical ventilation for less than 3 days.*
34. A patient is receiving mechanical ventilation using APRV mode. How many ventilator days are counted for this patient on this day?		*One. All ventilator days are counted, regardless of ventilator mode.*
35. A patient on the unit is on mechanical ventilation and receiving extracorporeal life support. How many ventilator days are counted for this patient on this day?		*One. All ventilator days are counted, regardless if patients are receiving therapies that are excluded from VAE surveillance.*
36. A patient is removed from the ventilator for weaning using a tracheostomy collar trial at noon (12PM) and replaced on the ventilator at 5PM. Daily ventilator counts take place at 2PM. How many ventilator days are reported for this patient on this day?		*None. There was no ventilator in place at the time of the daily denominator count. Patients undergoing weaning while on the ventilator **are included** in daily ventilator counts.*

Appendix D: Surgical Procedure and SSI Surveillance Methods Survey (with Key)

OrgID/Name of Hospital _____ Date of Survey _____

Instructions: *Administer this survey to the person who oversees NSHN SSI surveillance and reporting of surgical denominator (surgical procedure) data*				
Facility org ID:	Name / ID of individual interviewed:	Position: ☐IP ☐Other (explain):	Interviewer initials:	Date of survey:

Procedure (Denominator) Data	***Answer Key/Rationale***	
1) Does your facility normally upload surgical procedure data electronically to NHSN (via CSV or CDA), or is procedure data entered manually? *(choose one):*	☐ Electronic (skip to Q3) ☐ Manual ☐ Other (comment): _____	
2) If manual, who has primary responsibility for surgical procedure data entry to NHSN? *(choose one):*	☐ IP ☐ Clerical/support staff ☐ Clerical/support staff with IP oversight ☐ Other _____	*If IP is responsible for entering denominator data and unable to fully meet other responsibilities, recommend clerical support with IP oversight for this task.*
3) What source(s) of information does your facility NORMALLY use to identify COLO and/or HYST procedures? *(choose all that apply):*	☐ The complete OR records/reports system ☐ Selected flagged/filtered OR records/reports based on key word ☐ CPT codes assigned by surgeons ☐ ICD-10-PCS/CPT operative procedure codes assigned by coders after discharge ☐ Vendor system using OR records (specify) _____ ☐ Vendor system using ICD-10-PCS/CPT operative procedure codes assigned after discharge (specify) _____ ☐ Vendor system using both OR records and ICD-10-PCS/CPT operative procedure codes assigned after discharge (specify) _____ ☐ Other _____	*ICD-10-PCS/CPT operative procedure codes are required to determine the correct NHSN operative procedure category to be reported.* *ICD-10-PCS/CPT operative procedure codes should be assigned by a professional medical coder.* *If there are questions regarding the accuracy of an assigned operative procedure code, these questions should be reviewed with your professional medical coder.*
4) How are you assuring that all qualifying inpatient COLO and/or HYST procedures are included in your denominator data?	☐ No systematic way ☐ Review **only** CPT operative procedure codes ☐ Review **only** ICD-10-PCS operative procedure codes ☐ Review **both** CPT and ICD-10-PCS operative procedure codes☐ Cross-reference (multiple) data sources (explain): _____ ☐ Other _____	*NHSN does not require a facility use one coding system over another (ICD-10 codes or CPT codes). From a reporting standpoint, it is important to have a standard method of identifying procedures so that ALL appropriate procedures are included in the denominator for procedure data.* *Instances such as a facility using CPT codes for what they consider is an 'outpatient' procedure but the procedure actually meets the NHSN inpatient procedure definition,*

		the facility must include CPT codes in addition to ICD-10 codes in their surveillance in order to capture all of the 'outpatient' procedures that meet the NHSN inpatient definition. *A facility should set up a process to identify procedures for reporting using both ICD-10 and CPT codes if both are being assigned by the facility's coders. This prevents the possibility of procedures from being missed; however, a process must also be in place to prevent reporting duplicate procedures.* *A vaginal hysterectomy procedure may qualify as an abdominal hysterectomy (HYST) if an abdominal incision is made. A medical coder may correctly assign laparoscopic vaginal hysterectomy procedure codes based on route of detachment but for the purpose of NHSN SSI reporting, hysterectomy procedure codes that involve an incision made into the abdomen, including trocar insertion, are listed in the abdominal hysterectomy (HYST) category. The correct hysterectomy procedure codes should be assigned by a medical record coder using current guidelines and conventions.* **Cross-referencing of sources (for example, OR records plus ICD-10-PCS/CPT operative procedure codes assigned after discharge) is the best way to assure complete denominator count.*

5) If you are following inpatient procedures, under what circumstances do you remove COLO and/or HYST procedures from NHSN? *(choose all that apply):*	☐ a. COLO or HYST ICD-10-PCS/CPT operative procedure code was not assigned to the operative procedure ☐ b. COLO or HYST ICD-10-PCS/CPT operative procedure code was assigned, but IP believes coder assigned COLO or HYST code in error ☐ c. Incision not primarily closed in OR ☐ d. The admission and discharge date were the same calendar date (NHSN outpatient operative procedure) ☐ e. Infection was present at the time of surgery (PATOS) ☐ f. COLO wound class = Clean (C) ☐ g. ASA score = 6 ☐ h. Other _____	***Correct answers: a, d, f, g*** *Although questioning of ICD-10-PCS/CPT operative procedure codes is acceptable, removal of procedures with designated ICD-10-PCS/CPT operative procedure code is only acceptable if procedure does not meet other aspects of NHSN operative procedure definition. Therefore, it would be appropriate to remove procedure if there is* ***a****) no appropriate ICD-10-PCS/CPT procedure code assigned* ***d****) not an inpatient operative procedure) (if facility is only following inpatient procedures on monthly reporting plan)* ***f****) COLO wound class = C. Based on feedback from external experts in the field of surgery, there are a group of NHSN procedures that can never be recorded as clean. These operative procedure categories are APPY, BILI, CHOL,* ***COLO****, REC, SB, and VHYS. Therefore, for these procedures in the application clean is not an option on the drop-down menu.* ***g****) ASA score = 6* ***Note****:* *Facilities should keep clear and accurate documentation when procedures are excluded from NHSN reporting.*
6) If the operative procedure report details do not match the listed ICD-10-PCS/CPT procedure codes, what should you do?	☐ a. Review coding assignment with the facility medical coder ☐ b. Query NHSN ☐ c. Other _____ _____	*For validation purposes, NHSN recommends that IPs should bring coding mismatches to coders for review and should not over-ride coders' decisions.* *On a rare occasion the procedure performed was accurately coded but does not match the assigned the category description. In these cases, based on knowledge and review of the actual procedure performed, if the procedure clearly does not meet the procedure category description then for that specific instance the procedure should not be reported to NHSN for that procedure category. This determination must be made on a case by case basis and the facility may query NHSN. Clear and accurate*

		documentation should be maintained in these instances.
7) Which of the following are consistent with the definition of primary wound closure? *(check ALL that apply)*	☐ a. Complete closure of skin with suture ☐ b. Partial closure of skin with staples ☐ c. Closure of skin except for wick/drain through incision ☐ d. Closed fascia with incision loosely closed at the skin level ☐ e. Closed fascia, with skin layer left open	***Correct answers: a, b, c, d*** *If any portion of the incision is closed at the skin level, by any manner, a designation of primary closure should be assigned to the surgery.* *The closure of the surgical wound in a way which leaves the skin level completely open following surgery is a non-primary closure (e).* *All procedures, regardless of closure method, must be reported to NHSN.*
8) Does your facility conduct NHSN analysis to look at longitudinal trends for COLO or HYST SSIs and procedures?	☐ Yes ☐ No	*This is recommended practice for facility use of NHSN data.*
9) What would you do if your procedure denominator this month was dramatically higher from one month to the next?	_____	*Recommended: investigate this aggregate data by exploring the data at a patient/procedure level to identify the reason.*

Surgical Site Infection Event (Numerator) Data Collection Questions			
Instructions: Interview individual(s) directly responsible for identifying and reporting SSI data		Date of survey:	
Name/ID of individual interviewed:	Position:	(*circle one*): COLO HYST BOTH	
Numerator (SSI Event) Data		***Answer Key/Rationale***	
10) If a patient with an SSI is admitted to your facility but the surgical procedure was performed in another hospital ("hospital A"), what do you do? *(choose all that apply)*		☐ Report the SSI to NHSN ☐ Report the SSI to "hospital A" ☐ Report the SSI to the health department ☐ No external reporting Comment: _____	*Best practice is to report to "hospital A" and (if required by the state) to health department. Hospital A should report to NHSN. The SSI event must be reported by the facility in which the procedure was performed and linked to the operative procedure (denominator details) associated to the SSI event.*
11) If you do not report the SSI to "hospital A", why not? *(choose all that apply)*		☐ HIPAA concerns ☐ Not a priority for IP program ☐ Logistically difficult (which hospital, who to contact) ☐ Not required Comments: _____	*Best practice is to report to "hospital A".* *If facility cites HIPAA concerns, consider sharing Section IV. Facility/Provider to Facility/Provider Communications under HIPPA: Questions and Answers, or CSTE position statement 13-ID-09, which contains information from the Office of Civil Rights assuring that sharing SSI information with the originating facility does not violate HIPAA.*
12) If you are contacted by the IP from another hospital regarding a patient with an SSI who underwent a procedure in your facility, what do you do? (*choose all that apply*)		☐ Ask the IP for help completing the NHSN report ☐ Document in your tracking records ☐ Report the SSI to NHSN ☐ Ask the IP to report the SSI to NHSN ☐ No internal reporting or documentation Comment: _____	*The other IP can provide details regarding the infection, but cannot report the event to NHSN (the SSI event must be reported by the facility in which the procedure was performed and linked to the operative procedure (denominator details) associated to the SSI event). Request pertinent details regarding the SSI event to assist with completion of the SSI event form (such as date of event, signs/symptoms, etc.). Include relevant details in the patient medical record.*

13) What methods are routinely and systematically used to identify possible SSIs? (*Check all that apply)*	Reports/Rounds: ☐ Emergency department line lists with diagnoses ☐ Admissions line lists with diagnoses ☐ Surgical ward rounds – talk to primary care staff ☐ Positive laboratory cultures from inpatients ☐ Positive laboratory cultures from ED ☐ Pharmacy reports (antibiotic starts or continuations) ☐ Other _____ Surgical service information: ☐ Inpatient returns to surgery ☐ Surgical service readmissions ADT/Medical Records Data Mining: ☐ Readmissions within one month of discharge ☐ Extended LOS ☐ Discharge diagnostic coding (for example, ICD-10-CM Infection Diagnosis Codes to prompt further review) ☐ Other _____	*Any combination of these methods (or other methods identified by the facility) with the capacity to identify all SSIs is acceptable for use; however, NHSN criteria for SSI must be used.*
14) How does your facility conduct post-discharge surveillance for SSIs? *(check all that apply*)	□ IP does not have a formal post-discharge surveillance plan □ IP conducts patient survey by mail □ IP conducts patient survey by telephone □ IP provides line list of patients to surgeon for response □ Surgeon indicates SSIs identified at surgical follow-up □ Surgeon surveys patient by mail □ Surgeon surveys patient by telephone □ IP reviews surgical clinic / wound clinic information □ IP reviews surgical patient records within a time period that aligns with the operative procedure category surveillance period □ Other/ Comment: _____	
SSI Attribution Knowledge Check	***Answer Key/Rationale***	
15) During one trip to the operating room, both a COLO procedure and a HYST procedure are performed. Patient meets criteria for a Deep incisional SSI. The patient meets criteria for a deep incisional SSI event following the COLO and HYST procedure. SSI attribution is not clear. To which procedure should you attribute the SSI?	☐ a. COLO ☐ b. HYST ☐ c. Both ☐ d. Neither	*Correct Answer a. The procedure which is higher on the 2022 procedure hierarchy (Table 4 found within the SSI Protocol) gets the SSI attribution.*

16) At the conclusion of a COLO procedure, the skin around the stoma is closed, but the midline abdominal incision is left open. Is this a primary or non-primary closure?	☐ a. Primary Closure ☐ b. Non-primary Closure	*Correct answer a. The stoma is a primary incision site. If a procedure has multiple incision/laparoscopic trocar sites and any of the incisions are closed primarily then the procedure technique is recorded as primary closed.*
17) SSI events where PATOS = Yes do not get reported to NHSN.?	☐ a. True ☐ b. False	***Correct answer: b*** *SSI events where PATOS = YES are still SSI events and must be reported to NHSN.*
18) A COLO is assigned a wound class of Clean (C). The IP should change the wound class to Clean Contaminated (CC) to submit the COLO into NHSN.	☐ a. True ☐ b. False	***Correct answer: b*** *A COLO with a wound class designation of C cannot be entered into NHSN. There are situations where a clean wound class can be appropriately assigned to a COLO and therefore, the procedure would not be included in the denominator for procedure data.* *Excluding a procedure from the denominator for procedure data should be made on a case by case basis with knowledge of the procedure and after review of the operative report. We recommend that you document the rationale for excluding a procedure in your facility's surveillance records in the event an explanation is needed in the future.*

Appendix E: LabID Event Surveillance Methods Survey (with Key)

OrgID/Name of Hospital _____ Date: _____

LabID Event Surveillance Methods Survey ***Instructions:*** *Administer this survey to the person who oversees NHSN LabID Event reporting*				
Patient Days/Patient Admissions (Denominator) Data Collection Questions				
Name of individual interviewed:	Position:	☐ FacWideIN MRSA bacteremia ☐ FacWideIN CDI	Interviewer initials:	Date of survey:
1) For FacWideIN reporting, denominator data are entered into NHSN once a month at the facility-wide level			☐ True ☐ False	T
2) For CDI reporting, the denominator should include all completed CDI toxin tests			☐ True ☐ False	F (denominator = admissions and patient days)
3) Patient days include only admitted patients on inpatient wards; observation patients located on inpatient wards are excluded			☐ True ☐ False	F (all patients housed in inpatient locations)
4) For CDI reporting pediatric locations should be excluded from FacWideIN reporting			☐ True ☐ False	F (NICU and well-baby locations and babies on LDRP are excluded for CDI)
5) For MRSA bacteremia reporting baby locations (NICU, newborn nursery, etc.) should be excluded from the denominator			☐ True ☐ False	F (no location exclusions for MRSA)
LabID Event (Numerator) Data Collection Questions				
Name of individual interviewed:	Position:	☐ FacWideIN MRSA bacteremia ☐ FacWideIN CDI	Interviewer initials:	Date of survey:
6) For FacWideIN reporting, a monthly total for all LabID Events is reported at the facility-wide level only			☐ True ☐ False	F (LabID events are reported by location)
7) For CDI reporting, the numerator should include toxin-positive CDI results conducted on formed stool specimens			☐ True ☐ False	F (laboratories should only process and report results for unformed stools)
8) A second event is always reported if >14 days have passed from the most recent positive MRSA bacteremia or toxin-positive CDI test result			☐ True ☐ False	T
9) A second event is only reported if >14 days have passed from the most recently reported LabID event			☐ True ☐ False	F (If the patient changes location, a second event is reported even within 14 days of prior event)
10) A second event is only reported if the patient changes location OR >14 days have passed since the most recent positive MRSA bacteremia or toxin-positive CDI test in the same location			☐ True ☐ False	T
11) Only reportable CDI LabID Events should be entered into NHSN			☐ True ☐ False	T
Policy Question				
12) Does your facility laboratory limit CDI testing and reporting to unformed stool specimens only, or does the laboratory process all stool specimens for CDI if ordered?			☐ Unformed stool specimens only ☐ All stool specimens	Recommended policy is to only process unformed stool specimens for CDI

Appendix F: LabID Event Facility-Wide Inpatient (FacWideIN) Denominator Validation Template

Feel free to adapt this template to meet your facility's needs

Electronically collected MRSA bacteremia and CDI FacWideIN denominators

"FacWideIN" includes all patient days counted at the same time each day for all inpatient locations, including any patients located for the day in inpatient locations, whether or not the facility considers them admitted patients or observation patients, but excluding any patients located for the day in outpatient locations (such as 24-hour observation units). This information is typically collected electronically.

Because the task of validating electronic patient days and admissions facility-wide is daunting, denominator validation can be accomplished using manual counting of patient days and admissions in three specified location types for three months each: one ICU, one Labor/Delivery/Recovery/Post-Partum (LDRP) location (if available), and one or more inpatient wards where observation patients are frequently located. Facilities with inpatient rehabilitation facility (IRF) and/or inpatient psychiatric facility (IPF) locations with separate CCNs and facilities with baby-based locations (for example, NICU, well baby nursery, etc.) should also validate these locations.

Electronic counts should be within 5% of manual counts, or an evaluation of why they differ should be conducted.

MRSA Bacteremia LabID Event Denominator Validation							
Location of Validation*	Month of Validation *(specify)*	Admissions			Patient Days		
		Usual Count	5% Tolerance interval†	Manual Count	Usual Count	5% Tolerance interval†	Manual Count
	1						
	2						
	3						
	1						
	2						
	3						
	1						
	2						
	3						

*Select one ICU, one Labor/Delivery/Recovery/Post-Partum (LDRP) location if available, and one or more inpatient ward location where observation patients are frequently located and conduct manual (patient level) validation of admissions and patients days for three consecutive months, according to NHSN definitions. (https://www.cdc.gov/nhsn/pdfs/pscmanual/pcsmanual_current.pdf, and http://www.cdc.gov/nhsn/forms/instr/57_127.pdf)
Remember that for MRSA bacteremia **both mothers and babies** are counted in LDRP locations.

†Equation for 5% tolerance interval: Usual Count ± (Usual Count * 0.05).
Example calculations where Usual Count = 164 and Manual Count = 178:
Eligible 5% tolerance interval = [164±(164*0.05)]=155.8 to 172.2
Manual Count 178 falls outside the tolerance interval, suggesting that Usual Count is inaccurate and should be investigated.

CDI LabID Event Denominator Validation							
Location of Validation*	Month of Validation *(specify)*	Admissions			Patient Days		
		Usual Count	5% Tolerance interval†	Manual Count	Usual Count	5% Tolerance interval†	Manual Count
	1						
	2						
	3						
	1						
	2						
	3						
	1						
	2						
	3						

*Select one ICU, one Labor/Delivery/Recovery/Post-Partum (LDRP) location if available, and one or more inpatient ward location where observation patients are frequently located and conduct manual (patient level) validation of admissions and patients days for three consecutive months, according to NHSN definitions.
(https://www.cdc.gov/nhsn/pdfs/pscmanual/pcsmanual_current.pdf, and http://www.cdc.gov/nhsn/forms/instr/57_127.pdf)
Remember that for CDI, **only mothers (and not babies**) are counted in LDRP locations.

†Equation for 5% tolerance interval: Usual Count ± (Usual Count * 0.05).
Example calculations where Usual Count = 164 and Manual Count = 178:
Eligible 5% tolerance interval = [164±(164*0.05)]=155.8 to 172.2
Manual Count 178 falls outside the tolerance interval, suggesting that Usual Count is inaccurate and should be investigated.

III. Quarterly/Monthly Data Quality Assessment Activities

Monthly HAI reporting plan

Facilities must ensure that their monthly HAI NHSN reporting plan is complete and accurately reflects their HAI reporting intentions. HAIs not included in the monthly reporting plan may be entered by the facilities but will not be used for facility SIR calculation.

Data Quality Checklists

The data quality checklists provided in this toolkit contain the minimum suggested data quality checks to be performed on HAI data reported via NHSN. Facilities are strongly encouraged to check the completeness and accuracy of their data at least quarterly prior to CMS data submission deadlines. However, routine monthly data quality checks are beneficial for maintaining data accuracy and timeliness. Refer to the NHSN Patient Safety Analysis Quick Reference Guides for guidance on generating reports for data entered into NHSN (https://www.cdc.gov/nhsn/ps-analysis-resources/reference-guides.html).

Note: Remember to Generate Data Sets after updating data in NHSN and prior to running Analysis Reports.

Note: Remember to Modify Report to the Time Period being validated.

Appendix G: Data Quality Checklist – CLABSI/CAUTI/VAE Data

This checklist is intended to ensure completeness and accuracy of CLABSI, CAUTI and VAE data entered NHSN and can be used at acute care hospitals, long-term acute care facilities, critical access hospitals, and inpatient rehabilitation facilities.

Summary Denominator Data		
Indicator	**Description/Action**	**Validated**
i) Missing summary data	Verify that summary data has been entered for the location and month/year. (Go to NHSN Application –> Alerts –> Missing Summary Data)	
ii) Missing denominator variables (Incomplete summary data)	Verify that all mandatory/required fields are completed, and that "Report No Events" is checked, where appropriate. (Go to NHSN Application –> Alerts –> Incomplete Summary Data)	
iii) Verify denominator data accuracy:	Generate Rate Tables to display summary data by location and month in a table format. Go to NHSN Application –> Analysis –> Reports –> Device-Associated (DA) Module –> Central Line-Associated BSI –> Rate Table **OR** NHSN Application –> Analysis – Reports –> Device-Associated (DA) Module –> Urinary Catheter-Associated UTI –> Rate Table **OR** NHSN Application –> Analysis – Reports –> Device-Associated (DA) Module –> Ventilator-Associated Events –> Rate Table **Alternative Method:** Generate a Summary Line List Go to NHSN Application –> Analysis –> Reports –> Advanced –> Summary-level Data –> Line Listing – All Summary Data	
1. Total Patient Days should not be greater than the location beds multiplied by number of days in the reporting month.	Example: If location beds is 30 and the reporting month is June, Total Patient Days should not be greater than 900 (30 x 30).	
2. Total Patient Days should be **greater than (or equal to)** Central Line Days or Urinary Catheter Days or Ventilator Days for the same location and month.	Central Line Days/Urinary Catheter/Ventilator Days should not be greater than Total Patient Days.	
3. Zero (0) Total Patient Days reported for a location for multiple months.	Does this location need to be inactivated?	

Event Data Entry		
Indicator	**Description/Action**	**Validated**
i) All CLABSI, CAUTI and VAE events reported	Verify that all CLABSI, CAUTI and VAE events have been reported. Go to NHSN Application –> Analysis –> Reports –> Device-Associated (DA) Module –> Central Line-Associated BSI –> Line Listing – All CLAB Events **OR** NHSN Application –> Analysis – Reports –> Device-Associated (DA) Module –> Urinary Catheter-Associated UTI –> Line Listing – All CAU Events **OR** NHSN Application –> Analysis – Reports –> Device-Associated (DA) Module –> Ventilator-Associated Events –> Line Listing – All VAE	
ii) Missing numerator variables (Incomplete events)	Verify that all mandatory/required data fields (marked with an *, **, or > on the event form) are completed. (Go to NHSN Application –> Alerts –> Incomplete Events, Event Type: BSI/UTI/VAE)	
iii) Missing events	Verify that 'Report No Events' are checked for in-plan CLABSI/CAUTI/VAE events as appropriate in the summary data form for respective location/month.	
iv Confirm that date of event occurred on or after the third calendar day of admission to the inpatient location for CLABSI/CAUTI.	If the date of event did not occur on or after the third calendar day of admission, then it is not considered an HAI and will not be counted in the SIR.	
v) Confirm that the date of event occurred on or after the third calendar day of admission to the inpatient location for VAE.	If the date of event did not occur on or after the third calendar day of admission to an inpatient unit, then it is not considered a VAE for the facility and will not be counted in the SIR.	
vi) Confirm that presence of a central line (permanent/temporary in specialty care locations) or indwelling urinary catheter is indicated on the event form.	If device presence is not confirmed on the event form, it will not be counted in the SIR.	

Appendix H: Data Quality Checklist - MDRO/CDI Data

This checklist is intended to ensure completeness and accuracy of LabID Event data entered into NHSN.

Summary Denominator Data – Validate Monthly/Quarterly		
Indicator	**Description/Action**	**Validated**
i) Missing summary data	Verify that summary data have been entered for the location and month/year. (Go to NHSN Application –> Alerts –> Missing Summary Data)	
ii) Missing denominator variables (Incomplete summary data)	Verify that all mandatory/required fields are completed, and that "Report No Events" is checked, if appropriate. (Go to NHSN Application –> Alerts –> Incomplete Summary Data)	
iii) Verify denominator data accuracy for all reporting locations. **Note:** FACWIDEIN excludes data reported for rehabilitation wards (IRF) and behavioral health/psych wards (IPF) that have a CCN that is different from the acute care hospital.	Go to NHSN Application –> Analysis –> Reports –> MDRO/CDI Module – LabID Event Reporting –> All *C. difficile* (or MRSA) LabID Events –> Rate Tables for CDIF (or MRSA) LabID Data **OR** NHSN Application –> Analysis – Reports –> Advanced –> Summary-level Data -> Line Listing –> All Summary Data **Alternative Method** (this method requires you to search for each location/month/year individually)**:** Go to NHSN Application –> Summary Data –> Find. Select Summary Data Type "MDRO and CDI Monthly Denominator" and enter Location Code, Month, Year. **OR** Generate Rate Tables to display summary data by location and month/year in a table format.	
iv) Verify the following for the month/quarter, as applicable for your facility. The variables listed in parentheses represent those that are visible in the Summary Data Line List.		
1. Line 1: Total Facility Patient Days (numTotpatdays) should be **greater than 0**.		
2. Line 1: Total Facility Admissions (numTotAdm) should be **greater than 0**.		
3. Line 1: Total Facility Patient Days should be **greater than or equal to** Total Facility Admissions.		
4. Line 2: patient days (numpatdays) should be **greater than 0, but fewer than (or equal to)** Total Facility Patient Days.	If your facility has a CMS-certified rehab unit (IRF) or CMS-certified psych unit (IPF), subtract these counts from "Total Facility Patient Days" and "Total Facility Admissions" (Line 1). If you do not have these units, enter the same values you entered on Line 1.	
5. Line 2: admissions (numadms) should be **greater than 0, but fewer than (or equal to)** Total Facility Admissions.	If your facility has a CMS-certified rehab unit (IRF) or CMS-certified psych unit (IPF), subtract these counts from "Total Facility Patient Days" and	

	"Total Facility Admissions" (Line 1). If you do not have these units, enter the same values you entered on Line 1.	
6. Line 2: Patient Days (numpatdays) should be **greater than or equal to** Admissions (numadms).		
7. Line 3: Patient Days (numcdifpatdays) should be **greater than 0, but fewer than (or equal to)** Total Facility Patient Days.	If your facility has a CMS-certified IRF, CMS-certified IPF, NICU, or Well Baby Unit, subtract those counts from "Total Facility Patient Days" (Line 1). If you do not have these units, enter the same values you entered on Line 1.	
8. Line 3: Admissions (numCdifadm) should be **greater than 0, but fewer than (or equal to)** Total Facility Admissions.	If your facility has a CMS-certified IRF, CMS-certified IPF, NICU, or Well Baby Unit, subtract those counts from "Total Facility Admissions" (Line 1). If you do not have these units, enter the same values you entered on Line 1.	
9. Line 3: Patient Days should be **greater than or equal to** Admissions.		
10. **For facilities with both IRF/IPF locations and NICU/Well Baby locations:** Line 2 Patient Days should be **greater than or equal to** Line 3 Patient Days, but **fewer than or equal to** Line 1 Total Facility Patient Days.		
11. **For facilities with both IRF/IPF locations and NICU/Well Baby locations:** Line 2 Admissions should be **greater than or equal to** Line 3 Admissions, but **fewer than or equal to** Line 1 Total Facility Admissions.		
12. Encounters for the Emergency Department and 24-hour observation locations should be **greater than 0**. Note: all active EDs and 24-hour observation locations should be listed on the monthly reporting plans in which FacWideIN surveillance is being followed.		
Event Data Entry – Validate Monthly/Quarterly		
Indicator	**Description/Action**	**Validated**
i) All CDI and MRSA bacteremia LabID Events reported	Verify that that all CDI and MRSA bacteremia LabID Events have been reported. Go to NHSN Application –> Analysis –> Reports –> MDRO/CDI Module – LabID Event Reporting –> All *C. difficile* LabID Events –> Line Listing for All CDIF LabID Events **OR** NHSN Application –> Analysis – Reports –> MDRO/CDI Module – LabID Event Reporting –> All MRSA LabID Events –> Line Listing for All MRSA LabID Events	

ii) Missing numerator variables (Incomplete events)	Verify that all mandatory/required data fields are completed.	
iii) Confirm that Facility Admit Date and Specimen Collection Date are correct.	If dates are incorrect, the LabID Event may not be categorized accurately as Community-Onset (CO) vs. Healthcare Facility-Onset (HO). Facility admission date should be the date the patient was first housed in an inpatient unit. This may be different than the date this patient was placed in "admitted" status.	
CDI Test Type – Validate Quarterly (March, June, September, December)		
Indicator	**Description/Action**	**Validated**
i) CDI test type should be present on March, June, September, and December MDRO/CDI denominator records.	Go to NHSN Application –> Analysis –> Reports –> Advanced –> Data Quality –> Line Listing – CDI Test Method History	
ii) Verify that CDI test type is the same as the previous quarter.	If CDI test type is different, confirm whether or not the primary testing method has changed. Test type entered should represent the testing method used for the majority of the quarter. Incorrect test type will affect risk adjustment for the SIR.	
iii) **If CDI test type selected is OTH – other:** Verify that this is correct.	CDI test type = "Other" should not be used to name specific laboratories, reference laboratories, generic testing methods (such as "PCR") or the brand names of *C. difficile* tests.	
iv) **For IRF units within a hospital:** The CDI test type from the IRF unit denominator record should match the value selected on the FacWideIN denominator record for that month.	Go to NHSN Application –> Alerts –> Confirm CDI Test Type. If this alert is present, verify the correct test type is entered into the Summary Data.	

Appendix I: Data Quality Checklist - SSI Events/Procedures

This checklist is intended to ensure completeness and accuracy of SSI Event and Procedure data entered NHSN.

SSI Event (numerator)		
Indicator	**Description/Action**	**Validated**
i) All SSI events reported	Verify that all SSI events have been reported. (Go to NHSN Application –> Analysis – Reports –> Procedure-Associated (PA) Module –> SSI –> Line Listing – All SSI Events) **Note:** When generating the All SSI Events line list, choose the Procedure Date (procDate) as the Date Variable on the Time Period tab.	
ii) Missing numerator variables (Incomplete events)	Verify that all mandatory/required data fields are completed. (Go to NHSN Application –> Alerts –> Incomplete Events, Event Type: SSI)	
iii) SSI event is linked to procedure	Verify that SSI event is linked to the correct procedure. (Add Display Variables "linkedproc" to	

	Line Listing – All SSI Events; refer to "All SSI events reported" above.)	
iv) General Exclusions from SIR calculation:	SSI events containing these data are excluded from the SSI SIR. Verify that data are accurate and make corrections as necessary.	
1. Gender = 'Other'	Confirm whether this is true or not.	
2. Outpatient procedure = 'Yes'	Confirm whether this is true or not.	
3. PATOS = 'Yes'	An SSI that meets criteria for PATOS is not excluded from reporting and should be entered into NHSN as an SSI event.	
4. If SSI Specific Event = Superficial incisional secondary (SIS) or Deep incisional secondary (DIS)	Confirm whether this is true or not.	
Note: When an SSI event is excluded from the numerator, the associated procedure is excluded from the denominator.		
Procedure (denominator)		
Indicator	**Description/Action**	**Validated**
i) Missing denominator variables	Verify that all mandatory/required fields are completed. (Go to NHSN Application –> Alerts –> Incomplete Procedures)	
ii) Excluded procedures	Review denominator data for outliers/exclusions (Go to NHSN Application –> Analysis – Reports –> Procedure-Associated (PA) Module –> SSI –> Line Listing – Procedures Excluded from SIR). Use this quick reference guide for instructions on how to generate this report.	
iii) Review excluded procedures for potential data quality issues or outliers:	Review data for accuracy and make necessary corrections. See NHSN's Guide to the SIR for more information: https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/nhsn-sir-guide.pdf	
1. Any mandatory/required data are missing	Verify that all mandatory/required data fields are completed.	
2. Age at time of procedure greater than 109 years	Confirm whether this is true or not.	
3. Gender = 'Other'	Confirm whether this is true or not.	
4. Procedure duration less than 5 minutes	Confirm whether this is true or not.	
5. Procedure duration greater than IQR5	Confirm whether this is true or not. Refer to Procedure Duration Outliers (IQR5), Table 4, page 34.	
6. BMI less than 12 or greater than 60 for adult patients (greater than or equal to 18 years)	Confirm whether this is true or not. If height is unknown, enter 1 ft., 0 in. If weight is unknown, enter 1 lb.	
7. BMI less than 10.49 or greater than 65.79 for pediatric patients (less than 18 years)	Refer to Table 2, **footnote, page 27.	
Note: When a procedure is excluded from the denominator, the associated SSI event is excluded from the numerator.		
Note: Additional data quality checks can be performed by accessing reports from the Advanced analysis folder. Go to NHSN Application –> Analysis – Reports –> Advanced –> Data Quality and select the reports for the data you want to validate.		

IV. Facility/Provider to Facility/Provider Communications under HIPAA: Questions and Answers

Note: *The following document was developed by CDC scientists and lawyers in collaboration with HHS Office of Civil Rights (OCR) program and legal staff, who oversee administration of the Health Insurance Portability and Accountability Act of 1996 (HIPAA). This information may not be modified without express permission of OCR.*

Facility/Provider to Facility/Provider Communications under HIPAA: Questions and Answers

Health care providers [that is, individual clinicians and facilities (including hospitals and other health care facilities such as nursing homes and rehabilitation facilities)] are increasingly active in addressing concerns about patient safety and minimizing patients' risks of adverse healthcare events. In an era when the public, policymakers, and many health care providers seek greater transparency and accountability in healthcare, these efforts include but are not limited to new or renewed emphasis on information sharing among providers themselves about adverse events that are a consequence of a care process, care process omission, or some other risk exposure during a health care episode, such as exposure to an infectious agent.

Health care providers have raised questions as to whether the HIPAA Privacy Rule permits information sharing between individual providers and/or facilities for patient safety-related purposes. This guidance assumes that the provider seeking to share such patient information is a HIPAA covered entity. While any health care provider may be faced with these questions, they tend to arise more frequently at the facility level. The term "patient" is also used here to encompass persons residing in nursing homes or other facilities, where they are often referred to as "residents." "Source facility" or "source provider" refers to the health care facility or individual provider that first cared for the patient. Protected health information ("PHI") is individually identifiable health information, such as information that identifies (or can be used to identify) a patient.

Question One

Does HIPAA permit a health care facility to share PHI with the source facility where a patient was previously treated or where a patient previously resided, without the patient's authorization, for purposes of providing notification of an infection with potential infection control implications at the source facility?

In these scenarios a resident of a nursing home is admitted into a hospital, certain medical conditions are diagnosed, and the hospital wants to disclose this health information back to the nursing home.

- A practitioner at the hospital diagnoses a patient's tuberculosis and wants to inform the nursing home so that the staff there can quarantine the coughing roommate of the index case.
- The patient is admitted with sepsis and later dies in the hospital. Blood specimens drawn at admission grow group A streptococcus. The hospital seeks to disclose that this patient was diagnosed with invasive group A streptococcal infection (which causes serious outbreaks in nursing homes) to the nursing home for infection control purposes, even though the patient will not be returning.
- The hospital diagnoses the patient with influenza early in the flu season and wants to disclose this diagnosis to the nursing home for infection control purposes.

In each scenario the hospital will want to disclose the name of the patient so the nursing home can verify that this patient had been a resident in their home and the date and location of service.

Answer One

The HIPAA Privacy Rule permits a covered health care provider to ***use or disclose*** PHI for treatment purposes without the authorization of the patient. (Generally, disclosures of psychotherapy notes require written patient authorization, but these notes do not appear relevant here.) 45 CFR 164.506(c) and 164.508(a)(2). "Treatment" is defined to include the provision, coordination, or management of "health care" and related services. 45 CFR 164.501. "Health care" is defined to include preventive care. 45 CFR 160.103. Treatment refers to activities undertaken on behalf of individual patients. While in most cases, the information regarding an individual is needed for the treatment of that individual, the HIPAA Privacy Rule also allows the information regarding one individual (for example, a patient) to be used or disclosed for the treatment or preventive care (for example, vaccinations or quarantine) of other persons (for example, patients at risk).

In these scenarios, the patient (and former nursing home resident) has or had a medical condition while at the nursing home that may directly impact the health of certain or all residents at that facility. In some cases, the nursing home did not know of this condition, or the condition had not manifested itself at the time the patient was at the nursing home. The hospital may disclose PHI of the patient (and former nursing home resident) to the nursing home for treatment purposes involving other residents.

A distinction is made between ***use*** and ***disclosure*** of PHI for treatment purposes with regard to the "minimum necessary" requirement. The "minimum necessary" requirement does not apply to ***disclosures*** of PHI for treatment purposes, and the disclosures discussed above are treatment disclosures that are permitted under the HIPAA Privacy Rule.

After PHI is disclosed to the nursing home, the information may be ***used*** for the provision of treatment to the nursing home residents. For example, preventive measures, such as cohorting, isolation, or prophylaxis of specific patients who may be at risk at the nursing home, are

considered treatment under the Privacy Rule. The ***uses*** of PHI by the nursing home for treatment purposes in the above scenarios ***are*** subject to the Privacy Rule's "minimum necessary" requirement, and the nursing home's minimum necessary policies. A nursing home, as a covered entity, must identify those persons or classes of persons in its workforce who need access to PHI, and for each such person or classes of person, the category or categories of PHI to which access is needed, and any conditions appropriate to such access. 45 CFR 164.514(d)(2). For more information on the "minimum necessary" requirement, see: http://www.hhs.gov/ocr/privacy/hipaa/faq/minimum_necessary/207.html.

Question Two

Under HIPAA, is a health care facility permitted to share PHI with another health care facility that previously treated or housed a patient, without that patient's authorization, for purposes of notifying this source facility of a potential complication of care related to the health care provided at the source facility so as to monitor and improve care and prevent future complications?

- A hospital identifies a surgical site infection (SSI) that is probably attributable to an ambulatory surgical care facility and/or surgeon that performed the surgery within the past 12 months. The hospital seeks to notify the ambulatory surgical care facility about the SSI, or in a given situation, notify the surgeon directly.
- A patient is admitted to Hospital B with a surgical site infection (SSI) after an operation at another hospital (Hospital A), where the patient had been operated on and then discharged without signs or symptoms of infection. Because of federal requirements (for example, the Centers for Medicare and Medicaid Services' Inpatient Quality Reporting program requirements) or state law or policy, both hospitals are committed to reporting all SSIs following the type of operation performed on the patient. Hospital B seeks to report the SSI to Hospital A, where the SSI is presumed to have originated, so that Hospital A can fully account for SSIs attributable to its care.

Answer Two

The HIPAA Privacy Rule permits a covered entity to use or disclose PHI for certain "health care operations" purposes without the authorization of the patient. 45 CFR 164.506(c). This includes a covered entity disclosing PHI to another covered entity for certain purposes if each entity either has or had a relationship with the individual who is the subject of the information, and the PHI being disclosed pertains to the relationship. 45 CFR 164.506(c)(4). Of relevance here, disclosures are permitted for the purpose of the covered entity receiving the information "conducting quality assessment and improvement activities; . . . population-based activities relating to improving health [and] protocol development." 45 CFR 164.501 (definition of "health care operations"). Only the minimum amount of PHI necessary for the particular health care operations purpose may be disclosed.

The disclosures discussed above are health care operations disclosures that are permitted under the HIPAA Privacy Rule. In these scenarios we assume that the hospitals sharing the PHI, the ambulatory

surgical care facility, and the surgeon are all HIPAA covered entities. The hospitals disclosing the PHI would be sharing information regarding a patient who the surgical facilities (either the ambulatory care facility or the hospital) and/or surgeon had treated, and the communication is in regard to the treatment that had been provided. The disclosures are so that the surgical facilities and/or surgeon can monitor and improve the quality of care provided. This falls under "conducting quality assessment and improvement activities," and perhaps "population-based activities relating to improving health," and/or "protocol development." In these scenarios, information regarding the patient with an SSI can be shared with the surgical facilities and/or surgeon. While only the minimum amount of information regarding the patient may be disclosed, in these scenarios the identity of the patient may be shared because it is needed to investigate the cause of the infections (for example, the dates and locations of care, and the staff involved.) There is likely to be no need to share health information regarding these patients that is unrelated to investigating the SSI.

For additional information regarding disclosures for treatment and healthcare operations purposes, see: http://www.hhs.gov/ocr/privacy/hipaa/understanding/coveredentities/usesanddisclosuresfortpo.html.