California Hospital Internal Data Validation

Overview, Instructions, and Validation Forms

July 2024

California Department of Public Health
Healthcare-Associated Infections Program

Preface

This workbook contains all necessary information, instructions, and forms needed by hospital infection prevention program staff to successfully complete the CDPH HAI Program Validation process for 2024.

Important Acronyms and Abbreviations

CDI	*Clostridioides difficile* Infection
CLABSI	Central Line-Associated Bloodstream Infection
CDPH	California Department of Public Health
COLO	Colon Surgery procedure
FUSN	Spinal Fusion procedure
HAI	Healthcare-Associated Infection
IP	Infection Preventionist
LIS	Laboratory Information System
MRSA	Methicillin-Resistant *S. aureus*
NHSN	National Healthcare Safety Network
SSI	Surgical Site Infection

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Overview

The California Department of Public Health (CDPH) Healthcare-Associated Infections (HAI) Program is offering data validation in 2024 to help hospitals assess the completeness of HAI case findings for CDI, CLABSI, bloodstream infections due to MRSA, and SSI's. This data validation has three primary objectives:

1. Gain a better understanding of hospital surveillance processes for case findings.
2. Assess understanding and application of NHSN protocols and definitions.
3. Improve quality, consistency, and accuracy of HAI surveillance and reporting and hospital unit location mapping.

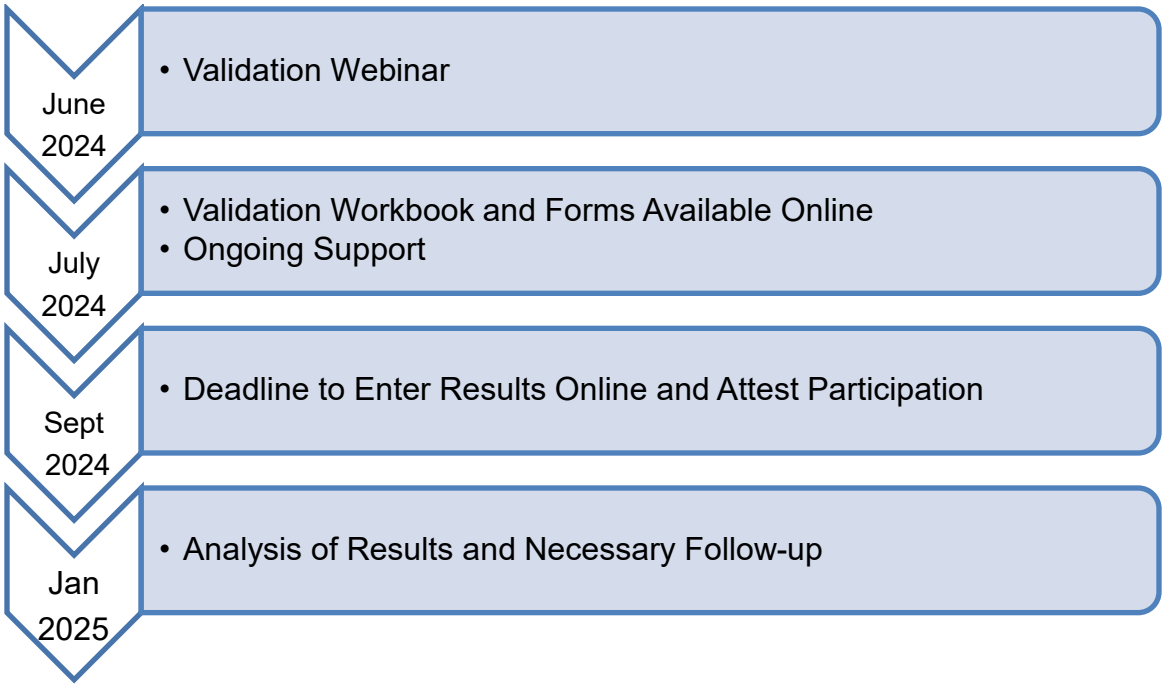
Hospitals can benefit from all objectives of the validation process. Past validation projects have shown incomplete case finding in many California hospitals. By assessing HAI case finding in 2024, hospital infection prevention program staff will be able to review and refine their surveillance practices, as well as correct reporting errors discovered during validation.

Validation Information

While validation is a voluntary process, hospital participation or nonparticipation and follow up will be noted in the annual CDPH HAI public report**.** Attestation that your hospital has completed the validation and a summary of your 2024 validation results will be requested from each participating facility via an online survey.

This validation process is self-directed, but guidance is available from the HAI Program Validation Support Team, a multidisciplinary group with expertise in HAI data, reporting, surveillance, and prevention. The team can be reached at HAIProgram@cdph.ca.gov. "

Timeline



PREPARING FOR VALIDATION

The following reports must be prepared in advance for use during the validation process

Please note that data mining software programs are not appropriate for generating the type of information needed for this process:

CLABSI and MRSA BSI Validation

1. Generate a report from your Laboratory Information System (LIS) containing all final positive blood cultures during the first quarter of 2024 (January 1 – March 31) from all inpatients and Emergency Department (ED) patients. This list should include:
    a. Patient name and/or Medical Record Number (MRN)
    b. Organism identified
    c. Date of specimen collection
    d. Location at the time of collection
    e. Date of admission
2. Sort this list by patient name or MRN
3. Number each event and randomly select 20 patients to review.

CDI Validation

1. Generate a report from your LIS containing all **FINAL** positive *Clostridioides difficile* (*C. diff.)* test results (assay or PCR results) during the first quarter of 2024 (January 1 – March 31) from all inpatients and ED patients.

   NOTE: Please use the final test result if your facility utilizes a multi-step testing approach for CDI reporting in NHSN.

   This list should include:
    a. Patient name and/or MRN
    b. Date of specimen collection
    c. Location at the time of collection
    d. Date of admission

2. Sort this list by patient name or MRN
3. Number each event and randomly select 20 patients to review.

SSI Validation

1. Identify all patients who had each of the two inpatient procedures (COLO, FUSN) performed in the first quarter of 2024 (January 1 – March 31). To do this, perform a “look back” using hospital billing data to find all patients with an NSHN defined ICD-10 surgical procedure code (ICD-10-PCS) (MS Excel spreadsheet via www.cdc.gov/nhsn/xls/icd10-pcs-pcm-nhsn-opc.xlsx)
2. Save these procedure lists for your reference. Ensure every procedure identified has been reported to NHSN.
3. For each patient identified in STEP 1, use hospital billing data to identify the subset of patients that had one or more ICD-10-CM diagnosis “flag” codes (please see Appendix A, Table 1) during the specified postoperative period. These flag codes identify patients that MIGHT have had an SSI and help determine which medical records to review for validation.

4. Your billing or medical records office needs to query the billing data to look for diagnosis flag codes during the index surgical admission and any admission up to:
    i. **40 days** after surgical procedure for colon surgery
        - Note: This would include a review up to 5/10/2024 if a surgery was performed on the final day of the first quarter (i.e., 3/31/2024)
    ii. **100 days** after surgical procedure for spinal fusion
        - Note: This would include a review up to 7/09/2024 if a surgery was performed on the final day of the (i.e., 3/31/2024)

5. Create a separate line list for each procedure type from the flagged procedures identified in STEP 3. Sort the lists by patient name or medical record number. The lists should contain the following:
    a. Patient name and/or medical record number
    b. The ICD-10-CM diagnosis code or codes flagging the record
    c. Original procedure date
    d. Discharge date of the original procedure
    e. Date of readmission (if applicable)

NHSN Event Line List Reports

Using NHSN, generate event line lists for the first quarter of 2024 (January 1– March 31) for the following HAI and LabID event types:

a. CLABSI
b. CDI
c. MRSA BSI
d. SSI (COLO, FUSN)

The Lists should contain the following:

i. Patient name and/or MRN
ii. Location at the time of collection
iii. Date of admission
iv. Date of event
v. Organism identified (*for CLABSI and MRSA BSI only*)

Line List Examples

See the examples below regarding the required Line List format:

Table 1. CLABSI Line List

Patient Name	Medical Record	Organism	Event Date	Location	Admit Date
Lopez, Mary	243546	*Enterococcus faecalis*	2/2/24	MS2	1/17/24
Doe, John	123456	*Staph. aureus* – methicillin resistant	1/17/24	ER	1/1724
Doe, John	123456	*Candida albicans*	1/24/24	MS1	1/17/24
Principle, Peter	132435	*Klebsiella oxytoca*	3/14/24	ICU	2/1/24
Little, Joe	654321	Micrococcus sp.	2/21/24	ICU	2/21/24

Line List Examples (cont.)

Table 2. Positive C. diff Test

Patient Name	Medical Record	Event Date	Location	Admit Date
Contrari, Mary	243546	2/2/24	MS2	1/17/24
Doe, John	123456	01/27/24	MS1	1/17/24
Doe, John	123456	01/30/24	MS1	1/17/24
Principle, Peter	132435	3/14/24	ICU	2/1/24
Schmo, Joe	654321	2/21/24	ER	2/21/24

Table 3. Colo Flag Codes

Patient Name	Medical Record	ICD-10-CM "Flag" Codes	Procedure Date	Discharge Date
Contrari, Mary	243546	998.59	2/2/24	1/17/24
Doe, John	123456	998.59, 54.19	1/24/24	1/17/24
Doe, Jane	234561	998.32	1/24/24	1/17/24
Principle, Peter	132435	998.32, 567.29, 54.11	3/14/24	2/1/24
Schmo, Joe	654321	998.31	2/21/24	2/21/24
Note: When validating SSI, some COLO and FUSN procedures may have one or more flagged codes (as shown for COLO in this line list example)				

CLABSI VALIDATION INSTRUCTIONS

STEP 1: Refer to the report generated from your laboratory information system containing all final positive blood cultures (**BC**) during the first quarter of 2024 (January 1 – March 31) from all inpatients and emergency department patients. Also refer to the NHSN line list of CLABSI Events reported by your hospital for the 3-month validation review period (January - March 2024).

STEP 2: Using the lab line list sorted by name, number each positive blood culture on your lab line list as 1, 2, etc. (number each one individually, not as BSI events or clusters)

To determine which blood cultures to review:

- If the number of blood cultures is **>0 and ≤20**, number all blood cultures 1 through 20 (as appropriate)
- If the number of blood cultures is **>20**, divide the total by 20 (total **BC**/20= *n*), and select every n^{th} event for review, numbering 1 through 20

STEP 3: Indicate the total number of positive blood cultures _____

Indicate the number of positive, separate BSI events* _____ [Include in CLABSI Review]

***Event =** "Cluster" of positive blood cultures near same date for same patient counts as 1 event; single positive blood cultures also count as 1 event

STEP 4: Enter each positive culture (e.g., 1, 2) to the corresponding CLABSI Validation Form (**Form 1**) in Appendix B. Make sure to include the date the specimen was collected.

STEP 5: From your lab line list, for **each** positive blood culture, indicate the hospital unit where the specimen was collected.

STEP 6: For each numbered blood culture, answer Question 1 (Q1) by referring to your NHSN line list. For cases reported to NHSN, record the NHSN Event number.

STEP 7: For each CLABSI event reviewed, determine that <u>the location of attribution</u> has been **accurately mapped** in NHSN.

STEP 8: Using the patient information on the lab line list (i.e., name or medical record number), for each numbered blood culture, review each patient's medical record to verify your decision to report each case, or not report it, to NHSN. Carefully follow NHSN CLABSI protocols/definitions.

- For each blood culture **NOT** reported to NHSN (i.e., <u>Q1 answer is "No"</u>), indicate the reason why in the appropriate column. If the case should have been reported but was not, record it as missed and provide a reason.
- For each blood culture **Reported** to NHSN (i.e., <u>Q1 answer is "Yes"</u>), verify if the case met inpatient CLABSI criteria. If each case does meet the criteria, compare the specimen date, admission, and location as reported on the NHSN line list in order to verify accuracy. Next, check the box indicating the case was correctly reported. If the case was **reported in error**, indicate a reason for the error in the appropriate column.

STEP 9: Sum the columns and keep this form on hand as it will be used to populate the Summary of Findings form.

MRSA BSI VALIDATION INSTRUCTIONS

STEP 1: Refer to the report generated from your laboratory information system containing all final positive blood cultures (**BC**) during the first quarter of 2024 (previously used for CLABSI validation). Also refer to the NHSN line list of MRSA BSI Events reported by your hospital for the 3-month validation review period (January – March 2024).

STEP 2: Using the lab line list sorted by name, number each positive MRSA blood culture on your list as M1, M2, M3, etc. (number each blood culture individually, not as BSI events or clusters). To determine which blood cultures to review:

- If the number of blood cultures is **>0 and ≤20**, number all blood cultures 1 through 20 (as appropriate)
- If the number of blood cultures is **>20**, divide the total by 20 (total **BC**/20= *n*), select every n^{th} event for review, numbering 1 through 20. **Review maximum of 20 events only.**

STEP 3: From the positive **blood cultures**, indicate:
The total number of MRSA positive blood cultures_____ [Include in MRSA BSI Review]

STEP 4: Enter each positive blood culture (i.e., M1, M2) to the corresponding MRSA BSI Validation Form (**Form 2**) in Appendix B. Make sure to include the date the specimen was collected.

STEP 5: From your lab line list, for **each** MRSA positive blood culture, indicate the hospital unit where the specimen was collected.

STEP 6: For each numbered blood culture, answer Question 1 (Q1) by referring to your NHSN line list. For cases reported to NHSN, record the NHSN Event number.

STEP 7: For each MRSA BSI event reviewed, determine that the location of attribution has been **appropriately mapped** in NHSN.

STEP 8: Using the patient information on the lab line list (i.e., name or medical record number), for each numbered blood culture, review each patient's medical record to verify your decision to report each case, or not report it, to NHSN. Carefully follow NHSN MDRO LabID protocols/definitions.

- For each blood culture **NOT** reported to NHSN (i.e., Q1 answer is "No"), indicate the reason why in the appropriate column. If the case should have been reported but was not, record it as missed and provide a reason.
- For each blood culture **Reported** to NHSN (i.e., Q1 answer is "Yes"), verify if the case met inpatient LabID criteria. If each case does meet the MDRO LabID criteria, compare the specimen date, admission, and location as reported on the NHSN line list in order to verify accuracy. Next, check the box indicating the case was correctly reported. If the case was reported in error, indicate a reason for the error in the appropriate column.

STEP 9: Sum the columns and keep this form on hand as it will be used to populate the Summary of Findings form.

CDI VALIDATION INSTRUCTIONS

STEP 1: Refer to the report generated from your laboratory information system containing all **FINAL** positive *C. difficile* test results **(assays or PCR results; *please validate results from whichever CDI testing method is utilized as the final test result for reporting in NHSN*)** during the first quarter of 2024 (January 1 – March 31) from all inpatients and emergency department patients. Also refer to the NHSN line list of CDI Events reported by your hospital for the 3-month validation review period (January – March 2024).

STEP 2: Using the lab line list sorted by name, number each positive *C. difficile* test result on your lab line list as C1, C2, C3, etc. (number each test result individually, not as BSI events or clusters).

To determine which positive results to review:

- If the number of positive results is **>0 and ≤20**, number all *C. difficile* positive test results 1 through 20 (as appropriate)
- If the number of positive *C. difficile* test results is **>20**, divide the total by 20, and select every n^{th} event for review, numbering 1 through 20

STEP 3: Indicate the total number of positive *C. difficile* test results _____ [Include in CDI Review]

STEP 4: Enter each positive *C. difficile* positive test result (e.g., C1, C2) to the corresponding CDI Validation Form (**Form 3**) in Appendix B. Make sure to include the date the specimen was collected.

STEP 5: From your lab line list, for **each** *C. difficile* positive test result, indicate the hospital unit where the specimen was collected.

STEP 6: For each numbered test result below, answer Question 1 (Q1) by referring to your NHSN line list. For cases reported to NHSN, record the NHSN Event number.

STEP 7: For each CDI event reviewed, determine that the location of attribution has been appropriately mapped in NHSN.

STEP 8: Using the patient information on the lab line list (i.e., name or medical record number), for each numbered test result, review each patient's medical record to verify your decision to report each case, or not report it, to NHSN. Carefully follow NHSN protocols/definitions.

- For each positive *C. difficile* test **NOT** reported to NHSN (i.e., Q1 answer is "No"), indicate the reason why in the appropriate column. If the case should have been reported but was not, record it as missed and provide a reason.
- For each positive *C. difficile* test **Reported** to NHSN (i.e., Q1 answer is "Yes"), verify if the case met inpatient LabID criteria. If each case does meet the LabID criteria, compare the specimen date, admission, and location as reported on the NHSN line list in order to verify accuracy. Next, check the box indicating the case was correctly reported. If the case was reported in error, indicate a reason for the error in the appropriate column.

STEP 9: Sum the columns and keep this form on hand as it will be used to populate the Summary of Findings form.

SSI VALIDATION INSTRUCTIONS

The 2024 SSI data validation has two objectives:

1. Assess surveillance practices to improve SSI case finding
2. Assess the accuracy of surgical denominator data elements reported to NHSN

Hospitals can benefit from both objectives of the validation process. Past validation projects have shown incomplete case finding in many California hospitals. By assessing SSI case finding in 2024, hospital infection prevention program staff will be able to review and refine their surveillance practices, as well as correct reporting errors discovered during validation.

Denominator data elements are known risk factors for surgical site infections and are used for risk adjustment when NHSN calculates standardized infection ratios (SIR). Reporting accurate denominator data elements allows NHSN to calculate more accurate SSI SIRs for your hospital. SSI validation will allow hospital staff to better assess their true SSI incidence, which is critical to measuring progress over time and directing prevention activities with greater confidence. The processes are designed to be easily incorporated into regular surveillance practices, so hospitals can sustain the gains made from validation.

Validation Process Summary

- List all colon surgery and spinal fusion procedures performed in the first quarter of 2024
- Use postoperative ICD-10-CM diagnosis "flag" codes to identify records with high likelihood of SSI for review.
- Review all identified records for SSI (*including subsequent admissions during the corresponding SSI surveillance period*).
- Review the following denominator data elements for accuracy for all two procedures:
  - Surgical duration
  - American Society of Anesthesiologists (ASA) Score
  - Wound Class
- Complete Validation **Forms 4 – 5** in Appendix B
- Record final results and perform calculations in "Summary of Findings" section
- Submit data from Summary of Findings to the CDPH HAI Program via online submission form

In this section refer to the two flagged procedure lists and the SSI Event line lists produced in STEP 3 & STEP 4 of Preparing for Validation. You will also need to refer to NHSN procedure data.

STEP 1: To determine which procedures to review, for EACH of the two flagged procedure lists

- If the number of flagged procedures is **>0 and ≤10**, number all flagged procedures 1 through 10 (as appropriate)
- If the number of flagged procedures is **>10**, divide the total by 10, and select every n^{th} event for review, numbering 1 through 10

Note: If the total number of records flagged for review (across both procedure types) are **less than 20**, complete the Denominator Data Supplemental Validation Form (**Form 6**) in Appendix B.

STEP 2: Record the following data (*see table on next page*). You will include this in the Review of Findings section at the end of this workbook and report these numbers to the CDPH HAI Program.

	Total number of procedures in first quarter of 2024	Number of procedures identified through ICD-10-CM "Flag" codes	Number of "Flagged" procedures reviewed for validation of given SSI type[1]
COLO			
FUSN			

[1] **NOTE:** ***Please do not include number of procedures reviewed during supplemental denominator data validation*** **in the third column, only enter the number of flagged procedures reviewed as a potential reportable SSI event within NHSN (i.e., ≤10 procs.).**

STEP 3: Enter each procedure identified and numbered in STEP 1 to the corresponding SSI validation form in Appendix B, filling in applicable information (i.e., date of surgery, etc.).

- Enter COLO SSI data in **Form 4**
- Enter FUSN SSI data in **Form 5**

STEP 4: For each procedure numbered in STEP 1, review each patient's medical record to verify your decision to report or not report an SSI to NHSN. Carefully follow NHSN protocols/definitions as defined in Chapter 9 of the Patient Safety Component Manual. Refer to the SSI Event line list and NHSN procedure data where necessary.

Complete the following sections in **Forms 4 – 5.**

- Was NHSN SSI criteria met? (If yes, indicate superficial, deep or organ/space SSI)
- Was SSI reported to NHSN? (If yes, indicate NHSN Event #)
- Was an SSI **Reported Correctly**? (i.e., the event met NHSN SSI criteria and was reported as an SSI prior to validation.)
- For those records where no SSI was reported to NHSN, indicate if:
  - Event **did not meet NHSN criteria**
    OR
  - SSI was **MISSED** (i.e., did meet NHSN SSI criteria but was not reported)
- Record selected denominator data elements for each procedure type using both patient medical records and NHSN procedure data.
  - Note: To locate denominator data in NHSN you may choose to look up individual procedure records directly in NHSN. Another option is to produce an NHSN procedure line list with all necessary elements. Detailed instructions for doing this are available in **Appendix C**.
- Indicate if the denominator data were reported accurately (**Table 4**)

Table 4: Criteria for Accurate Reporting

Data Element:	Accurate if:
ASA Score	ASA scores agree
Duration	< 10-minute discrepancy
Wound class	Wound classes agree

STEP 5: Total the columns indicated at the bottom of each form. Keep this form on hand as it will be used to populate the Summary of Findings section.

STEP 6: Follow instructions in the Summary of Findings section to fill in the tables. We recommend populating each row in its entirety before continuing on in order to ensure data are reported for the correct procedure type. The tables and forms are color-coded for your convenience. Calculations can be rounded to the nearest whole number.

STEP 7: Submit your results from the Summary of Findings section to the CDPH HAI Program via an online form (redcap.link/CDPH_InternalValidation2024). The link to the form will be made available July 3, 2024.

2024 Validation – Summary of Findings

CLABSI, LabID Data

Type of Event	Number of Missed Events That Were Identified during Validation (Note: Report to NHSN)	Number of Events Correctly Reported to NHSN Prior to Validation	Total Number of Events Reviewed During Validation That Meet NHSN Definitions	Case-finding Percentage	Total Number of Events Reviewed Where Unit Identified as Accurately Mapped in NHSN Prior to validation
	A	B	Sum: A+B = C	(B/C) x 100%	D
Example	2 A	16 B	2 + 16 = 18 C	16 /18 x 100% = 89%	14 D
CLABSI	A	B	C		D
MRSA BSI	A	B	C		D
CDI	A	B	C		D

SSI HAI Data

Please enter data from cases reviewed that were identified with diagnostic "flag" codes only*

Procedure Type	No. Of Flagged Procedures REPORTED Correctly as SSI event into NHSN prior to validation A	No. of Flagged Procedures that did NOT meet NHSN criteria as SSI event B	No. of MISSED SSIs identified during validation C	Total SSIs reviewed during validation that meet NHSN criteria Sum: A+C=T	Case-finding Percentage (A/T)) x 100%
Example	3 A	5 B	1 C	3 + 1 = 4 T	3 /4 x 100% = 75%
SSI COLO	A	B	C	T	
SSI FUSN	A	B	C	T	

2024 Validation – Summary of Findings

Summary of Surgical Denominator Data Elements

Report the number of procedures reviewed during validation (N) for each procedure type. Use the totals from the SSI Validation Forms in Appendix A (Forms 4-5), as well as the Supplemental Form 6 (if applicable) to fill in the indicated cells (marked D & E). Cells marked N/A are not applicable; write nothing in these. Calculate the percentage of surgical procedures with accurately reported denominator data using formulas below:

		ASA Score		Duration		Wound Class	
Procedure Type	No. of procedures reviewed during validation N	No. where ASA Score agree D	**Percent with accurate ASA Score** D/N x 100%	No. where duration agree (Discrepancy <10 min.) E	**Percent with accurate duration** E/N x 100%	No. where wound class agree F	**Percent with accurate wound class** F/N x 100%
Example:	9	7	7/9 x 100% = 78%	8	8/9 x 100% = 89%	5	5/9 x 100%=56%
COLO	N	D		E		F	
FUSN	N	D		E		F	
Supplemental Form	N	D		E		F	

Save this form; results will be submitted to the CDPH HAI Program via an online form

Next Steps

- Enter your Summary of Findings (**pages 14-16**) into the online survey tool: (redcap.link/CDPH_InternalValidation2024)
- Ensure the surveillance methods used during validation to identify missed events, misreported surgical denominator data elements, and inaccurately mapped hospital units will be incorporated into ongoing surveillance practices
- Verify that identified missed cases of HAIs, misreported surgical denominator data elements, and inaccurately mapped hospital units during 2024 Internal Validation **have been corrected in NHSN upon completion of validation**
- Hospitals with **less than 85% case finding** in a specific HAI category may want to consider repeating the validation process for the HAI using data from the third and fourth quarters of 2024
- External validation will be conducted for a select number of hospitals during the third quarter of 2024.
- Data will be aggregated and analyzed and results communicated on regional hospital IP calls and to the California HAI Advisory Committee
- Individualized validation reports to be shared with each hospital

Appendix A: Surgical Site Infection ICD-10-CM Diagnostic "Flag" Codes and Denominator Data Element Definitions

Table 1: ICD-10-CM Diagnostic "Flag" Codes by Surgery Type

Colon Surgery	K63.0, K63.2, K65.0, K65.1, K68.19, K94.02, K94.12, L03.319, T81.12XA, T81.12XD, T81.12XS, T81.31XA, T81.31XD, T81.31XS, T81.32XA, T81.32XD, T81.32XS, T81.40XA, T81.40XD, T81.40XS, T81.41XA, T81.41XD, T81.41XS, T81.42XA, T81.42XD, T81.42XS, T81.43XA, T81.43XD, T81.43XS, T81.44XA, T81.44XD, T81.44XS, T81.49XA, T81.49XD, T81.49XS
Spinal Fusion	T81.12XA, T81.12XD, T81.12XS, T81.31XA, T81.31XD, T81.31XS, T81.32XA, T81.32XD, T81.32XS, T81.40XA, T81.40XD, T81.40XS, T81.41XA, T81.41XD, T81.41XS, T81.42XA, T81.42XD, T81.42XS, T81.43XA, T81.43XD, T81.43XS, T81.44XA, T81.44XD, T81.44XS, T81.49XA, T81.49XD, T81.49XS, T85.79XA, T85.79XD, T85.79XS

Appendix A (*cont.*):

Denominator Data Element Definitions

This appendix section contains explanations of the three denominator data elements being validated in 2024: duration, wound class, and ASA score. Any text that appears in a box is a direct quote from Chapter 9 of the NHSN Patient Safety Component Manual. All other text is added by CDPH HAI Program staff for clarity.

Duration

The NHSN Patient Safety Component Manual definition for this element is:

> Duration of operative procedure: The interval in hours and minutes between the Procedure/Surgery Start Time, and the Procedure/Surgery Finish Time, as defined by the Association of Anesthesia Clinical Directors (AACD):
> - Procedure/Surgery Start Time (PST): Time when the procedure is begun (e.g., incision for a surgical procedure).
> - Procedure/Surgery Finish (PF): Time when all instrument and sponge counts are completed and verified as correct, all postoperative radiologic studies to be done in the OR are completed, all dressings and drains are secured, and the physicians/surgeons have completed all procedure related activities on the patient.

For validation purposes, duration recorded in NHSN and duration determined from medical record review should match exactly or have less than a 10-minute discrepancy in order to report “durations agree.” The 10-minute discrepancy criterion was chosen for its relevance in risk adjustment models.

Wound Class

The NHSN Patient Safety Component Manual definition for this element is:
Wound class: An assessment of the degree of contamination of a surgical wound at the time of the operation. Wound class should be assigned by a person involved in the surgical procedure (e.g., surgeon, circulating nurse, etc.). The wound class system used in NHSN is an adaptation of the American College of Surgeons wound classification schema.

There are a group of NHSN procedures that can never be coded as clean. NHSN reached the decision regarding which NHSN operative procedures can never be classified as clean based on feedback from external experts in the field of surgery.

The procedures that can never be entered as clean are: APPY, BILI, CHOL, COLO, REC, SB and VHYS. Therefore, for these procedures in the application clean is not an option on the dropdown menu.

For all other procedures, clean is available as a choice and if the surgical team deems the procedure to be clean, it can be entered as such into the NHSN application. For example, HYST, CSEC or OVRY can be a clean wound class if documented as such. Wounds are divided into four classes:

1. **Clean**: An uninfected operative wound in which no inflammation is encountered and the respiratory, alimentary, genital, or uninfected urinary tracts are not entered. In addition, clean wounds are primarily closed and, if necessary, drained with closed drainage. Operative incisional wounds that follow nonpenetrating (blunt) trauma should be included in this category if they meet the criteria.

   Note: The clean wound classification level will not be available for denominator data entry for the following NHSN operative procedure categories: APPY, BILI, CHOL, COLO, REC, SB, and VHYS
2. **Clean-Contaminated**: Operative wounds in which the respiratory, alimentary, genital, or urinary tracts are entered under controlled conditions and without unusual contamination. Specifically, operations involving the biliary tract, appendix, vagina, and oropharynx are included in this category, provided no evidence of infection or major break in technique is encountered.
3. **Contaminated**: Open, fresh, accidental wounds. In addition, operations with major breaks in sterile technique (e.g., open cardiac massage) or gross spillage from the gastrointestinal tract, and incisions in which acute, non-purulent inflammation is encountered including necrotic tissue without evidence of purulent drainage (e.g., dry gangrene) are included in this category.
4. **Dirty or Infected**: Includes old traumatic wounds with retained devitalized tissue and those that involve existing clinical infection or perforated viscera. This definition suggests that the organisms causing postoperative infection were present in the operative field before the operation.

For validation purposes, wound class recorded in NHSN and wound class determined from medical record review should match exactly in order to report “wound classes agree.”

American Society of Anesthesiologists' (ASA) Score

The NHSN Patient Safety Component Manual definition for this element is:

ASA physical status: Assessment by the anesthesiologist of the patient's preoperative physical condition using the American Society of Anesthesiologists' (ASA) Physical Status Classification System12. Patients are assigned an ASA score of 1-6 at time of surgery. Patients with an ASA score of 1-5 are eligible for NHSN SSI surveillance. Patients that are assigned an ASA score of 6 (a declared brain-dead patient whose organs are being removed for donor purposes) are not eligible for NHSN SSI surveillance.

ASA I: A normal healthy patient

ASA II: A patient with mild systemic disease

ASA III: A patient with severe systemic disease

ASA IV: A patient with severe systemic disease that is a constant threat to life

ASA V: A moribund patient who is not expected to survive without the operation

Note: A woman with an uncomplicated pregnancy is assigned ASA II due to the altered physiological state from when a woman is not pregnant.
Statement on ASA Physical Status Classification System (asahq.org)
(www.asahq.org/standards-and-practice-parameters/statement-on-asa-physical-status-classification-system)

For validation purposes, ASA score recorded in NHSN and ASA score determined from medical record review should match exactly in order to report "ASA score agree."

Appendix B: Reporting Forms

CLABSI Validation Form 1

When the review is complete, please make all necessary corrections to your data in NHSN!

Lab List No.	Date of first positive blood culture of BSI Event	Admit Date	Hosp. Unit where specimen was collected?	Q1. Was Event reported to NHSN as a CLABSI?			NO central line >2d *Or* line not in place day of event or previous day	If Q1 answer is NO, complete this section:						If Q1 answer is YES but event was reported in ERROR: Not a CLABSI	If Q1 answer is **YES** and event was **Reported Correctly**, check box below	Unit where event occurred is **Accurately Mapped in NHSN**, check box below
				YES	NHSN Event #	**NO**		Present on admission (and not discharged in previous 2 days)	Contaminant i.e. Common skin commensals: Single +bld cx	Contaminant i.e. Common skin commensals: 2 +bld cx w/ in 2d but no S/S	Secondary BSI Primary site of infection	Met CLABSI Exclusion Criteria	**MISSED** Should have been reported:			
1				☐		☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2				☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
3				☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4				☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5				☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
6				☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
7				☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
8				☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
9				☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
10				☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
11				☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
12				☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
13				☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
14				☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
15				☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
16				☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
17				☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
18				☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
19				☐		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
20																☐
												Total Missed	**A:**	**Total Correct**	**B:**	**D:**

MRSA BSI Validation Form 2

When the review is complete, please make all necessary corrections to your data in NHSN!

Lab List No.	MRSA positive blood specimen date	Admit Date	Hosp. Unit where specimen was collected?	Q1. Was MRSA Event reported to NHSN?			If Q1 answer is NO, complete this section:		If Q1 answer is YES but event was reported in ERROR, complete section: Does not meet	If Q1 answer is **YES** and event was **Reported Correctly**, check box below:	Unit where event occurred is **Accurately Mapped in NHSN**, check box below
				YES	NHSN Event #	**NO**	Duplicate <14 days since last positive:	**MISSED** Should have been reported:			
M1				☐		☐	☐	☐	☐	☐	☐
M2				☐		☐	☐	☐	☐	☐	☐
M3				☐		☐	☐	☐	☐	☐	☐
M4				☐		☐	☐	☐	☐	☐	☐
M5				☐		☐	☐	☐	☐	☐	☐
M6				☐		☐	☐	☐	☐	☐	☐
M7				☐		☐	☐	☐	☐	☐	☐
M8				☐		☐	☐	☐	☐	☐	☐
M9				☐		☐	☐	☐	☐	☐	☐
M10				☐		☐	☐	☐	☐	☐	☐
M11				☐		☐	☐	☐	☐	☐	☐
M12				☐		☐	☐	☐	☐	☐	☐
M13				☐		☐	☐	☐	☐	☐	☐
M14				☐		☐	☐	☐	☐	☐	☐
M15				☐		☐	☐	☐	☐	☐	☐
M16				☐		☐	☐	☐	☐	☐	☐
M17				☐		☐	☐	☐	☐	☐	☐
M18				☐		☐	☐	☐	☐	☐	☐
M19				☐		☐	☐	☐	☐	☐	☐
M20				☐		☐	☐	☐	☐	☐	☐
							Total Missed	**A:**	**Total Correct**	**B:**	**D:**

CDI Validation Form 3

When the review is complete, please make all necessary corrections to your data in NHSN!

Lab List No.	Positive *C. difficile* specimen date	Admit Date	Hosp. Unit where specimen was collected?	Q1. Was CDI Event reported to NHSN?			If Q1 answer is NO, complete this section:		If Q1 answer is YES but event was reported in ERROR, complete section:	If Q1 answer is **YES** and event was **Reported Correctly**, check box below:	Unit where event occurred is **Accurately Mapped in NHSN,** check box below
				YES	NHSN Event #	**NO**	Duplicate <14 days since last positive:	**MISSED** Should have been reported:	Does not meet inpatient Lab ID criteria:		
C1				☐		☐	☐	☐	☐	☐	☐
C2				☐		☐	☐	☐	☐	☐	☐
C3				☐		☐	☐	☐	☐	☐	☐
C4				☐		☐	☐	☐	☐	☐	☐
C5				☐		☐	☐	☐	☐	☐	☐
C6				☐		☐	☐	☐	☐	☐	☐
C7				☐		☐	☐	☐	☐	☐	☐
C8				☐		☐	☐	☐	☐	☐	☐
C9				☐		☐	☐	☐	☐	☐	☐
C10				☐		☐	☐	☐	☐	☐	☐
C11				☐		☐	☐	☐	☐	☐	☐
C12				☐		☐	☐	☐	☐	☐	☐
C13				☐		☐	☐	☐	☐	☐	☐
C14				☐		☐	☐	☐	☐	☐	☐
C15				☐		☐	☐	☐	☐	☐	☐
C16				☐		☐	☐	☐	☐	☐	☐
C17				☐		☐	☐	☐	☐	☐	☐
C18				☐		☐	☐	☐	☐	☐	☐
C19				☐		☐	☐	☐	☐	☐	☐
C20				☐		☐	☑	☐	☐	☐	☐
							Total Missed	**A:**	**Total Correct**	**B:**	**D:**

Colon Surgery SSI Validation Form 4

When the review is complete, please make all necessary corrections to your data in NHSN

COLON Procedure List No.	Date of Surgery (MM/DD)	Discharge date of index surgery (MM/DD)	Indicate which postop ICD-10 code(s) " flagged" this patient record	Readmitted within NHSN specified number of days of index surgery	Was NHSN SSI criteria met?	SSI was **Reported Correctly** (SSI met criteria & reported to NHSN)		If NO SSI reported, complete this section		ASA Score			Duration			Wound Class		
						Yes	No	Event **did not meet NHSN criteria**	SSI was **MISSED** (SSI met criteria & should have been reported)	ASA Score as reported to NHSN	ASA Score from validation medical record review	ASA Score **agree**	Duration as reported to NHSN	Duration from validation medical record review	Duration **agree**	Wound class as reported to NHSN	Wound class from validation medical record review	Wound class **agree**
				☐	☐	☐	☐	☐	☐			☐			☐			☐
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				☐	☐	☐	☐	☐	☐			☐			☐			☐
					COLO Total:	A:		B:	C:		D:			E:			F:	

Spinal Fusion SSI Validation Form 5

When the review is complete, please make all necessary corrections to your data in NHSN

								If NO SSI reported, complete this section		ASA Score			Duration			Wound Class		
FUSN Procedure List No.	Date of Surgery (MM/DD)	Discharge date of index surgery (MM/DD)	Indicate which postop ICD-10 code(s) flagged" this patient record	Readmitted within NHSN specified number of days of index surgery	Was NHSN SSI criteria met?	SSI was **Reported Correctly** (SSI met criteria & reported to NHSN) Yes	No	Event **did not meet NHSN criteria**	SSI was **MISSED** (SSI met criteria & should have been reported)	ASA Score as reported to NHSN	ASA Score from validation medical record review	ASA Score **agree**	Duration as reported to NHSN	Duration from validation medical record review	Duration **agree**	Wound class as reported to NHSN	Wound class from validation medical record review	Wound class **agree**
				☐	☐	☐	☐	☐	☐			☐			☐			☐
				☐	☐	☐	☐	☐	☐			☐			☐			☐
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				☐	☐	☐	☐	☐	☐			☐			☐			☐
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				☐	☐	☐	☐	☐	☐			☐			☐			☐
				☐	☐	☐	☐	☐	☐			☐			☐			☐
					FUSN Total:	A:		B:	C:		D:			E:			F:	

Denominator Data Supplemental Validation – Form 6

When review is complete, please make all necessary corrections to your data in NHSN

If you have validated less than 20 total flagged surgical procedure records, please complete this **Supplemental** validation form.

Instructions

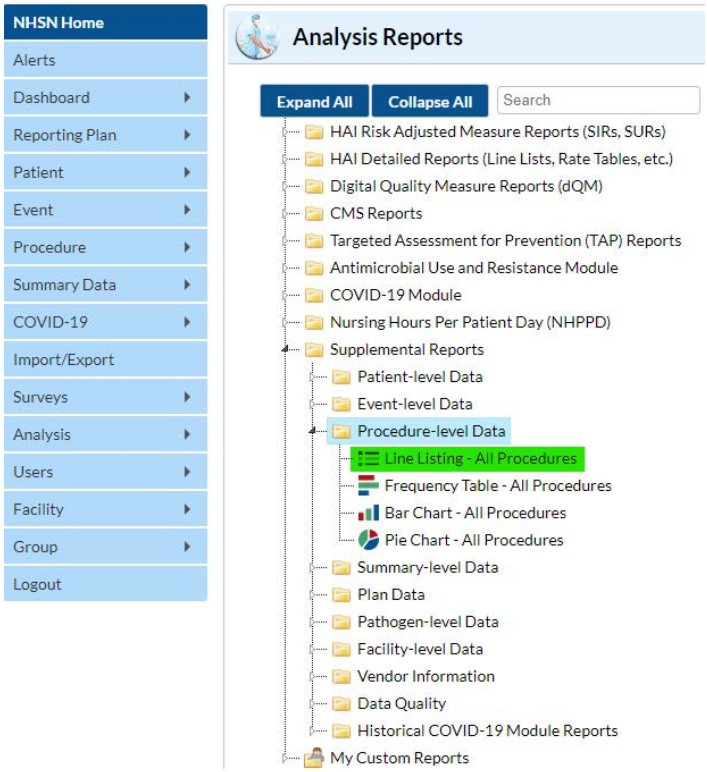
1. Use the lists of procedures produced in STEP 1 of "Preparing for Validation.
2. Randomly select up to 10 procedures (across the 2 procedure types).
3. Look up and record all three denominator data elements as reported to NHSN.
4. Look up and record corresponding data from medical records.
5. Indicate where data agree.
6. Total the number of validated procedures and the number that agree for each data element.
7. Report totals in "Review of Findings."

Procedure Type/No.	ASA Score			Duration			Wound class		
	ASA Score as reported to NHSN	ASA Score from validation medical record review	ASA Score **agree**	Duration as reported to NHSN	Duration from validation medical record review	Duration **agree** (Discrepancy <10 mins.)	Wound class as reported to NHSN	Wound class from validation medical record review	Wound classes **agree**
1			☐			☐			☐
2			☐			☐			☐
3			☐			☐			☐
4			☐			☐			☐
5			☐			☐			☐
6			☐			☐			☐
7			☐			☐			☐
8			☐			☐			☐
9			☐			☐			☐
10			☐			☐			☐
N:		D:			E:			F:	

Total

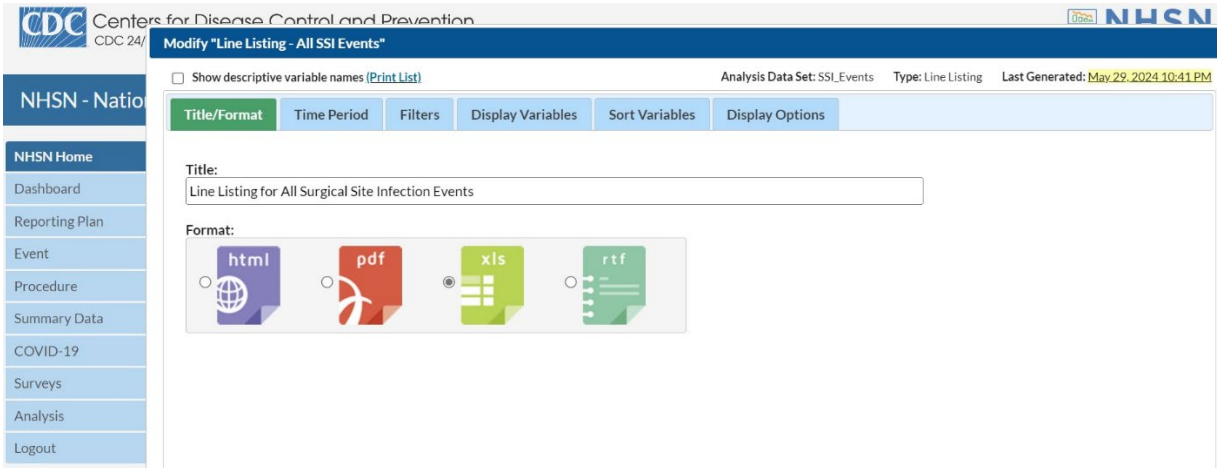
Appendix C: Generating NHSN Procedure Line Lists:

1) After logging in to NHSN, be sure you have generated a data set since your last data entry session. Click on Analysis→ HAI Detailed Reports→ Procedure Associated modules → SSI → Line Listing All SSI Events →**Modify Report**

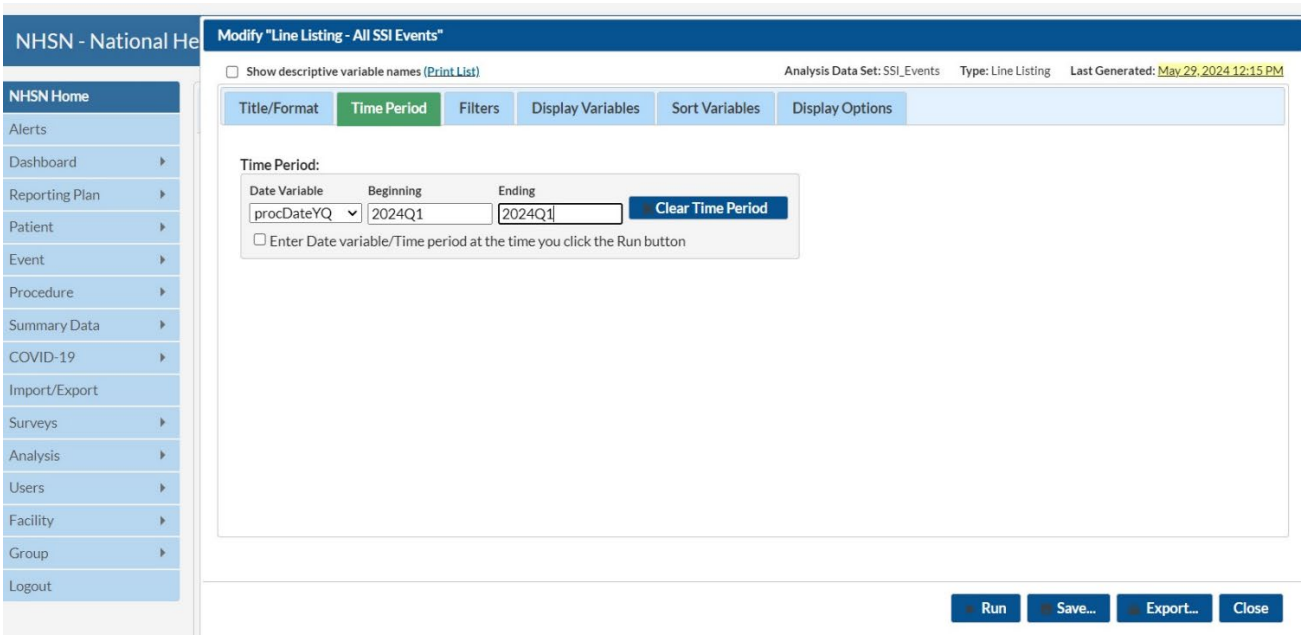


Select output format “XLS” – this makes saving to your home drive easier to work with your data later if you wish.

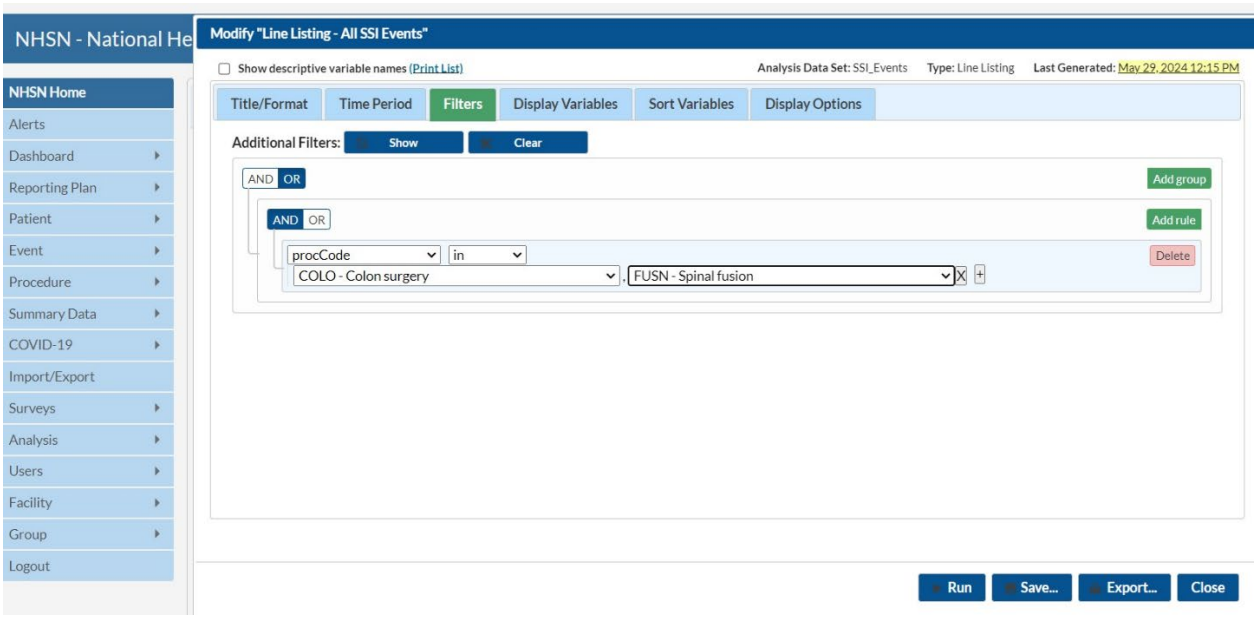
2) Check “Show Description Variable Names”



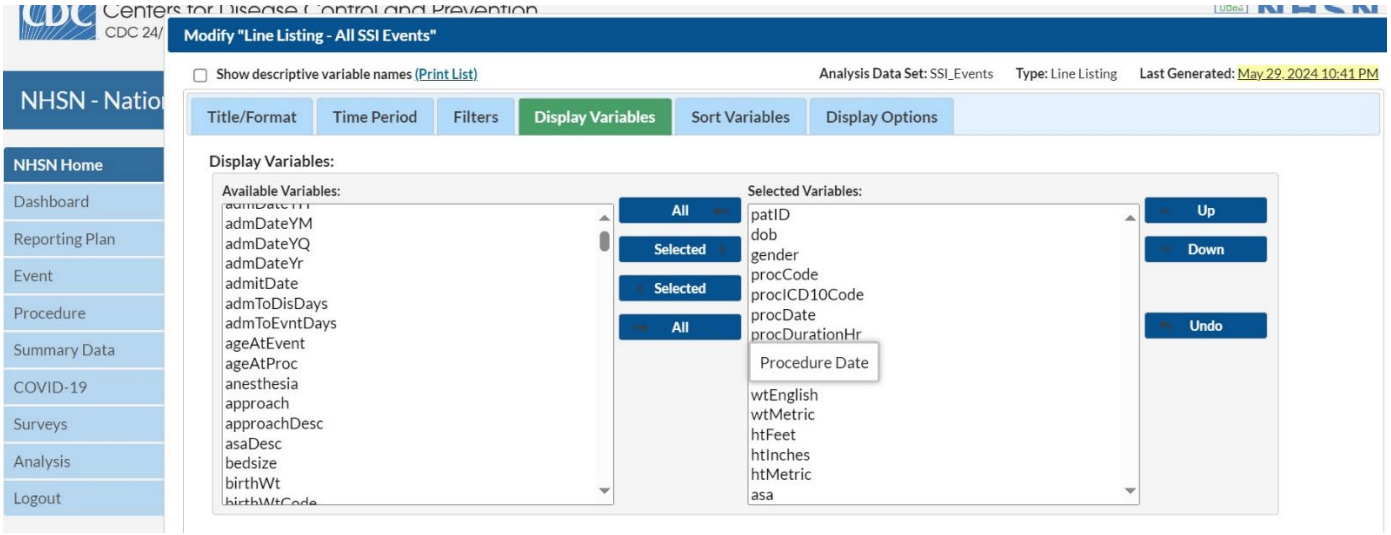
3) Fill in date variable for first quarter of 2024: ProcDateYQ: Beginning 2024YQ1→Ending 2024YQ1



4) Go to tab “Filters” and select Add Rule and then select the two procedure codes from the dropdown box. Be sure “AND” is selected.



5) Select tab Display Variables and select variables PatID, dob, gender, procCode, procICD10code, procdate, procDurationHR, procedDurationMin, swClass, wtEnglish, wtMetric, htfeet, htinches, htMetric, ASA



6) Click **RUN** – Your data will appear similar to the following chart. You are now ready to compare denominator data entered into NHSN to what is in the patient's medical record.

dob	gender	procCode	procICD10 Code	procDate	procDura tionHr	procDura tionMin	swClass	wtEnglish	wtMetric	htFeet	htInches	htMetric	asa
3/18/1957	F	COLO	0D1L0Z4	1/5/2024	4	2	CC	136	61.69	5	6	1.68	3
2/20/1960	M	COLO	0DTN0ZZ	1/30/2024	2	5	CC	157	71.21	5	5	1.65	3
5/26/1989	M	COLO	0D1M0Z4	2/13/2024	5	45	D	227	102.97	5	7	1.7	3
8/9/1950	F	FUSN	0RG6071	1/19/2024	7	29	C	146	66.23	5	4	1.63	2
8/15/1954	F	FUSN	0SG1071	1/23/2024	4	50	C	245	111.13	5	4	1.63	2
6/30/1948	F	FUSN	0RG20KJ	1/23/2024	7	23	C	163	73.94	5	0	1.52	3
3/17/1945	F	FUSN	0RG2071	2/26/2024	5	43	C	130	58.97	5	5	1.65	3
11/9/1948	F	FUSN	0SG00A0	1/30/2024	8	50	CC	144	65.32	5	2	1.57	3