

NHSN Patient Safety Component: Data Quality Manual February 2021



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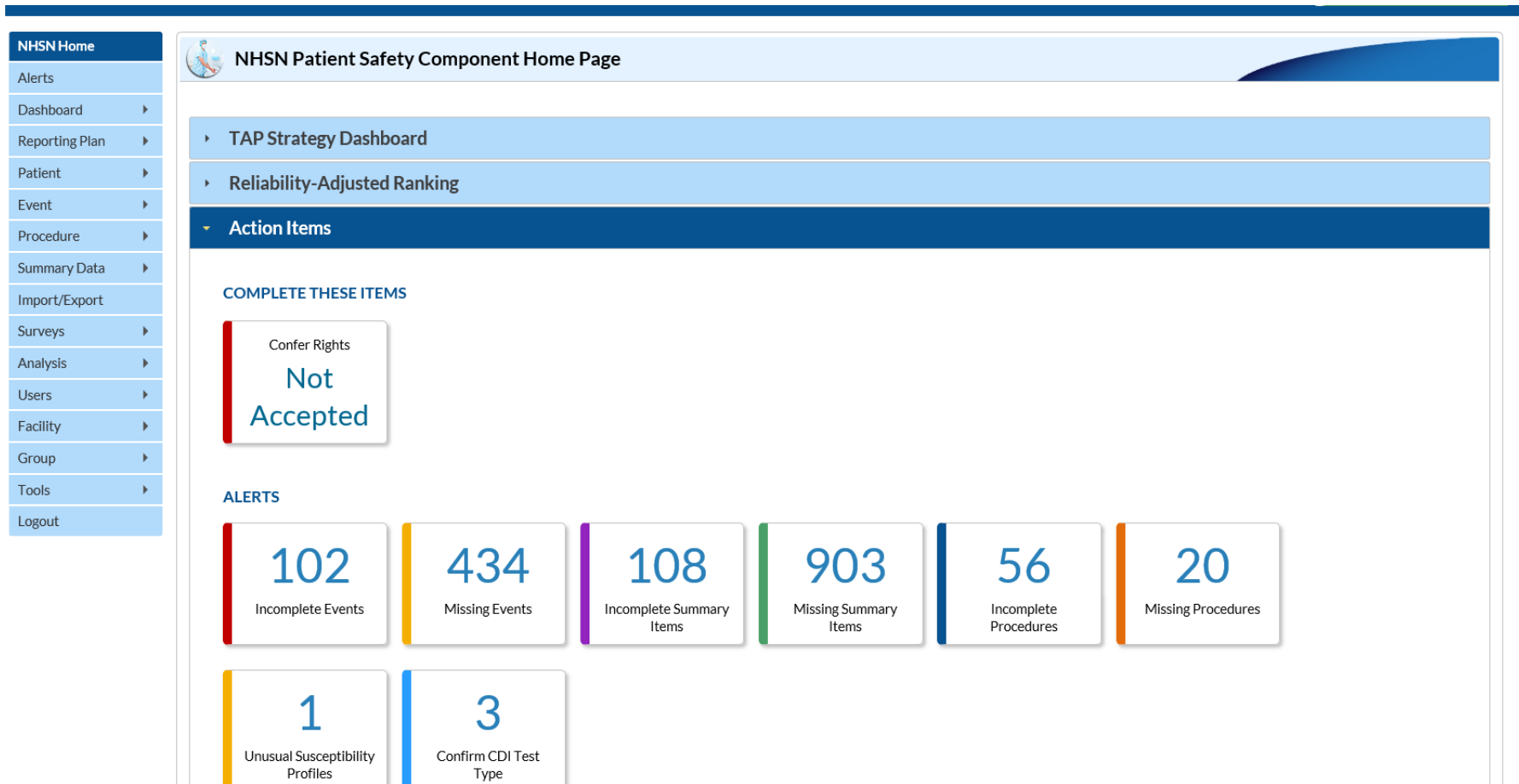


CHAPTER 1: INTRODUCTION TO DATA QUALITY

CDC's National Healthcare Safety Network (NHSN) is the nation's most widely used healthcare-associated infection (HAI) tracking system. NHSN provides facilities, states, regions, and the nation with data needed to establish national benchmarks, measure progress of HAI prevention efforts, and ultimately eliminate HAIs. NHSN encourages facilities to review their data routinely to check for completeness and accuracy. When a user logs in to the NHSN Patient Safety Component (PSC) Home Page, a display of items as in Figure 1.1 is seen. The Alerts screen in the NHSN application provides valuable prompts to users regarding any missing or incomplete data, such as 'Incomplete Events', 'Missing Events', 'Incomplete Summary Items', 'Missing Summary Items', 'Incomplete Procedures', 'Missing Procedures', etc. Users should take advantage of these alerts and resolve relevant issues which in turn will improve data quality (DQ) and mitigate errors in the analysis reports.



Figure 1.1: Display of Action Items (Alerts) on NHSN Patient Safety Component Home Page



Described below are important and recommended data quality verification steps to be performed by users in the NHSN application.

1. **DEVICE-ASSOCIATED (DA) MODULE:**

Central Line-Associated Bloodstream Infections (CLABSI), Catheter-Associated Urinary Tract Infections (CAUTI), and Ventilator-Associated Events (VAE)/Pediatric Ventilator-Associated Events (PedVAE) are the different types of DA events.

i. **Applicable to all DA events:**

i. **Users should pay attention to, and resolve, the following alerts in the NHSN application:**

- a. Incomplete Events
- b. Missing Events
- c. Incomplete Summary Items
- d. Missing Summary Items

- NHSN also recommends that users perform DQ checks using the various line listing analysis reports located in the DQ subfolder of the “Advanced” analysis folder (see screen shots located on page 11). Although rare and often an indication of a DQ issue, the application can identify and report the following where applicable:

- a. Line Listing - Duplicate BSI/PNEU/UTI Events
- b. Line Listing – Events Reported with 0 Device Days

ii. **Applicable to CLABSI events only:**

- **Line Listing – BSI Events Excluded from the CLABSI Numerator:** This specific line list, which can be used by facilities and groups, will allow you to view a facility’s BSI events that will be excluded from the CLABSI Standardized Infection Ratios (SIRs) and rate tables.
- **BSI events with the following factors present on the BSI event form will be excluded from the SIR:** Mucosal



Barrier Injury Laboratory-Confirmed Bloodstream Infection (MBI-LCBI), Extracorporeal life support membrane oxygenation (ECMO) and Ventricular Assist Device (VAD) BSI events, Munchausen Syndrome by Proxy (MSBP), Epidermolysis bullosa (EB), Patient self-injection, and Pus at vascular access site. Events that meet the above criteria will be indicated by the variable `clab_exclude`.

- Please see the link below for more information on running and interpreting this line list:

<https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/bsi-excluded-linelist-508.pdf>.

2. **PROCEDURE-ASSOCIATED MODULE:**

Surgical site infections (SSI):

- i. For SSIs, users should pay attention to the alerts related to procedures and SSI events,
 - a. Incomplete procedures
 - b. Missing procedures
 - c. Missing procedure-associated events
 - d. For additional details, please visit <https://www.cdc.gov/nhsn/pdfs/gen-support/NHSN-Alerts.pdf>
- ii. NHSN also recommends that users perform DQ checks using the various line lists located in the “Data Quality” subfolder of the “Advanced” analysis folder (see screen shots located on pages 12-20). Although rare and often an indication of a data quality issue, the application can identify and report the following, where applicable:
 - a. Duplicate Procedures
 - b. Procedures on Patient DOB
 - c. Procedures with 0 Duration
 - d. SSIs on Procedure Date
 - e. Extremely High Incidence of SSI



iii. In addition to performing data quality checks, NHSN ensures that outlier data, or data that are missing and incomplete, are excluded from the standardized infection ratio (SIR). For procedures and SSIs, an analysis report is available to help users generate the list of excluded procedures and determine the reason(s) for exclusion.

a. The Line Listing -Procedures Excluded from SIR

▪ <https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/line-list-procedures-excluded-sir.pdf>

b. The Line Listing -All SSI Events

▪ <https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/ssi-events-line-list-arg.pdf>

3. **MDRO/CDI MODULE:**

i. For LabID Event data, users should pay attention to the alerts related to summary data

a. Incomplete Summary Items

b. Missing Summary Items

c. Confirm CDI Test Type [applicable for facilities that complete MDRO/CDI denominator data for FacWideIN or an inpatient rehabilitation (IRF) unit]

ii. Facilities should review denominator data for possible data entry errors when reporting patient days and admissions

iii. Facilities should avoid reporting “Other” for CDI Test Type when an applicable selection is available from the drop-down

iv. NHSN also recommends that users perform DQ checks using the “CDI Test Method History” Line List, located in the “Data Quality” subfolder of the “Advanced” analysis folder (see screen shots located on pages 23-24).

4. **ANTIMICROBIAL USE AND RESISTANCE (AUR) MODULE:**

We provide detailed guidance on Antimicrobial Use (AU) and Antimicrobial Resistance (AR) data validation in our data validation guides. These guides listed below walk through data quality checks that facilities can perform to ensure data



accuracy and completeness. Facilities can perform these data quality checks in their entirety as prescribed in the validation guidelines or only perform sections that are most applicable. Facilities can use this guide when beginning submission to the module, when updating or changing software systems, on an annual basis or for ongoing quality assurance.

- ii. **AU Implementation Validation:** <https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/aur/AU-Option-Implementation-Data-Validation-P.pdf>.
- iii. **AU Annual Validation:** <https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/aur/annual-au-data-validation-508.pdf>.
- iv. **AR Validation:** <https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/aur/ar-validation-508.pdf>.
- v. Users can also run the **AU Data Quality Analysis Report** within NHSN. This line list identifies four common AU DQ issues. Information on how to run, modify, and interpret this report can be found here: <https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/aur/au-dataquality-linelist-508.pdf>.



CHAPTER 2: NHSN DATA QUALITY OUTPUT OPTIONS

DATA QUALITY IS A SUB-FOLDER UNDER **ADVANCED FOLDER** IN **ANALYSIS REPORTS** IN NHSN APPLICATION AS HIGHLIGHTED IN THE TABLES AND EXPLAINED IN THE TEXT BELOW.

The screenshot displays the NHSN - National Healthcare Safety Network (AWDV-NHSN-WL01:8001) interface. On the left is a navigation menu with 'Analysis' highlighted. The main content area shows 'Analysis Reports' with 'Expand All', 'Collapse All', and a search box. A tree view lists various report modules, with 'Advanced' highlighted. To the right, a detailed view of the 'Advanced' folder shows 'Data Quality' highlighted, which contains ten line listing reports.

NHSN - National Healthcare Safety Network (AWDV-NHSN-WL01:8001)

NHSN Home

- Alerts
- Dashboard ▶
- Reporting Plan ▶
- Patient ▶
- Event ▶
- Procedure ▶
- Summary Data ▶
- Import/Export
- Surveys ▶
- Analysis ▶**
- Users ▶
- Facility ▶
- Group ▶
- Tools ▶
- Logout

Analysis Reports

Expand All Collapse All Search

- Device-Associated (DA) Module
- Procedure-Associated (PA) Module
- HAI Antimicrobial Resistance (DA+PA Modules)
- Antimicrobial Use and Resistance Module
- MDRO/CDI Module - LABID Event Reporting
- MDRO/CDI Module - Infection Surveillance
- MDRO/CDI Module - Process Measures
- MDRO/CDI Module - Outcome Measures
- CMS Reports
- TAP Reports
- Baseline Set 1
- Advanced**
- My Custom Reports
- Published Reports

Advanced

- Patient-level Data
- Event-level Data
- Procedure-level Data
- Summary-level Data
- Plan Data
- Pathogen-level Data
- Facility-level Data
- Vendor Information
- Data Quality**

- Line Listing - CDI Test Method History
- Line Listing - Duplicate Procedures
- Line Listing - Procedures on Patient DOB
- Line Listing - Procedures with 0 Duration
- Line Listing - Duplicate BSI/PNEU/UTI Events
- Line Listing - Duplicate SSI Events
- Line Listing - SSIs On Procedure Date
- Line Listing - Extremely High Incidence of SSI
- Line Listing - Events Reported with 0 Device Days

It is the responsibility of each facility to ensure that your data are accurately collected and reported in accordance with the NHSN protocols. To assist you with this effort, various data quality output options have been created and are in the Advanced section of the Analysis Reports tree view. We recommend that you proactively run these output options monthly to identify and resolve any issues. Each option produces a report that is focused on a specific data cleaning activity and therefore, minimal modification is necessary. The output options are not limited to a specific time period; instead, each output includes all occurrences that exist in your facility's data based on the last time you generated analysis datasets.

If you receive the message **“No records in Analysis datasets”** for an output option without making modifications, this indicates that your facility has no observations in that list, and time period, that require action. If there are records in the reports, the instructions in this document provide guidance on how to correct them. In instances where you are unable to edit an existing record because the application doesn't allow it or the data needed to make the record correct are no longer available, you must remove the event(s) from your monthly reporting plan for the affected month(s), since such records are out of compliance with the protocol. If this is the case, careful consideration should be given to your state's HAI reporting mandate and Centers for Medicare and Medicaid Services (CMS) Inpatient Prospective Payment System (IPPS) reporting requirements, if applicable. **It is important to remember that removing events from your monthly reporting plan could make your facility non-compliant with state or CMS reporting requirements.**



2.1. DEVICE-ASSOCIATED EVENTS REPORTED WITH 0 OR MISSING DEVICE DAYS (OUTPUT OPTION: LINE LISTING – EVENTS REPORTED WITH 0 DEVICE DAYS)

This line list includes those months where at least one DA event (i.e., CLABSI, VAE, or CAUTI) was reported with either 0 corresponding device days or a missing summary record.

Instructions:

This line list is sorted by summary month, summary type, and location. Review the line list and enter the appropriate denominator data. Remember – without device days, DA rates for CLABSI, CAUTI, Ventilator-Associated Pneumonia (VAP), Ventilator associated events (VAE), Pediatric Ventilator-Associated Events (PedVAE) and SIRs for CLABSI, CAUTI, VAE cannot be calculated. Facilities have the option of removing the location from their monthly reporting plan(s) for those months and locations where the data may be unavailable, although consideration should be given to state mandates and CMS IPPS CLABSI reporting requirements.

Example 2.1-1: In the example below, 3 event types were entered without the summary data that needs to be corrected in NHSN.

- I. 1 CAUTI and 1 CLABSI were reported for location 3E, January 2019, yet summary data have not been entered (indicated by the “missing” (.) patient days (numpatdays) and device days (numddays)).*
- II. 4 CLABSIs were reported for location INSURGCC, January 2019, and the device day count (numddays) was reported as 0.*

National Healthcare Safety Network

Line Listing of Events Reported with 0 Device Days

As of April 20, 2019 at 12:59 PM

Date Range: MISSINGDAYS

Carefully review this list, which includes those months where at least one DA event was reported with no corresponding device days. Enter the appropriate summary data or remove the event from your plan. Sorted by orgID summaryYM.

orgID	summaryYM	summarytype	location	eventType	eventCount	birthWtCode	numpatdays	numddays	plan
10018	2019M01		3E	CAU	1	.	.	.	Y
10018	2019M01		3E	CLAB	1	.	.	.	Y
10018	2019M01		INSURGCC	CLAB	4	.	100	0	Y



2.2. DUPLICATE DEVICE-ASSOCIATED HAI EVENTS (OUTPUT OPTION: LINE LISTING – DUPLICATE BSI/PNEU/UTI EVENTS)

This line list includes those patients with more than one device-associated HAI event of the same type on the same event date.

Per the NHSN definitions, a patient cannot have more than one HAI of the same type on the same day.

Instructions:

This line list is sorted by patient ID, event type, and event date. Carefully review the line list and utilize the application to remove the duplicate event(s). The default variables included in the line list allow for comparison of the data for each patient to ensure the correct event record is removed. More variables can be added to the line list as necessary.

***TIP:** Depending on the number of records on this line list, you may wish to use the page by option and page by patID. This will provide you with one table/line list per patient ID.*

***TIP:** It is recommended that you add variables to the line list that will help you determine if these records are exactly the same for each patient. Suggested variables include: pathogenDesc1-3, admitDate, centralLine, ventUsed, urinaryCath.*

***Example 2.2-1:** In the table below, one patient with the patientID 23456 has eventIDs 24828 and 24829 for HAI events of the same type on the same event date. Delete the duplicate event from NHSN or modify as necessary.*

National Healthcare Safety Network

Line Listing of Duplicate BSI/PNEU/UTI EventsAs of January 30, 2020 at 7:36 AM

Date Range: All DUPEVENTS

Carefully review this list, which includes those patients with more than one event of the same type on the same event date. Delete the duplicate event(s) from NHSN or modify as necessary

orgID	patID	eventID	eventType	spcEvent	eventDate	location
10018	23456	24828	BSI	LCBI	04/16/2019	INMEDCC
10018	23456	24829	BSI	LCBI	04/06/2019	INMEDCC

Sorted by patID eventType eventDate



2.3. PROCEDURES EXCEEDING THE MAX ALLOWED ON A SINGLE DAY (OUTPUT OPTION: LINE LISTING – DUPLICATE PROCEDURES)

This output option lists those patients with more procedures of the same type than the maximum allowed on a single day.

For example, one patient with 3 KPROs on a single procedure date.

Instructions:

This line list is sorted by patient ID, NHSN operative procedure code, and procedure date. Because procedures have an impact on the SSI SIRs, as well as the legacy risk-stratified SSI rates, it's important to remove any extraneous procedures. Facilities should carefully review the line list and utilize the application to remove the duplicate procedure(s).

The default variables included in the line list allow for comparison of the data for each patient to ensure the correct procedure record is removed. More variables can be added to the line list as necessary.

***Example 2.3-1:** Looking at the table below, we can see that patient BT100 has two AAA procedures recorded for the same procedure date, and only one AAA is allowed. Additionally, one of the procedures (ID 20993) is linked to an event. In reviewing the two AAA records for this patient, we can see that there are no differences between the two and can delete the second AAA procedure (ID 20997) for this patient.*

National Healthcare Safety Network

Line Listing for Procedures Exceeding the Max Allowed

As of January 30, 2020 at 9:33 AM

Date Range: DUPROCEDURES

Carefully review this list, which includes those patients with more procedures of the same type than the maximum allowed for a single day. Please delete the extraneous procedure(s) from NHSN.

patID	procID	linked	procCode	procDate	max	asa	swClass	procDuration	procDuration	outpatient	emergency	trauma	endoscope	anesthesia	ssiPlan
		Event			Allowed			Hr	Min						
BT100	20993	Y	AAA	3/25/2019	1	1	C	5	0	N	N	N	N	Y	N
BT100	20997	N	AAA	3/26/2019	1	1	C	5	0	N	N	N	N	Y	N

Sorted by patID procCode procDate



2.4. PROCEDURES PERFORMED ON PATIENT'S DOB (OUTPUT OPTION: LINE LISTING – PROCEDURES ON PATIENT DOB)

This line list includes those procedures recorded with a procedure date equal to the patient's date of birth (DOB) and considered illogical.

Instructions:

Procedure record with the same procedure date as the patient date's date of birth are excluded from all SSI SIRs. Carefully review the line list and utilize the application to edit each procedure record with the correct patient DOB or procedure date if this is a data entry error. Updating these procedures to include an accurate DOB or procedure date (that is a procedure date that is after the date of birth) will provide a more accurate SIR. The default variables included in the line list provide the minimum amount of information for each record necessary to investigate further. More variables can be added to the line list as necessary. **NOTE: This output option is not available for group users.**

Example 2.4-1 In the table below, there was one procedure (KPRO) that was reported as being performed on the patient's date of birth. This would prompt additional research to obtain accurate information for this procedure record.

National Healthcare Safety Network

Line Listing of Procedures Performed on Patient's DOB

As of January 30, 2020 at 9:54 AM

Date Range: DUPROCEDURES

Carefully review this list, which includes those procedures with a procDate equal to the patient DOB and considered illogical. Please update NHSN to reflect the correct DOB or procDate.

procCode=KPRO

<i>orgID</i>	<i>Patid</i>	<i>Dob</i>	<i>Procidpro</i>	<i>linkedEvent</i>	<i>procCode</i>	<i>procDate</i>	<i>imported</i>
10018	BT109BB	10/21/2019	2533361253333	N	KPRO	10/21/2019	Y

Sorted by patID procDate



2.5. PROCEDURES WITH 00:00 DURATION (OUTPUT OPTION: LINE LISTING – PROCEDURES WITH 0 DURATION)

This line list includes all procedures with a procedure duration of 00hr 00min.

Instructions:

Procedures with duration less than 5 minutes or greater than the interquartile range are excluded from all SSI SIR calculations, this includes procedures with duration of 0 procedure duration hour and 0 procedure duration minute. Carefully review this line list and use the NHSN application to update the procedure duration for each record.

If any procedures are part of your monthly reporting plan, and you are unable to report an accurate procedure duration, please remove the NHSN operative procedure category from your monthly reporting plan for that month.

***Example 2.5-1:** The report table below shows a list of procedures that are reported with 0 procedure duration in hours and 0 procedure duration in minutes. The procedure duration must be entered as follows:*

- *The procedure duration in hours must be greater than or equal to zero and less than or equal to 99.*
- *The procedure duration in minutes must be greater than zero and less than or equal to 59.*

National Healthcare Safety Network

Line Listing of Procedures with 0 Duration

As of January 30, 2020 at 7:36 AM

Date Range: All PROCODURATION

Carefully review this list, which includes procedures with a duration of 0hr 0min. Update each procedure record with an accurate duration or remove the procedure(s) from your monthly reporting plan, if applicable.

orgID	patID	procID	procCode	procDate	procDurationHr	procDurationMin	ssiPlan	pppPlan
10018	115326	11806	CARD	12/28/2018	0	0	Y	Y
10018	138676	11788	CARD	3/8/2019	0	0	Y	Y
10018	115377	11778	CBGB	9/14/2019	0	0	N	N

Sorted by procCode



2.6. DUPLICATE SSI EVENTS (OUTPUT OPTION: LINE LISTING – DUPLICATE SSI EVENTS)

This line list includes those patients with more than one SSI of the same type on the same event date linked to the same procedure. Per the NHSN definitions, a patient cannot have more than one SSI of the same type on the same day. Additionally, patients meeting the following criteria will also be included in this list:

One DIP and one organ/space SSI on the same event date linked to the same procedure; report only the DIP. One SIP and one DIP on the same event date linked to the same procedure; report only the DIP. One SIS and one DIS on the same event date linked to the same procedure; report only the DIS.

Instructions:

This line list is sorted by patient ID and event date. Carefully review the line list and utilize the application to remove the duplicate event(s). The default variables included in the line list allow for comparison of the data for each patient to ensure the correct event record is removed. More variables can be added to the line list as necessary.

***TIP:** Depending on the number of records on this line list, you may wish to use the Page By option and page by patID. This will provide you with one table/line list per patient ID.*

***Example 2.6-1:** Two same SSI events for the same patient with the same event date is shown in the table below. Delete one of the two SSI events (highlighted).*



National Healthcare Safety Network

Line Listing of Duplicate BSI/PNEU/UTI Events

As of December 19, 2019 at 11:01 AM

Date Range: All DUPSSI

Carefully review this list, which includes those patients with more than one SSI linked to the same procedure. Delete the duplicate event(s) from NHSN or modify as necessary.

orgID	patID	eventID	eventType	spcEvent	eventDate	linkedproc	procCode	procDate
10018	12345	80536	SSI	SIS	12/15/2018	80535	VSHN	12/02/2018
10018	12345	80537	SSI	SIS	12/15/2018	80535	VSHN	12/02/2018

Sorted by patID eventDate

[Example 2.6-2: Patients meeting other criteria of duplicate SSI events are described below. Resolution steps are described in the table below the example.](#)

National Healthcare Safety Network

Line Listing of Multiple SSIs linked to a Single Procedure

As of January 30, 2020 at 11:14 AM

Date Range: All DUPSSI

Carefully review this list, which includes those patients with more than one SSI linked to the same procedure. Delete the duplicate event(s) from NHSN or modify as necessary.



orgID	patID	eventID	eventType	spcEvent	eventDate	linkedproc	procCode	procDate
10018	KB1258	19435	SSI	DIP	11/10/2019	19432	CBGB	10/31/2019
10018	KB1258	19436	SSI	MED	11/10/2019	19432	CBGB	10/31/2019
10018	KB1259	19437	SSI	SIP	11/15/2019	19433	CARD	10/25/2019
10018	KB1259	19438	SSI	DIP	11/15/2019	19433	CARD	10/25/2019
10018	KB1260	19439	SSI	SIS	11/2/20019	19434	CBGB	10/15/2019
10018	KB1260	19440	SSI	DIS	11/2/2019	18434	CBGB	10/15/2019

EventID	Problem	Action
19435, 19436	1 DIP and 1 Organ/Space	Delete the Organ/Space
19437, 19438	1 SIP and 1 DIP	Delete the SIP
19439, 19440	1 SIS and 1 DIS	Delete the SIS



2.7. SSIs IDENTIFIED ON THE DATE OF PROCEDURE (OUTPUT OPTION: LINE LISTING – SSIs ON PROCEDURE DATE)

This line list includes those SSI events reported with a procedure date equal to the event date. This scenario is implausible given the NHSN protocol (<https://www.cdc.gov/nhsn/pdfs/pscmanual/9pscscsscurrent.pdf>) which states: Date of Event is the date when the first element used to meet the SSI infection criterion occurs for the first time during the SSI surveillance period or the date the specimen used to make or confirm the diagnosis was collected, whichever comes first. Under this definition, the SSI event date cannot be equal to the procedure date of the procedure to which the SSI is linked.

Instructions:

Carefully review the line list and utilize the application to modify the event(s) and/or procedure(s) as appropriate. NOTE: if the procedure date needs to be modified, additional steps are necessary to unlink, and relink, the procedure and the SSI. For instructions on completing this process, please see the [Appendix B](#).

The default variables included in the line list allow for comparison of the data for each patient to ensure the appropriate information is corrected. More variables can be added to the line list through the modification screen, as necessary.

***TIP:** The “linkedproc” variable provides the procedure ID to which the SSI is linked.*

***Example 2.7-1:** In the table below, are examples of patient IDs 123123, 123456, 1531515 where the event date and procedure date are the same and needs to be corrected in NHSN.*

National Healthcare Safety Network

Line Listing of SSIs Identified on Procedure Date

As of January 30, 2020 at 11:44 AM

Date Range: All DUPEVENTS

Carefully review this list, which includes those SSI events recorded with a procedure date equal to the event date. Update the procedure or SSI record in NHSN to reflect the correct date(s).

orgID	patID	eventID	eventType	spcEvent	eventDate	linkedproc	procCode	procDate	whenDetected	whenDetectedDesc
10018	123123	11834	SSI	DIP	6/23/2019	11831	NEPH	6/23/2019	P	P - Postdischarge surveillance
10018	123456	14616	SSI	SIP	1/23/2019	14613	THOR	1/23/2019	R	R - Readmission
10018	153151	12697	SSI	DIP	7/25/2019	12612	CBGB	7/25/2019	A	A - Admission

Sorted by patID eventDate



2.8. EXTREMELY HIGH INCIDENCE OF SSI (OUTPUT OPTION: LINE LISTING – EXTREMELY HIGH INCIDENCE OF SSI)

This line list includes those months where the incidence of SSI is considered extremely high for each NHSN Operative Procedure category. Extremely high incidence of SSI is considered as 50% or more of procedures entered for each procedure category/per month result in surgical site infections.

Instructions:

This line list is sorted by summary month (summaryYM) and procedure code. For those months where the denominator data (i.e., procedure records) have not been entered, please either enter/import those data or remove those procedures from your monthly reporting plan for the affected month(s), if applicable.

***NOTE:** We realize that some facilities may have a low volume of procedures but are reporting these data due to state mandates. When this is the case, you do **NOT** need to remove the procedures from your monthly reporting plan. Instead, a member of the NHSN Team may contact you for verification.*

***Example 2.8-1:** In the table below, each procedure category (per month) show that 50% or more of the procedure entered resulted in an SSI event. For example, January 2019 (2019M01), this facility entered one c-section procedure and it is linked to an SSI event. Meaning 100% of the 2019M01 CSEC procedures resulted in an SSI event.*

National Healthcare Safety Network

Line Listing of Extremely High Incidence of SSI

As of January 30, 2020 at 11:44 AM

Date Range: All HIGH SSI INCID

Carefully review this list, which shows months where SSI incidence is extremely high. If procedures have not been entered, please enter/import them or remove the procedures from your plan for the affected month(s).

orgID	summaryYM	procCode	Outpatient	ssiPlan	SSICount	ProcCount	SSIIncidence
10018	2019M01	CSEC	N	Y	1	1	100
10018	2019M02	HYST	N	Y	1	2	50

Sorted by procdatYM and proccode



2.9 MDRO/CDI MODULE

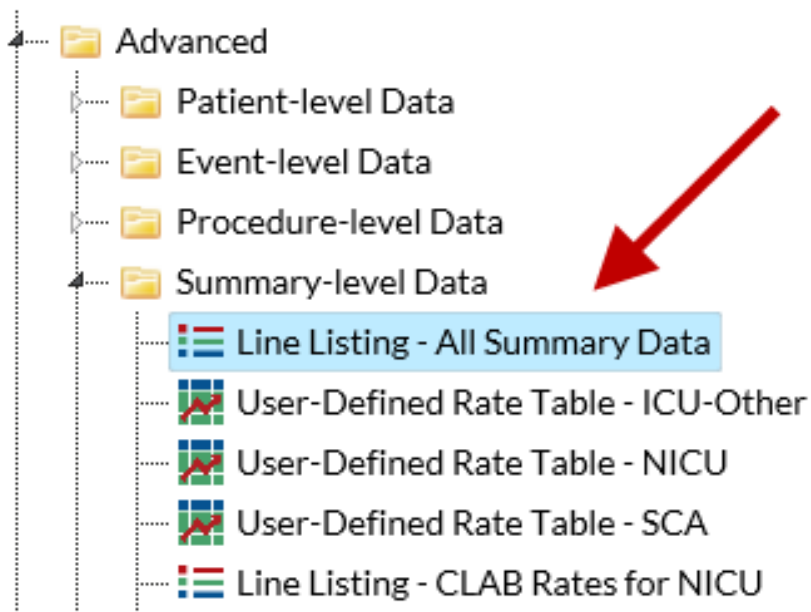
Data Quality Issue: FacWideIN Denominators

Incorrect values for patient days and admissions on Lines 2 and 3 of the denominator form will lead to inaccurate MRSA and CDI SIR calculations. Each quarter, NHSN identifies several facilities that have potentially entered incorrect data on Lines 2 and 3.

NHSN considers the following values as 'suspicious' data entry:

- Values on Line 2 and/or Line 3 are < 25% of the total denominators from Line 1
- 0 patient days and/or 0 admissions reported for Line 2 and/or Line 3

NHSN encourages facilities to review the denominator data for possible data entry errors. This is done by selecting '**Line Listing – All Summary Data**' under '**Summary-Level Data**' folder in the '**Advanced Folder**' of NHSN as demonstrated below.



When reviewing the Line List report, the denominator variables of interest are listed below. Additional variables of interest can be

added to the line list as needed.

- Line 1: numTotPatDays and numTotAdm (all units)
- Line 2: numpatdays and numAdms (subtract rehab and psych units)
- Line 3: numCdifpatdays and numCdifAdm (subtract rehab, psych, NICUs, nurseries)

Example 2.9-1: *In the example below, the line list shows that the number of admissions entered on Line 3 is a data entry error (numCdifAdm = 0). The facility should review and update the corresponding denominator form to address all possible data entry errors.*

National Healthcare Safety Network

Line Listing of All Summary Data

As of June 25, 2019 at 3:38 PM

Date Range: PSSUMMARY summaryYM 2019M01 to 2019M01

orgID	summary YM	location	event Type	numTotPatDays	numTotAdm	numpatdays	numAdms	numCdifPat Days	numCdifAdm
10401	2019M01	FACWID EIN	CDIF	3500	905	3200	805	2500	0

Denominator data resources

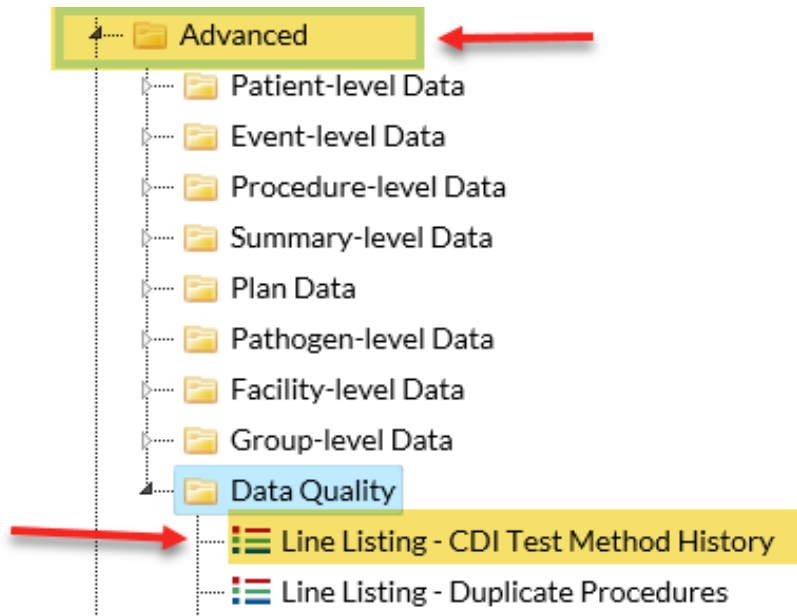
- Denominator form: https://www.cdc.gov/nhsn/forms/57.127_MDROMonthlyReporting_BLANK.pdf
- Quick Learn video: <https://www.youtube.com/watch?v=p917TeQfV8c>
- Newsletter article: <https://www.cdc.gov/nhsn/pdfs/newsletters/nhsn-nl-dec18-508.pdf> and <https://www.cdc.gov/nhsn/pdfs/newsletters/nhsn-nl-jun-2017.pdf>



Data Quality Issue: CDI Test Type Method

The primary CDI test type method is collected on the MDRO/CDI denominator form on the 3rd month of the quarter: March, June, September, and December. CDI test method is selected from a pre-populated list, including the option to select “Other.” For facilities that select “Other,” many facilities use the free text entry to indicate a CDI test method that is already available in the list (such as, PCR, DNA amplification, or NAAT). Doing so may result in an inaccurate risk adjustment for your facility.

NHSN encourages facilities to review the CDI test type method reported on the denominator forms for accuracy as shown below in the NHSN application.



The default output display for this Analysis Report is below.

Example 2.9-2: In the example below, the report shows the CDI test type method history for this facility, which includes data reported on the MDRO/CDI FacWideIN denominator forms and the annual survey. The response provided in the free text field (cdiTestMethOth) for December 2018 is a value in the NHSN drop down list; thus, the facility should change the CDI test type from “Other” to “NAAT”.

National Healthcare Safety Network

Line Listing for CDI Test Method History

As of June 25, 2019 at 3:40 PM

Date Range: All CDITESTMETHHISTORY

Year	Month	Source	cdiTestMeth	cdiTestMethOth	downgrade
2018	.	Annual Hospital Survey	NAAT	.	.
2018	3	MDRO/CDI FacWideIN Summary	NAAT	.	.
2018	12	MDRO/CDI FacWideIN Summary	Other	NAAT test	Y

CDI Test Type resources:

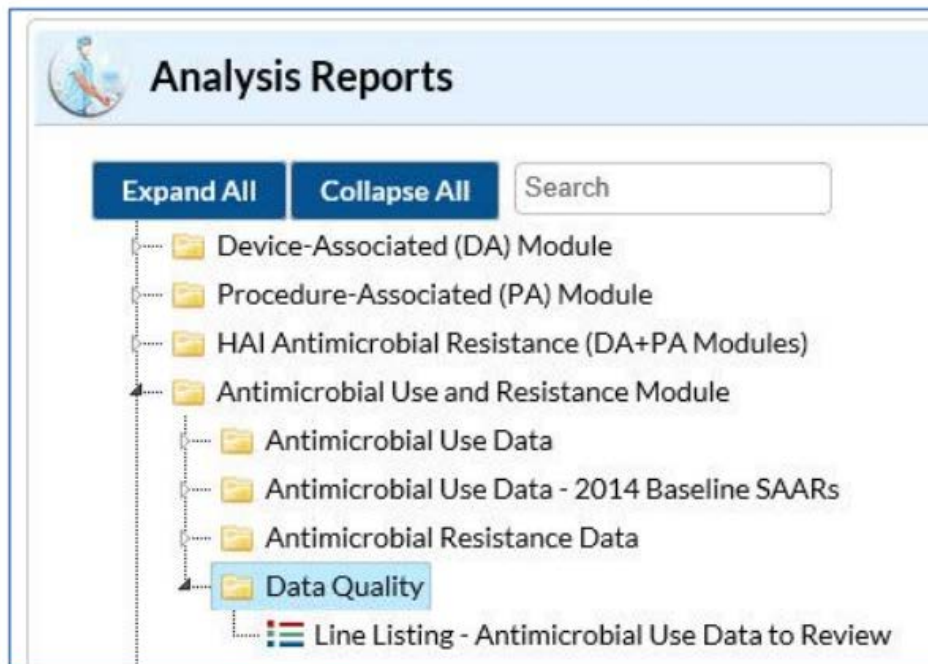
- Newsletter article: https://www.cdc.gov/nhsn/pdfs/newsletters/enevletter_September-2015_final.pdf and <https://www.cdc.gov/nhsn/pdfs/newsletters/nhsn-nl-dec19-508.pdf>



2.10 AUR MODULE

AU Option Data Quality Line list

The AU Option has a report to assess four potential data quality issues that may require review of how data are captured, aggregated and/or uploaded into the application. Facilities should run this report periodically and follow-up with vendors to address identified data quality issues. Please review the Quick Reference Guide (<https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/aur/au-dataquality-linelist-508.pdf>) for information on how to run and interpret this report.



APPENDIX A

Data Quality (DQ) Checklist

Device Associated (DA) Module DQ Checks:

Check	How to Review?
Alerts, as applicable	Review and resolve all soft alerts relevant to the DA module such as Incomplete Events, Missing Events, Incomplete Summary Items and Missing Summary Items
Run Analysis Reports > Advanced > Data Quality > Duplicate BSI/PNEU/UTI Events	1) Validate the duplicate events with your line list, delete the ones that are not applicable.
Run Analysis Reports > Advanced > Data Quality > Events Reported with 0 Device Days	1) Validate the locations with 0 device days within your monthly reporting plan.
Run Analysis Reports > Advanced > Summary-Level Data > Line Listing - All Summary Data to review Summary Data	Verify denominator values



Annual Survey DQ Checks:

Check	How to Review?
Run Analysis Reports > Advanced > Facility-level Data > Line Listing - Hospital Survey (2018 and later) to compare values reported during the current and most recent prior survey year	<ol style="list-style-type: none">1) Review facility characteristics for erroneous selections2) Review count or numeric fields for possible data entry errors, particularly, patient days, admissions, beds, and including any sub-category fields

MDRO/CDI Module Quarterly Data Quality Checks:

Check	How to Review?
Alerts, as applicable	Review and resolve all Alerts for the quarter
Run Analysis Reports > Advanced > Plan Data > Line Listing - Patient Safety Plans to review Monthly Reporting Plans	<ol style="list-style-type: none">1) Verify FacWideIN listed for MRSA and CDI2) Verify emergency department and/or 24-hour observation units, are included, if applicable
Run Analysis Reports > Advanced > Summary-Level Data > Line Listing - All Summary Data to review Summary Data	<ol style="list-style-type: none">1) Verify denominator values2) Resolve potential data entry errors (patient days or admissions reported as 0 or when Line 2 and/or Line 3 is more than 25% greater than Line 1)



Check

Run Analysis Reports > Advanced > Data Quality >

Line Listing - CDI Test Method History

How to Review?

For CDI Test Method = "Other"

- 1) Review free-text field response
- 2) Confirm method is not already available in the drop-down list
- 3) If so, update CDI Test Method

For facilities reporting FacWideIN and IRF Unit summary data forms, confirm reported CDI test method is the same

AUR DQ Check List:

Check

Errors during data submission

Alerts, as applicable

How to Review?

During the submission process, pay special attention to any errors that show up on the PDF submission report. Follow-up with your vendor to resolve issues that occur within the file(s).

Review alerts for missing AU summary, AR summary or AR event data. Submit data for missing location/months or follow instructions to Report No AR events, if applicable

<https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/aur/AR-QRG-NoEvents-508.pdf>



Check**Run AU Option Data Quality Line list****How to Review?**

<https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/aur/au-dataquality-linelist-508.pdf>

Complete AU Annual Validation

<https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/aur/ar-validation-508.pdf>

Complete AR Option Data Validation

<https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/aur/annual-au-data-validation-508.pdf>

Links to Additional Analysis Resources:

1. Resolve soft alerts <https://www.cdc.gov/nhsn/pdfs/gen-support/NHSN-Alerts.pdf>.
2. NHSN Analysis Training Content for the Patient Safety Component modules such as Training Videos, Lectoras and Quick Learns <https://www.cdc.gov/nhsn/training/analysis/index.html> .

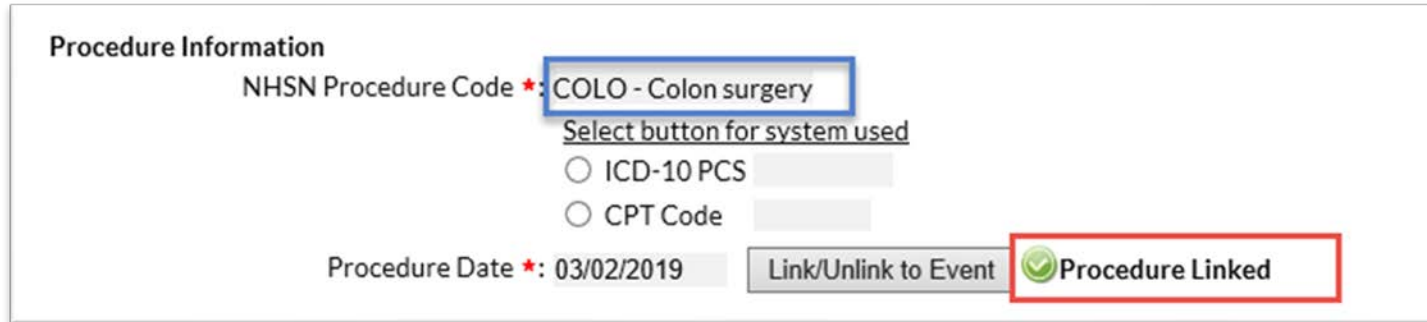


APPENDIX B

How to Unlink a Procedure from an SSI Event:

Described below are steps leading to unlink a procedure from an SSI event.

1. From the **Edit Procedure** screen, click the "**Link/Unlink to Event**" button.



The screenshot shows a form titled "Procedure Information". It contains the following elements:

- NHSN Procedure Code *: COLO - Colon surgery (highlighted with a blue box)
- Select button for system used
 - ICD-10 PCS
 - CPT Code
- Procedure Date *: 03/02/2019
- Link/Unlink to Event button (highlighted with a red box)
- Procedure Linked confirmation message (highlighted with a red box)

2. In the Link Procedure List, you will see that an event is checked. Uncheck the box, then click the "Link/Unlink" button.

Link to Procedure

	Procedure #	NHSN Procedure Code	ICD-9-CM Code	ICD-10 PCS	CPT Code	Procedure Date	Linked Events
<input checked="" type="checkbox"/>	86039	COLO				03/02/2019	88512;

- You will be brought to the procedure screen. Notice that the procedure is not linked to an event.

Procedure Information

NHSN Procedure Code *: COLO - Colon surgery

Select button for system used

ICD-10 PCS

CPT Code

Procedure Date *: 03/02/2019

Procedure is not Linked

- Make any necessary changes to the procedure record and click "**Save**".
- Search for the Event. On the **Edit Event** screen, you will notice that the event is not linked to a procedure. Before linking this event to a procedure, you must either change the procedure information on this record to match any

changes made to the procedure record, or make the procedure information fields blank, as shown below.

Event Information

Event Type *: SSI - Surgical Site Infection Date of Event *: 03/05/2019 20

NHSN Procedure Code *: COLO - Colon surgery

Select button for system used

ICD-10 PCS Outpatient Procedure *: N - No

CPT Code

Procedure Date *: 03/02/2019 20 [Link to Procedure](#)


MDRO Infection Surveillance *: No, this infection's pathogen/location are not in-plan for Infection Surveillance in the MDRO/CDI Module

Location:

Date Admitted to Facility *: 03/02/2019 20

Then, click "**Link/Unlink to Procedure**". You will be brought to the **Link Procedure** list:

Link to Procedure

	Procedure #	NHSN Procedure Code	ICD-9-CM Code	ICD-10 PCS	CPT Code	Procedure Date	Linked Events
	86039	COLO				03/02/2019	88512;

[Link](#) [Cancel](#)

As instructed on the screen, check the appropriate procedure (there may be more than one listed), and click the **"Link/Unlink"** button.

6. You will be brought back to the Edit Event screen. Notice that the event is now linked to a procedure and the procedure fields have autofilled with the correct information.

The screenshot shows the 'Event Information' form with the following details:

- Event Type:** SSI - Surgical Site Infection
- Date of Event:** 03/05/2019
- NHSN Procedure Code:** COLO - Colon surgery
- Procedure Date:** 03/02/2019
- MDRO Infection Surveillance:** No, this infection's pathogen/location are not in-plan for Infection Surveillance in the MDRO/CDI Module
- Outpatient Procedure:** N - No
- Buttons:** 'Link/Unlink Procedure' and 'Event Linked' (highlighted in yellow)

7. Review the rest of the event record, including the specific event type and specific event criteria. When you have finished making any additional changes, click **"Save"**.