

## Appendix 1: Facility Self-validation Guidance

*By following these simple steps, facilities can help assure the accuracy, reliability and quality of data reported to NHSN.*

Validation component	Items to review	Suggested method
Annual surveillance and validation plan	<ul style="list-style-type: none"> <li>• Patient care locations where CLABSI and CAUTI surveillance is planned</li> <li>• Types of surgical procedures followed for SSI surveillance</li> <li>• Sources of information for surgical procedures, surgical readmissions, and post-discharge surveillance</li> <li>• Source of inpatient admissions and patient days as defined for LabID Event</li> <li>• Laboratory capacity to produce specified line listings by location or house-wide</li> <li>• Ability to link laboratory and admissions/discharges/transfer (ADT) data</li> <li>• IT support, especially if electronic reporting will be introduced</li> <li>• Training needs:               <ul style="list-style-type: none"> <li>○ Staff training for denominator counting: CLABSI, CAUTI</li> <li>○ Staff training for NHSN surgical procedure reporting</li> <li>○ NHSN training updates and case-studies for NHSN reporters</li> </ul> </li> </ul>	<ol style="list-style-type: none"> <li>1. On an annual basis consider plans for internal validation/quality assurance as you plan surveillance activities including:           <ol style="list-style-type: none"> <li>a. Staffing and training needed for quality data collection</li> <li>b. Plan for staff training and assessment</li> <li>c. Consider whether burden of manual data collection justifies establishing and validating electronic denominator reporting for any HAIs</li> <li>d. Assess adequacy of facility infrastructure, EMR or vendor systems, and practices for documenting device use, placement, and removal</li> <li>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</li> <li>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</li> </ol> </li> </ol>

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Facility and location information reported to NHSN	Facility level information reported to NHSN <ul style="list-style-type: none"> <li>• Teaching hospital status</li> <li>• Number of facility beds</li> </ul>	<ol style="list-style-type: none"> <li>1. The NHSN Patient Safety Component includes separate annual surveys for hospitals (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).               <ol style="list-style-type: none"> <li>a. On an annual basis, review and confirm that teaching status and number of beds (ICU vs. all other inpatient location beds) is accurate (see below).</li> </ol> </li> </ol>
	Patient location level mapping information reported to NHSN <ul style="list-style-type: none"> <li>• Facility location label and CDC location description</li> <li>• The number of beds reported for ICU and non-ICU location types</li> </ul>	<p>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;</p> <ol style="list-style-type: none"> <li>1. The CDC location label assigned meets the CDC 80% rule for the assigned CDC location description (See NHSN Manual, Chapter 15, <a href="http://www.cdc.gov/nhsn/PDFs/pscManual/15LocationsDescriptions_current.pdf">http://www.cdc.gov/nhsn/PDFs/pscManual/15LocationsDescriptions_current.pdf</a>). Note: for 2013, NHSN mapping guidance was updated, and detailed instructions were created to assist with facility-wide mapping, in recognition of CMS Inpatient Quality Reporting requirements for LabID Event surveillance.</li> <li>2. The combined number of ICU beds and non-ICU beds is correct.</li> </ol>
CLABSI and CAUTI denominator data	Patient days, central line days, and indwelling (Foley) catheter days.	<ol style="list-style-type: none"> <li>1. <b>Regardless of type of denominator data collection (manual or electronic);</b> <ol style="list-style-type: none"> <li>a. For CLABSI and CAUTI denominator data assure that each month is correctly listed as in-plan</li> <li>b. For each in-plan month assure that denominator data (patient days, central line days, and catheter days) have been entered into NHSN</li> </ol> </li> <li>2. <b>If manual denominator data collection is used;</b> <ol style="list-style-type: none"> <li>a. Assure that staff members collecting denominator data know correct NHSN procedures and definitions for this task and are following the NHSN protocol <a href="http://www.cdc.gov/nhsn/PDFs/pscManual/4PSC_CLABScurrent.pdf">http://www.cdc.gov/nhsn/PDFs/pscManual/4PSC_CLABScurrent.pdf</a>. Appendix 2.3 of this document contains a survey that may be adapted for evaluation of denominator collection practices for CLABSI and CAUTI denominators.</li> <li>b. Conduct internal validation of manual denominator data periodically (e.g. for one week annually in each surveillance location and for newly trained denominator counting personnel) by either concurrent dual assessment of denominator data and/or by concurrent independent patient-level data collection (e.g. room number, room occupied, patient name/MRN, central line present or absent). The IP should review the</li> </ol> </li> </ol>

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		<p>corresponding data to determine if standard data collection is correct and compliant with NHSN protocols for the patient location (e.g., 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 internal validation, or may assess staff knowledge and practices.</p> <p>c. Periodically assess completeness and reliability of denominator data collected/reported to NHSN. Using denominator logs calculate % of days per year that:</p> <ul style="list-style-type: none"> <li>i. patient days were not collected</li> <li>ii. central line days were not collected</li> <li>iii. Be prepared to share your data logs and analysis with reviewers during external validation</li> </ul> <p><b>3. If electronic data capture is used;</b></p> <p>a. The NHSN CLABSI protocol states “when denominator data are available from electronic databases these sources may be used <u>as long as the counts are not substantially different (+/- 5%) from manually-collected counts.</u>” (<a href="http://www.cdc.gov/nhsn/PDFs/pscManual/4PSC_CLABScurrent.pdf">http://www.cdc.gov/nhsn/PDFs/pscManual/4PSC_CLABScurrent.pdf</a>). This guideline is important because unexamined electronic counts may be seriously flawed and can be difficult to align with NHSN reporting definitions. For each location where electronic databases are used to obtain counts of patients days and/or device days, determine if initial data validation was performed according to this guidance. If electronic counts were <u>not</u> 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 months.</p> <p>b. 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:</p> <ul style="list-style-type: none"> <li>i. Vigilance for aberrant data that could result from changes to electronic medical records or related systems</li> <li>ii. Periodic spot checks of electronic data to assure continued good performance</li> </ul> <p>c. A report of successful alignment of electronic denominator counting at two related facilities has recently been published (Tejedor SC, et al. Infect Control Hosp Epidemiol</p>

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		2013; 34:900-907).
CLABSI and CAUTI numerator data	Complete ascertainment of candidate CLABSIs and candidate CAUTIs in surveillance locations	<ol style="list-style-type: none"> <li>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.</li> <li>2. Consider documentation of surveillance decisions, e.g.: <ol style="list-style-type: none"> <li>a. Keep a record/line-listing of positive blood cultures and decisions with regard to CLABSI particularly in surveillance locations. Patients without a recent central line can quickly be eliminated from consideration for CLABSI. For any positive blood cultures 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 blood culture 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.</li> <li>b. Keep a record/line-listing of positive urine cultures and decision making with regard to CAUTI, particularly in surveillance locations. Patients without a recent or current indwelling urinary (Foley) 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, SUTI2a, SUTI3 or SUTI4), document the urinary tract infection (UTI), presence or absence of an indwelling urinary catheter, why you consider the culture HA or non-HA, and whether or not the event was reported as CAUTI to NHSN.</li> </ol> </li> <li>3. Periodically assure that all positive blood and urine cultures have been reviewed by requesting surveillance location line list for comparison to the record.</li> </ol>
SSI denominator data	Surgical procedures under NHSN surveillance for SSI	<ol style="list-style-type: none"> <li>1. Regardless of type of denominator data collection (manual or electronic); <ol style="list-style-type: none"> <li>a. As part of annual surveillance and validation planning determine which surgical procedures will be reported to NHSN, whether inpatient or outpatient or both, and note the assigned surveillance period (30 or 90 days) for each procedure.</li> <li>b. Identify all primary sources of information about procedures for which you will conduct surveillance. For many facilities this will be the OR records system. It may be useful to identify one or more secondary data sources (e.g. ICD-9-CM hospital discharge procedure codes) that can be used to cross-link to or validate the magnitude of data deriving from the OR system data stream.</li> <li>c. It is prudent to scrutinize the list of ICD-9-CM procedure codes (and/or CPT codes) used by the OR system to identify procedures of interest for completeness. Failure to include</li> </ol> </li> </ol>

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		<p>one or more specified codes for designated procedures in the denominator can lead to the appearance of falsely higher SSI rates.</p> <p>d. Assure that all persons screening surgical procedures prior to data entry are familiar with the 2013 definition for primary closure  <a href="http://www.cdc.gov/nhsn/pdf/pscmanual/errata2013.pdf">http://www.cdc.gov/nhsn/pdf/pscmanual/errata2013.pdf</a>.</p> <p>2. If either manual or electronic denominator data entry is used;</p> <p>a. Manual data entry is subject to keystroke errors, omissions, and duplications during data entry , and thus data validation may include double checking of multiple data elements by two persons (one reading the OR record, and one reading the NHSN record)</p> <p>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</p> <p>i. Double checking of procedure record completeness by two persons ( e.g., one reading the OR record list and one reading the NHSN record list)</p> <p>ii. Monthly NHSN analysis prior to data transmission to check for duplicate procedure entry, consistency and logical quality of entered data, (e.g., unusual ASA scores or duration of procedures), with investigation and resolution of outliers</p> <p>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-9-CM procedure code)</p> <p>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</p>
SSI Event numerator data	Sources of information for surgical infection events and surgical readmissions	<ol style="list-style-type: none"> <li>1. Identify information sources to identify infections among post-operative surgical inpatients, e.g. pharmacy, laboratory, and/or microbiology data</li> <li>2. Assure identification of surgical readmissions during the post-operative surveillance window and screen for infection as a cause of re-admission</li> <li>3. Optimize post-discharge surveillance methods Cooperate with other facilities to notify one another of SSIs following procedures at another facility</li> </ol>
	Complete ascertainment of candidate SSIs post-op, whether in hospital or	<ol style="list-style-type: none"> <li>1. Assure a mechanism to routinely identify surgical readmissions and complete post-discharge surveillance during the 30-day SSI surveillance window following COLO and HYST procedures.</li> </ol>

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	after discharge	<ol style="list-style-type: none"> <li>Investigate options for optimal post-discharge SSI surveillance, including cross-facility communications and reporting of SSIs identified by other facilities. Multiple networked surveillance modalities (e.g., 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 may be asked to complete the NHSN SSI report form and provide it to the facility responsible for filing the report in NHSN.</li> </ol>
LabID Event denominator data	NHSN inpatient admissions and patient days must include observation patients who are located in inpatient locations	<ol style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>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. 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.</li> </ol>
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.	<ol style="list-style-type: none"> <li>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 to infection control. <ol style="list-style-type: none"> <li>NOTE: For LabID Event, laboratory tests taken on the day of admission in facility-associated outpatient locations (e.g., ED) should be included for accurate tracking of CO LabID Events.</li> </ol> </li> <li>Consider periodic internal auditing e.g. duplicate auditor abstraction of candidate events</li> </ol>