



# NHSN Analysis Training 2025

# Housekeeping

- **This call will be recorded, with recording and slides posted to the State HAI website**
- **Please use the chat-box for any questions.**

# Agenda

- **Updates for 2025**
  - Antibiotic Use and Resistance (AUR) Module Ratios
  - Bloodstream Infection Event (CLABSI) Module Ratios
- **Analysis Tools**
  - Standardized Infection Ratio (SIR)
  - SIR Models
  - Standardized Utilization Ratio (SUR)
  - SUR Models
  - Cumulative Attributable Difference (CAD)
  - Rates
- **NHSN Analysis Report Tree**
  - Navigating Tree
  - Modifying Reports
  - Creating Custom Report



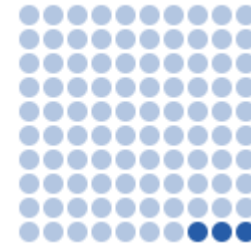
**2025 Updates**

# 2022 Re-baseline

2022 SIRs Currently Available in NHSN	2022 SIRs Under Development in NHSN
MRSA Blood LabID	CLABSI & MBI-LCBI
SSI – Complex 30-Day	CAUTI
	CDI LabID
	VAE & PedVAE
	SSI – Complex Admission/Readmission
	SSI – All SSI
	SUR models

# 2022 Re-baseline

- **Re-baseline: updating incidence data to create a national source for building statistical models**
- **Will be done for each SIR and SUR.**
- **Helps to continue prevention and reduction of HAIs by showing more accurate predicted infection numbers**



3%

of 2022 Rebaseline models  
are available in NHSN



# Analysis Tools

# Standardized Infection Ratios

- **Adjusts for complexity of patients receiving care at your facility**
- **Adjusts for lab testing methods (CDI)**
- **Allows for scalability (facility-wide CLABSI SIR vs. unit-specific rates)**
- **Requires a baseline, progress can be measured**



# Standardized Infection Ratio (SIR)

$$\text{SIR} = \frac{\text{Observed (O) HAIs}}{\text{Predicted (P) HAIs}}$$

- Observed HAIs = sum of all HAIs
- Predicted HAIs = sum of factors from model\* used
- SIR < 1.0 : Actual infections are **LESS** than predicted infections
- SIR > 1.0 : Actual infections are **MORE** than predicted infections
- SIR = 1.0 : Actual infections are **EQUAL** to predicted infections

# Available SIRs

HAI Type with SIRs Available in NHSN
CLABSIs
MBI-LCBIs
CAUTIs
SSIs
VAEs
LabID Events (MRSA Bacteremia & CDIs)

# Standardized Infection Ratios (Models)

Healthcare-associated Infection (HAI) Type	Model Type
SSIs	★ Logistic Regression Model
CLABSIs, CAUTIs, VAEs, LabID MRSA, and LabID CDI	Negative Binomial Regression Model

# Standardized Infection Ratios (Predicted SSIs)

$$\text{logit}(\hat{p}) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_i X_i$$

$\alpha$  = Intercept

$\beta_i$  = Parameter Estimate

$X_i$  = Value of Risk Factor

$i$  = Number of Predictors

Table 1. Risk Factors for SSI HYST: Complex 30-Day Model (2015 Baseline)

Factor	Parameter Estimate	P-value	Variable Coding
Intercept	-5.1801	-	-
Diabetes	0.3247	<0.0001	Yes= 1 No= 0
ASA Score	0.4414	<0.0001	1= 1 2= 2 3= 3 4/5= 4
Body Mass Index (BMI)	0.1106	0.0090	$\geq 30$ = 1 < 30= 0
Patient Age	-0.1501	<0.0001	Patient's age/10
Oncology Hospital	0.5474	0.0005	Oncology hospital= 1 Non-oncology hospital= 0

# Standardized Infection Ratios (Predicted SSIs)

$$\text{logit}(\hat{p}) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_l X_l$$

$$\text{logit}(\hat{p}) = -5.1801 + 0.3247(\text{DIABETES}) + 0.4414(\text{ASA}) + 0.1106(\text{BMI}) - 0.1501(\text{AGE}) + 0.5474(\text{ONCOLOGY HOSPITAL})$$

$$\text{logit}(\hat{p}) = -5.1801 + 0.3247(1) + 0.4414(2) + 0.1106(0) - 0.1501(3.2) + 0.5474(1) = -3.9055$$

$$\hat{p} = \frac{e^{\text{logit}(\hat{p})}}{1 + e^{\text{logit}(\hat{p})}}$$

$$\hat{p} = \frac{e^{-3.9055}}{1 + e^{-3.9055}}$$

$$\hat{p} = 0.020$$

“There is a 2% risk of SSI for Patient A undergoing this surgery.”

Variable Coding
-
Yes= 1
No= 0
1= 1
2= 2
3= 3
4/5= 4
≥ 30= 1
< 30= 0
Patient's age/10
Oncology hospital= 1
Non-oncology hospital= 0

# Standardized Infection Ratios (Calculating SSI SIRs)

Table 2. Risk Factors for 100 Patients Undergoing a HYST Procedure (Complex 30-Day model)

<u>Patient</u>	<u>Diabetes</u>	<u>ASA score</u>	<u>BMI</u>	<u>Age</u>	<u>Oncology Hospital</u>	<u>SSI Identified?</u>	<u>Probability of SSI (<math>\hat{p}</math>)</u>
1	Y	2	29	32	Y	1	0.020
2	N	3	35	49	Y	0	0.019
3	N	5	20	51	Y	1	0.026
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
100	N	4	27	27	Y	0	0.037
TOTAL	.	.	.	.	.	8 (observed SSIs)	6.750 (predicted SSIs)

$$SIR = \frac{\text{Observed (O) HAIs}}{\text{Predicted (P) HAIs}} = \frac{8}{6.750} = 1.190$$

# Standardized Infection Ratios (Models)

Healthcare-associated Infection (HAI) Type	Model Type
SSIs	Logistic Regression Model
CLABSIs, CAUTIs, VAEs, LabID MRSA, and LabID CDI	★ Negative Binomial Regression Model

# Standardized Infection Ratios (Predicted CDIs)

$$\log(\lambda) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_i X_i$$

$\alpha$  = Intercept

$\beta_i$  = Parameter Estimate

$X_i$  = Value of Risk Factor (Categorical variables: 1 if present, 0 if not present)

$i$  = Number of Predictors

Table 3. Risk Factors Used in the Acute Care Hospital CDI LabID Event Model

<u>Factor</u>	<u>Parameter Estimate</u>	<u>P-value</u>
<i>Intercept</i>	-8.9463	<0.0001
Inpatient community-onset (CO) admission prevalence rate	0.7339	<0.0001
CDI test type= EIA	-0.1579	<0.0001
CDI test type= NAAT	0.1307	<0.0001
# ICU beds: $\geq 43$	0.7465	<0.0001
# ICU beds: 20-42	0.7145	<0.0001
# ICU beds: 10-19	0.6261	<0.0001
# ICU beds: 5-9	0.4394	<0.0001
Oncology hospital (facility type = HOSP-ONC)	1.2420	<0.0001
General acute care hospital (facility type = HOSP-GEN)	0.3740	<0.0001
Total facility bed size	0.0003	<0.0001
CDI LabID surveillance in ED or 24-hour observation location(s)	0.1119	<0.0001
Teaching facility (major, graduate, or undergraduate)	0.0331	0.0028



# Standardized Infection Ratios (Predicted CDIs)

# predicted HO CDI =  $\text{Exp} [ -8.9463$   
+ 0.7339 (CO prevalence rate)  
- 0.1579 (CDI test type = EIA)  
+0.1307 (CDI test type = NAAT)  
+ 0.7465 (ICU beds  $\geq 43$ )  
+ 0.7145 (ICU beds: 20 – 42)  
+ 0.6261 (ICU beds: 10-19)  
+ 0.4394 (ICU beds: 5-9)  
+1.2420 (Oncology hospital)  
+ 0.3740 (General hospital)  
+ 0.0003 (Total facility bed size)  
+ 0.1119 (Reporting from ED or 24 hr. Obs)  
+ 0.0331 (Teaching hospital) ] X CDI patient days

# predicted HO CDI =  $\text{Exp} [ -8.9463$   
+ 0.7339 (1.25)  
- 0.1579 (0)  
+0.1307 (1)  
+ 0.7465 (0)  
+ 0.7145 (0)  
+ 0.6261 (0)  
+ 0.4394 (1)  
+1.2420 (0)  
+ 0.3740 (0)  
+ 0.0003 (100)  
+ 0.1119 (1)  
+ 0.0331 (0) ] X 5,000 = 3.321 predicted CDI LabID events

# Standardized Infection Ratios (Predicted CDIs)

# predicted HO CDI = [ -8.9463

+ 0.7339 (1.25)

- 0.1579 (0)

+0.1307 (1)

+ 0.7465 (0)

+ 0.7145 (0)

+ 0.6261 (0)

+ 0.4394 (1)

+1.2420 (0)

+ 0.3740 (0)

+ 0.0003 (100)

+ 0.1119 (1)

+ 0.0331 (0) ] X 5,000 = 3.321 predicted CDI LabID events

$$SIR = \frac{5 \text{ observed HO CDI LabID events}}{3.321 \text{ predicted HO CDI LabID events}} = 1.506$$

# Standardized Utilization Ratios

$$\text{SUR} = \frac{\text{Observed (O) device days}}{\text{Predicted (P) device days}}$$

- **Observed Device Days = sum of all Device Days**
- **Predicted Device Days = sum of factors from model**
  
- **SUR < 1.0 : Actual Device Days are LESS than predicted Device Days**
- **SUR > 1.0 : Actual Device Days are MORE than predicted Device Days**
- **SUR = 1.0 : Actual Device Days are EQUAL to predicted Device Days**

# Available SURs

HAI Type with SURs Available in NHSN
CLABSI
MBI-LCBI
CAUTI
SSI
VAE
LabID Events (MRSA Bacteremia & CDIs)

# Standardized Utilization Ratio (Predicted NICU Central Line Days)

$\text{logit}(\hat{p}) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_i X_i$ , where:

$\alpha$  = Intercept

$\beta_i$  = Parameter Estimate

$X_i$  = Value of Factor (Categorical variables= 1 if present, 0 if not present. Refer to "Variable Coding" column in Table 1 above.)

$i$  = Number of Predictors

**Table 1. Factors Predicting Unit Level Central Line Use; Central Line SUR, NICU (2015 Baseline)**

<u>Factor</u>	<u>Variable Coding</u>	<u>Parameter Estimate</u>	<u>P-value</u>
<b>Intercept</b>	-	-1.7745	<0.0001
<b>Major Teaching Hospital</b>	Yes= 1	0.1538	<0.0001
	No= 0		
<b>General Hospital</b>	General Hospital= 1 Other hospital type= 0	-0.5650	<0.0001
<b>Location</b>	IN:ACUTE:CC:NURS= 1 IN:ACUTE:CC_STEP:NURS= 0	0.1781	<0.0001
<b>Facility Bed Size</b>	≥460 beds= 1	0.2783	<0.0001
	325-459 beds= 1	0.1770	<0.0001
	212-324 beds= 1	0.0987	0.0330
	36-211 beds= 0		
<b>Birthweight</b>	Birthweight Code A= 1	1.3932	<0.0001
	Birthweight Code B= 1	1.0765	<0.0001
	Birthweight Code C= 1	0.6519	<0.0001
	Birthweight Code D/E= 0		

# Standardized Utilization Ratio (Predicted NICU Central Line Days)

$$\begin{aligned} \text{logit}(\hat{p}) = & -1.7745 + 0.1538(\text{MAJOR TEACHING HOSPITAL}) - 0.5650(\text{GENERAL HOSPITAL}) \\ & + 0.1781(\text{NICU}) + 0.0987(\text{BEDSIZE BETWEEN 212 - 324}) \\ & + 1.3932(\text{BIRTHWEIGHT CODE A}) \end{aligned}$$

$$\text{logit}(\hat{p}) = -1.7745 + 0.1538(1) - 0.5650(1) + 0.1781(1) + 0.0987(1) + 1.3932(1) = -0.5157$$

$$\hat{p} = \frac{e^{\text{logit}(\hat{p})}}{1 + e^{\text{logit}(\hat{p})}}$$

$$\hat{p} = \frac{e^{-0.5157}}{1 + e^{-0.5157}}$$

$$\hat{p} = 0.3739$$

$$\text{number of predicted central line days} = 0.3739 \times 155$$

$$\text{number of predicted central line days} = 57.9545$$

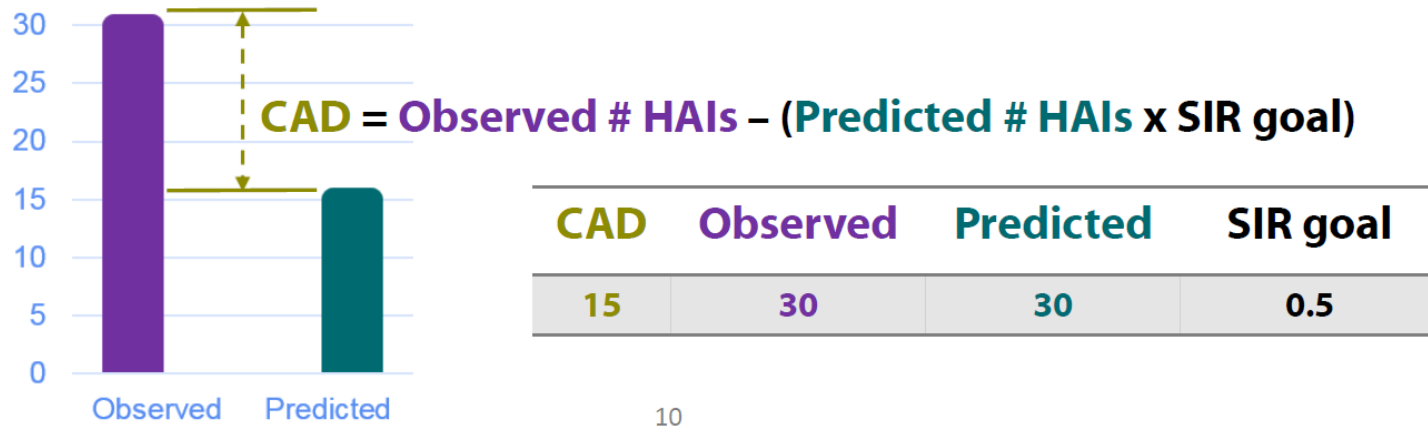
# Standardized Utilization Ratio (Predicted NICU Central Line Days)

Table 2. Central Line SUR for a Level III NICU

<u>Birthweight Code</u>	<u>Major Teaching Affiliation</u>	<u>NIC U</u>	<u>General Hospital</u>	<u>Facility Bed Size</u>	<u>Patient Days</u>	<u>Probability of CL use (<math>\hat{p}</math>)</u>	<u>Total Predicted Device Days</u>
A	Y	Y	Y	300	155	.3739	57.9545
B	Y	Y	Y	300	82	.3031	24.8542
C	Y	Y	Y	300	90	.2215	19.9350
D/E	Y	Y	Y	300	56	.1291	7.2296
<b>Total</b>							<b>109.9733</b>

$$SUR = \frac{\text{Observed (O) CL Days}}{\text{Predicted (P) CL Days}} = \frac{270}{109.9733} = 2.4551$$

# Cumulative Attributable Difference



- Provides the number of infections needed to prevent in order to reach reduction goal
- CAD is not a comparison metric like SIR
  - Detects burden of infection
  - Positive CAD = additional burden of infections than what would be predicted for the SIR goal (“excess” infections)
  - Negative CAD = fewer infections than what would be predicted



# SIR vs CAD

Standardized Infection Ratio SIR				Cumulative Attributable Difference CAD	
<ul style="list-style-type: none"> <li>Ratio of observed to predicted infections</li> <li>Summary measure used to track HAIs at a national, state, or local level over time</li> <li>Risk adjusted</li> <li>Used as a <b>comparative</b> metric</li> </ul>				<ul style="list-style-type: none"> <li># of infections that need to be prevented to achieve SIR goal</li> <li>Summary measure to target prevention</li> <li>Influenced by exposure size</li> <li>Used as a <b>prioritization</b> metric</li> </ul>	
Hospital	Patient days	Observed	Predicted	SIR	CAD
Major Teaching	9,000	27	9	3	18
Rural	1,000	3	1	3	2

# Rates

- **Fixed ratio between two things**
  - Numerator
  - Denominator
- **When there is no SIR, rates can help quantify facility progress**
  - Not as good at adjusting for change as SIR is
    - Should be used only if your facility does not generate an SIR for the HAI of interest
- **Rates are usually in the form:**

$$\frac{\text{Number of Infections (Numerator)}}{\text{Number of Device Days/Patient Days/Procedures (Denominator)}}$$

# Rates

- **Not useful for comparing to other facilities**
  - Cannot control for different patient populations or facility characteristics
- **Can be used to compare previous time periods at same facility/location to identify spikes**
  - Must know what is “normal” for your facility
- **Available for:**
  - Infection Types
  - Device Utilization

# Available Rates

HAI Type with Rates Available in NHSN
CLABSIs
MBI-LCBIs
CAUTIs
PNEUs & VAPs
SSIs
VAEs
LabID Events (MRSA Bacteremia & CDIs)

Devices/Categories with Utilization Rates in NHSN
Central Lines
Indwelling Urinary Catheters
Ventilators



# NHSN Analysis Report Tree

# NHSN Analysis Report Tree

## NHSN - National Healthcare Safety Network



Welcome to the NHSN Landing Page



**Ashley.Gambrell@tn.gov**

Select component:

Patient Safety ▼

Select facility/group:

Fac: TDH Central (ID 15813) ▼

Submit

# NHSN Analysis Report Tree

## NHSN - National Healthcare Safety Network

NHSN Home

Alerts

Dashboard

Reporting Plan

Patient

Event

Procedure

Summary Data

COVID-19

Import/Export

Surveys


Analysis

Users

Facility

Group

Logout

 **Generate Data Sets (Patient Safety)**

▸ TAP Strategy Dashboard

▸ TAS Dashboard

▸ HAI Pathogen Dashboard

▾ Action Items

COMPLETE THESE ITEMS

Generate Data Sets

Reports

Statistics Calculator

Required

2023

Mini-IRF Survey Required

2023

Facility Geolocation

Confirm

ALERTS

282

Missing Events

783

Missing Summary Items


279

Missing Procedures

1

Unusual Susceptibility Profiles

31



# Updating Datasets



## Generate Data Sets (Patient Safety)

Reporting Data Sets

Participation Alerts Data Set (Optional)



Include data for the following time period:

Beginning

01/2015



Ending

12/2022



Clear Time Period

Generate Reporting  
Data Sets

Last Generated:

December 5, 2022 5:57 PM


to include data beginning 01/2015 and ending 12/2022



# NHSN Analysis Report Tree

Analysis	Generate Data Sets
Users	Reports
Group	Statistics Calculator
Logout	Preferences



 **Analysis Reports**

Expand All

Collapse All

Search

- 📁 HAI Risk Adjusted Measure Reports (SIRs, SURs)
- 📁 HAI Detailed Reports (Line Lists, Rate Tables, etc.)
- 📁 CMS Reports
- 📁 Targeted Assessment for Prevention (TAP) Reports
- 📁 Antimicrobial Use and Resistance Module
- 📁 COVID-19 Module
- 📁 Hospital Respiratory Data
- 📁 Healthcare Bed Capacity
- 📁 Nursing Hours Per Patient Day (NHPPD)
- 📁 Supplemental Reports
- 👤📁 My Custom Reports
- 📁 Published Reports

# NHSN Analysis Report Tree

NHSN Home

Dashboard ▶

Reporting Plan ▶

Event ▶

Procedure ▶

Summary Data ▶

Hospital Respiratory Data ▶

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Cheat Sheets ▶

Logout

 **Analysis Reports**

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📁 HAI Risk Adjusted Measure Reports (SIRs, SURs)

⌵

📁 2022 Baseline (Baseline Set 3)

⌵

📁 2015 Baseline (Baseline Set 2)

⌵

📁 CLABSI and MBI-LCBI

⌵

📁 CAUTI

⌵

📁 VAE

⌵

📁 SSI

⌵

📁 MRSA Blood LabID

⌵

📁 CDI LabID

⌵

📁 Original Baseline (Baseline Set 1)

⌵

📁 HAI Detailed Reports (Line Lists, Rate Tables, etc.)

⌵

📁 CMS Reports

⌵

📁 Targeted Assessment for Prevention (TAP) Reports

⌵

📁 Antimicrobial Use and Resistance Module

⌵

📁 COVID-19 Module

⌵

📁 Hospital Respiratory Data

⌵

📁 Healthcare Bed Capacity

⌵

📁 Nursing Hours Per Patient Day (NHPPD)

⌵

📁 Supplemental Reports

⌵

📁 My Custom Reports

⌵

📁 Published Reports

# NHSN Analysis Report Tree



## Analysis Reports

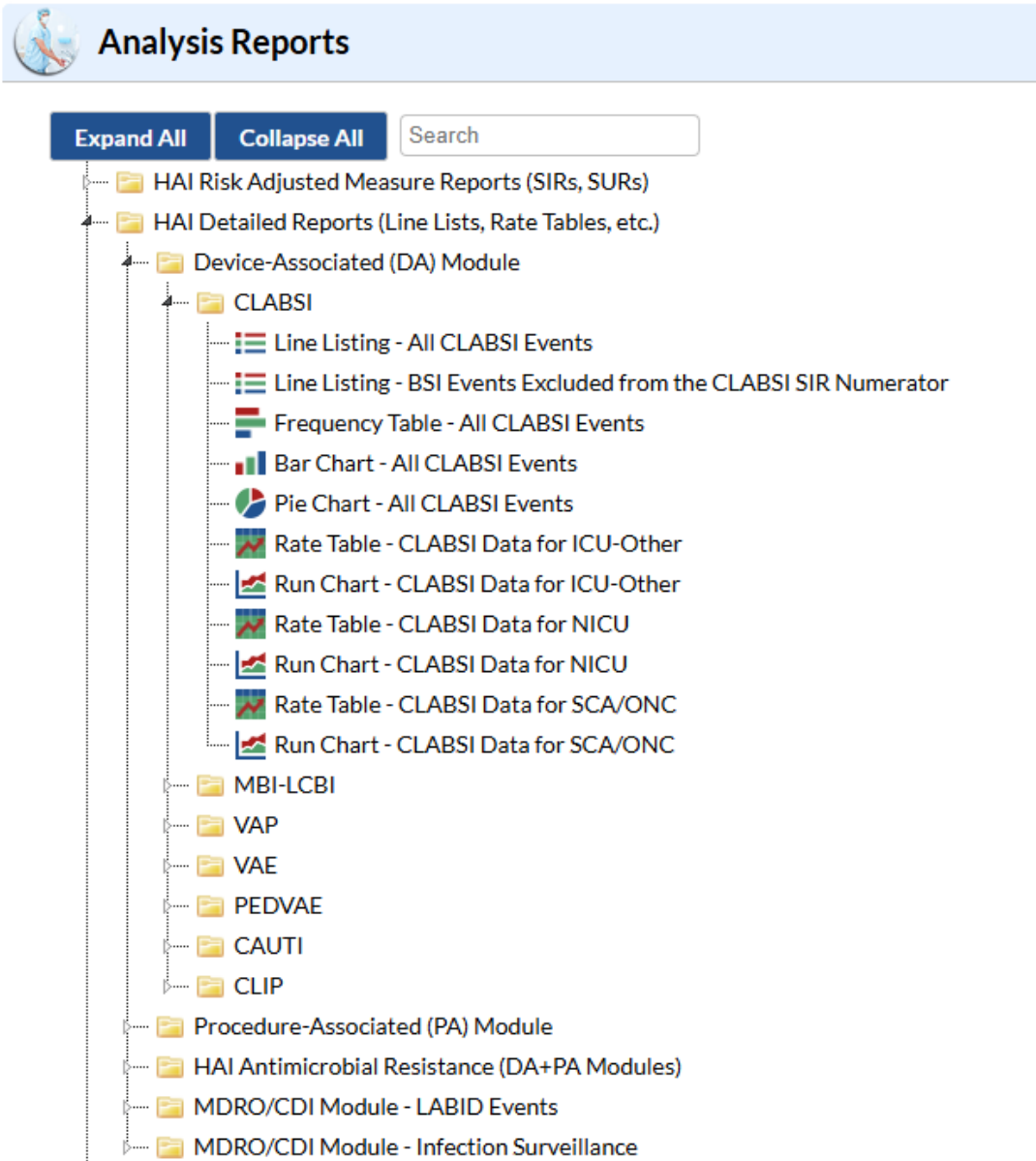
Expand All

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Search

- [-] HAI Risk Adjusted Measure Reports (SIRs, SURs)
  - [-] 2022 Baseline (Baseline Set 3)
  - [-] 2015 Baseline (Baseline Set 2)
    - CLABSI and MBI-LCBI
      - SIR SIR - ACH MBI-LCBI Data (2015 Baseline)
      - SIR SIR - ACH CLABSI Data (2015 Baseline)
      - SUR SUR - ACH Central Line Device Use (2015 Baseline)
      - SIR SIR - CAH CLABSI Data (2015 Baseline)
      - SUR SUR - CAH Central Line Device Use (2015 Baseline)
      - SIR SIR - LTAC CLABSI Data (2015 Baseline)
      - SUR SUR - LTAC Central Line Device Use (2015 Baseline)
      - SIR SIR - IRF CLABSI Data (2015 Baseline)
      - SUR SUR - IRF Central Line Device Use (2015 Baseline)
    - CAUTI
    - VAE
    - SSI
    - MRSA Blood LabID
    - CDI LabID
  - [-] Original Baseline (Baseline Set 1)

# NHSN Analysis Report Tree



# NHSN Analysis Report Tree



## Analysis Reports

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- [-] HAI Risk Adjusted Measure Reports (SIRs, SURs)
- [-] HAI Detailed Reports (Line Lists, Rate Tables, etc.)
  - [-] Device-Associated (DA) Module
  - [-] Procedure-Associated (PA) Module
    - [-] All Procedure-Associated Events
      - [-] Line Listing - All Procedure-Associated Events
      - [-] Frequency Table - All Procedure-Associated Events
      - [-] Bar Chart - All Procedure-Associated Events
      - [-] Pie Chart - All Procedure-Associated Events
    - [-] SSIs
      - [-] Line Listing - All SSI Events
      - [-] Frequency Table - All SSI Events
      - [-] Bar Chart - All SSI Events
      - [-] Pie Chart - All SSI Events
      - [-] Rate Table - SSI Data by Procedure and Risk Index
      - [-] Run Chart - SSI Data by Procedure and Risk Index
      - [-] Rate Table - Specific Event SSI Rates by Procedure
      - [-] Run Chart - Specific Event SSI Data by Procedure
      - [-] Rate Table - SSI Data by Surgeon, Procedure, and Risk Index
      - [-] Run Chart - SSI Data by Surgeon, Procedure, and Risk Index
- [-] HAI Antimicrobial Resistance (DA+PA Modules)
- [-] MDRO/CDI Module - LABID Events
- [-] MDRO/CDI Module - Infection Surveillance

# NHSN Analysis Report Tree



## Analysis Reports

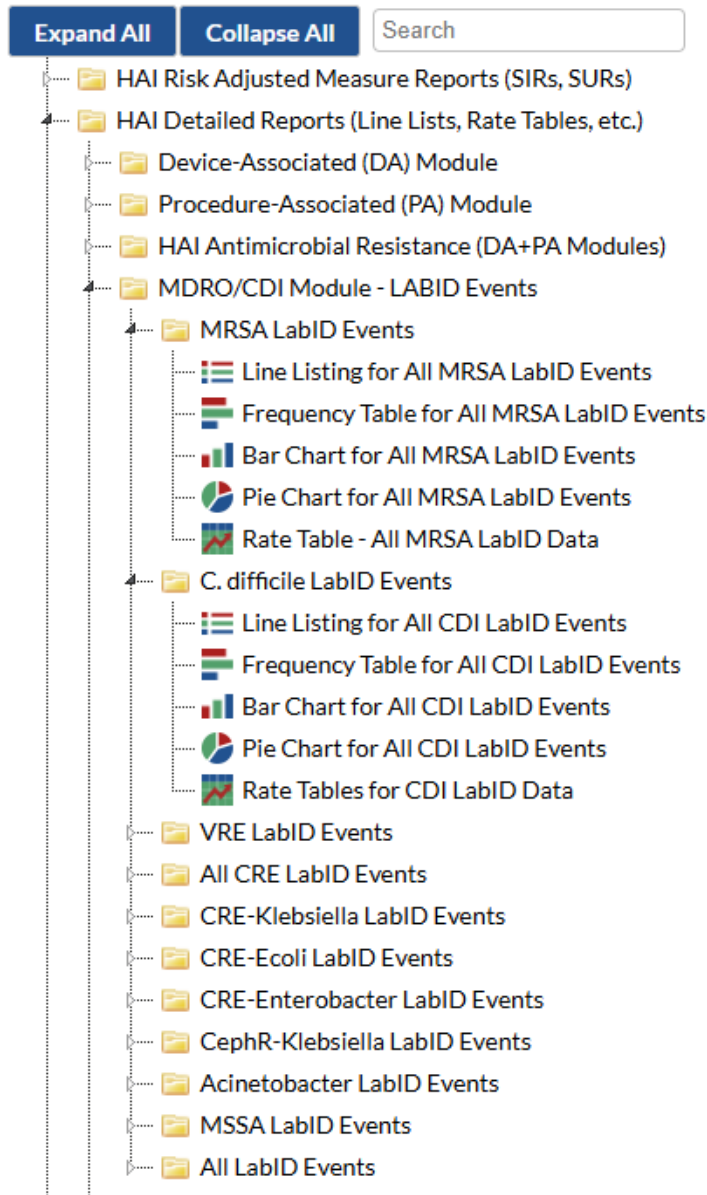
Expand All

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Search

- ▶ HAI Risk Adjusted Measure Reports (SIRs, SURs)
- ▶ HAI Detailed Reports (Line Lists, Rate Tables, etc.)
  - ▶ Device-Associated (DA) Module
  - ▶ Procedure-Associated (PA) Module
  - ▶ HAI Antimicrobial Resistance (DA+PA Modules)
    - ▶ Unusual Susceptibility Profile Alerts
      - ▶ Line Listing- Unusual Susceptibility Profiles
      - ▶ Frequency Table- Unusual Susceptibility Profiles
      - ▶ Bar Chart- Unusual Susceptibility Profiles
      - ▶ Pie Chart - Unusual Susceptibility Profiles
    - ▶ Antimicrobial Resistant HAIs
      - ▶ Line Listing- Antimicrobial Resistant Organisms
      - ▶ Frequency Table- Antimicrobial Resistant Organisms
      - ▶ Rate Table- Antimicrobial Resistance Percentages
  - ▶ MDRO/CDI Module - LABID Events
  - ▶ MDRO/CDI Module - Infection Surveillance

# NHSN Analysis Report Tree



# NHSN Analysis Report Tree
















## Analysis Reports

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- ▶  HAI Risk Adjusted Measure Reports (SIRs, SURs)
- ▶  HAI Detailed Reports (Line Lists, Rate Tables, etc.)
- ▶  CMS Reports
  - ▶  Acute Care Hospitals (ACHs)
    - .....  SIR - ACH CLABSI Data for CMS IPPS (2015 Baseline)
    - .....  SIR - ACH CAUTI Data for CMS IPPS (2015 Baseline)
    - .....  SIR - ACH Complex 30-Day SSI Data for CMS IPPS (2015 Baseline)
    - .....  SIR - ACH MRSA Blood FacwideIN LabID Data for CMS IPPS (2015 Baseline)
    - .....  SIR - ACH CDI FacwideIN LabID Data for CMS IPPS (2015 Baseline)
  - ▶  Critical Access Hospitals (CAHs)
  - ▶  Inpatient Rehabilitation Facilities (IRFs)
  - ▶  Long Term Acute Care Hospitals (LTACs)
  - ▶  PPS-Exempt Cancer Hospitals (PCHs)



# NHSN Analysis Report Tree



## Analysis Reports

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- ▶ HAI Risk Adjusted Measure Reports (SIRs, SURs)
- ▶ HAI Detailed Reports (Line Lists, Rate Tables, etc.)
- ▶ CMS Reports
- ▶ Targeted Assessment for Prevention (TAP) Reports
  - ▶ Acute Care Hospitals (ACHs) and Critical Access Hospitals (CAHs)
    - ... **TAP** TAP Report - ACH and CAH CLABSI Data (2015 Baseline)
    - ... **TAP** TAP Report - ACH and CAH CAUTI Data (2015 Baseline)
    - ... **TAP** TAP Report - ACH and CAH FACWIDEIN MRSA LabID Data (2015 Baseline)
    - ... **TAP** TAP Report - ACH and CAH FACWIDEIN CDI LabID Data (2015 Baseline)
  - ▶ Long Term Acute Care Hospitals (LTACs)
  - ▶ Inpatient Rehabilitation Facilities (IRFs)

# NHSN Analysis Report Tree



## Analysis Reports

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- [-] Targeted Assessment for Prevention (TAP) Reports
- [-] Antimicrobial Use and Resistance Module
  - [-] Antimicrobial Use Data
  - [-] Targeted Assessment for Stewardship (TAS) Reports
  - [-] Antimicrobial Use Data - 2014 Baseline SAARs
  - [-] Antimicrobial Resistance Data
  - [-] Data Quality

# NHSN Analysis Report Tree



## Analysis Reports

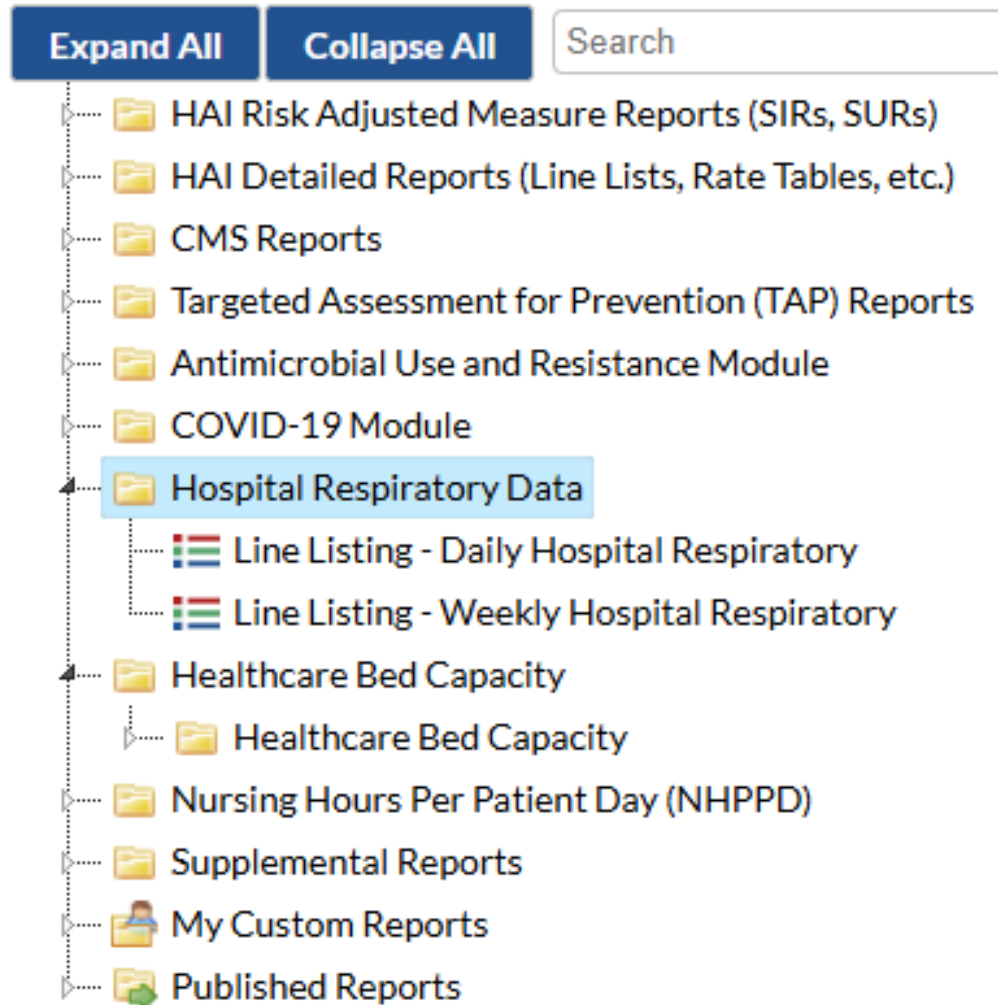
Expand All

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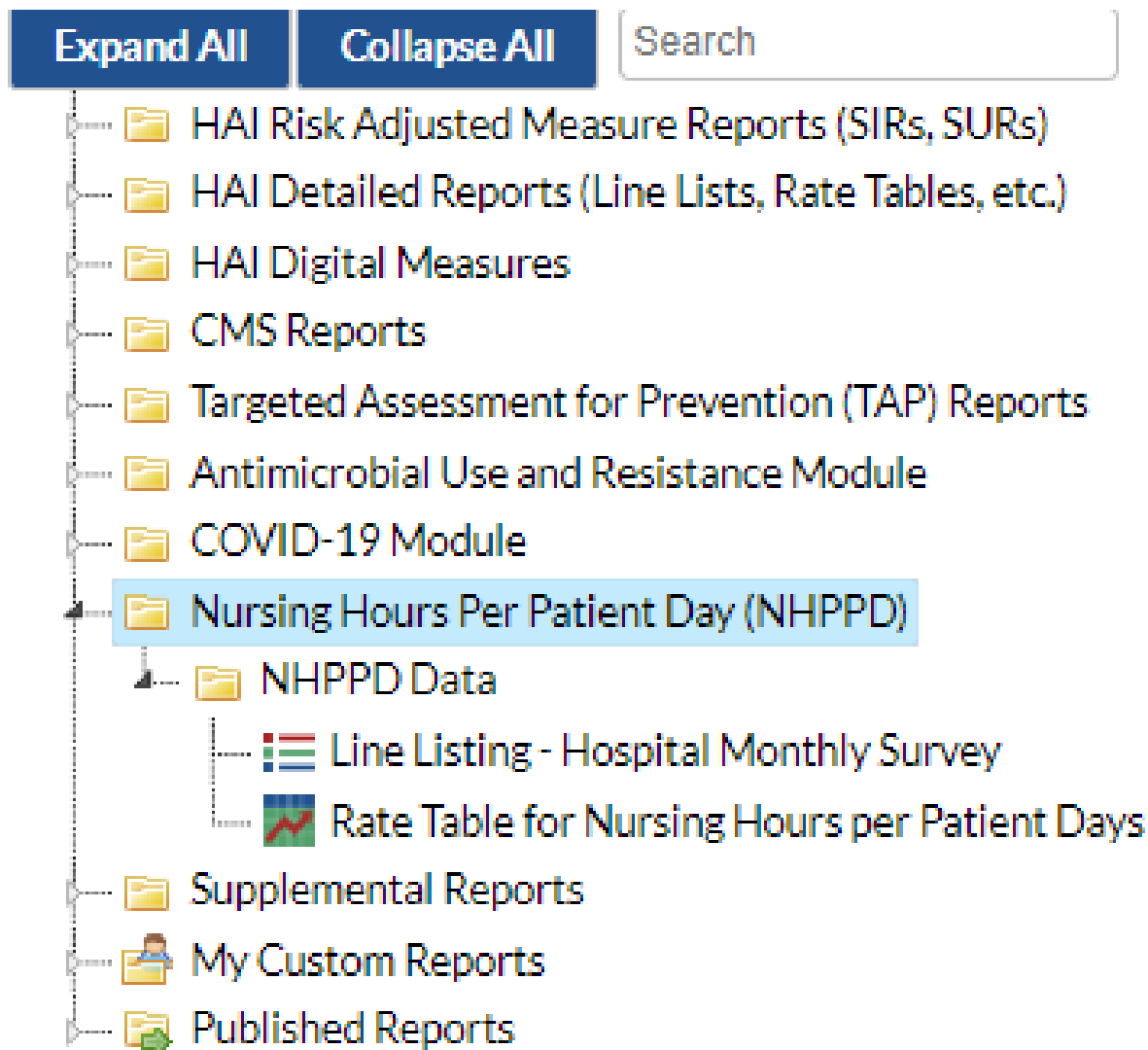
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- ▶ Antimicrobial Use and Resistance Module
- ▶ COVID-19 Module
  - ▶ NHSN Hospital COVID-19 Data
    - ▮ Line Listing - Patient Impact and Hospital Capacity
    - ▮ Line Listing - Healthcare Worker Staffing Impact
    - ▮ Line Listing - Healthcare Supply Impact
- ▶ Hospital Respiratory Data
- ▶ Healthcare Bed Capacity
- ▶ Nursing Hours Per Patient Day (NHPPD)
- ▶ Supplemental Reports

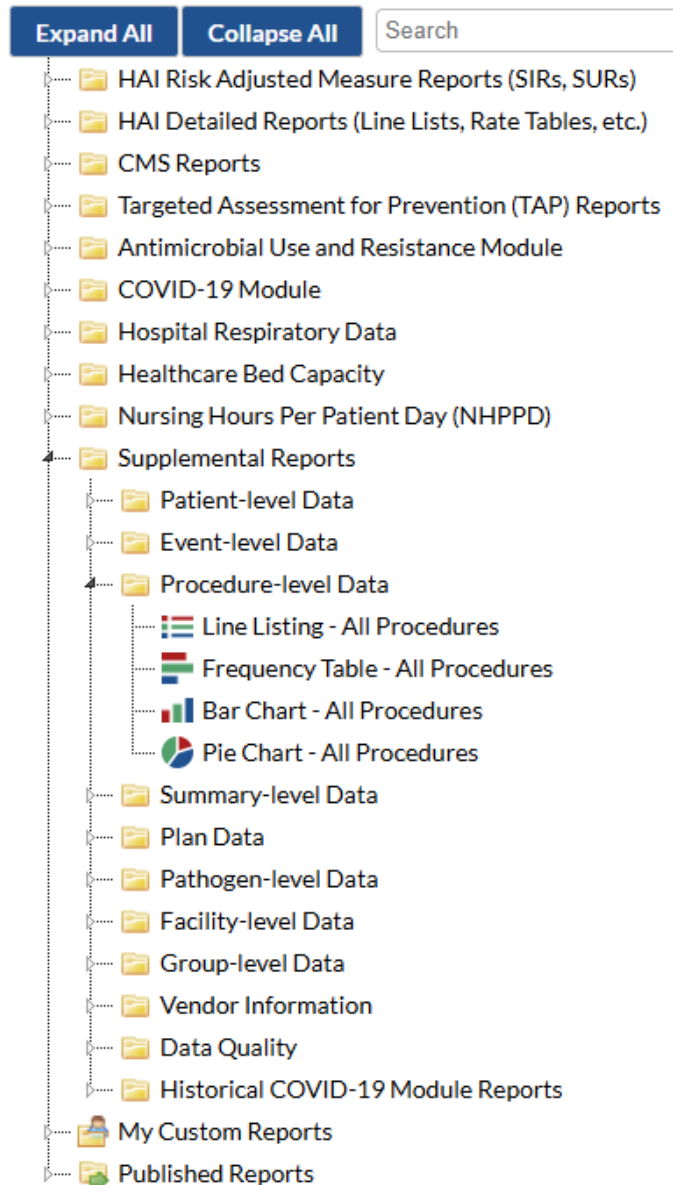
# NHSN Analysis Report Tree












# NHSN Analysis Report Tree



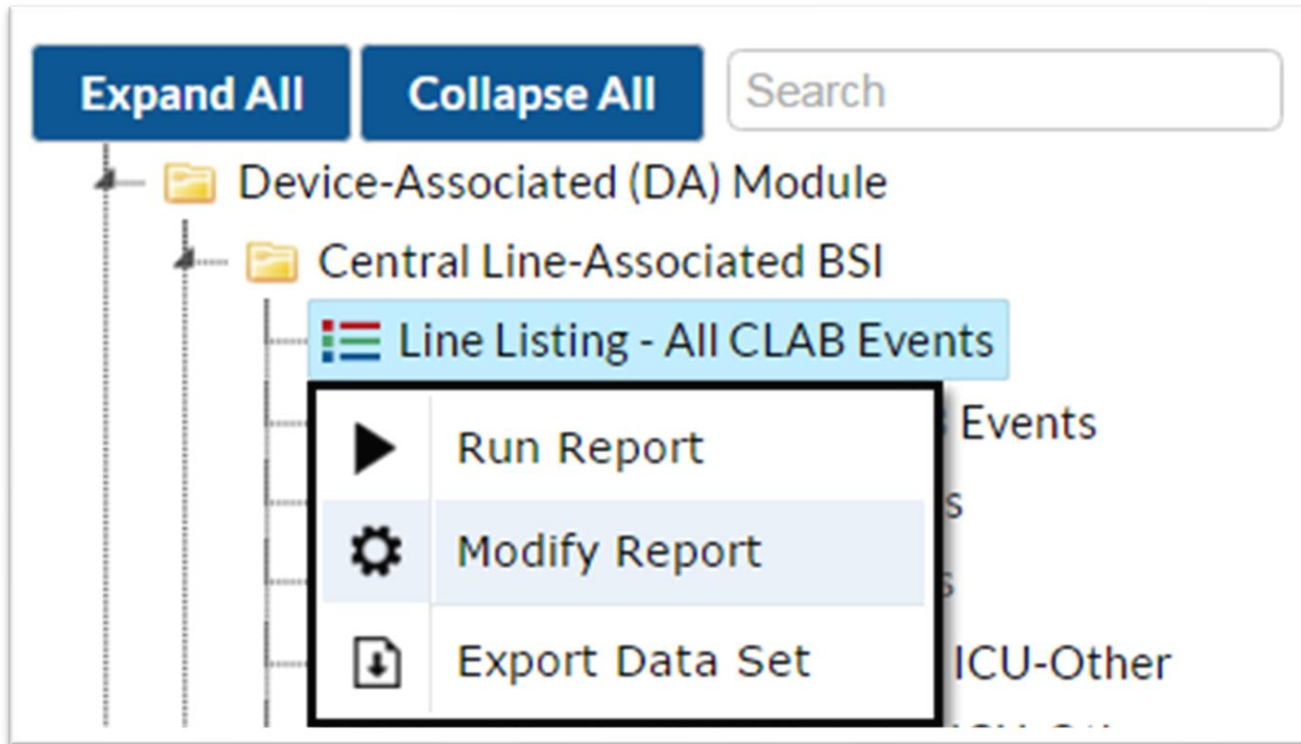
# NHSN Analysis Report Tree



# Specialized Reports (Data Quality)

- .....  Data Quality
  - .....  Line Listing - CDI Test Method History
  - .....  Line Listing - Duplicate Procedures
  - .....  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

# Modifying Report (Line Listing)





# Modifying Report (Line Listing)

## Modify "Line Listing - All CLAB Events"

☒ Show descriptive variable names ([Print List](#))

Analysis Data Set: CLAB\_Events

Type: Line Listing

Last Generated: [December 5, 2022 5:24 PM](#)

Title/Format

Time Period

Filters

Display Variables

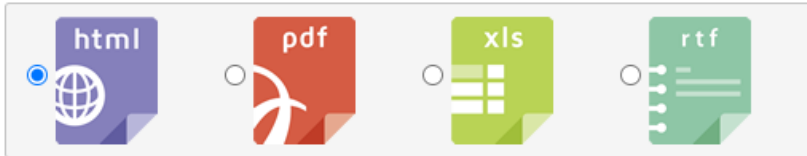
Sort Variables

Display Options

Title:

Line Listing for All Central Line-Associated BSI Events

Format:



Run

Save...

Export...

Close

# Modifying Report (Line Listing)

## Modify "Line Listing - All CLAB Events"

☐ Show descriptive variable names ([Print List](#))

Analysis Data Set: CLAB\_Events

Title/Format

**Time Period**

Filters

Display Variables

Sort Variables

Display Options

### Time Period:

Date Variable

Beginning

Ending

evntDateYQ ▼

2015Q1

2015Q2

✕ Clear Time Period

☐ Enter Date variable/Time period at the time you click the Run button

# Modifying Report (Line Listing)

## Modify "Line Listing - All CLAB Events"

☐ Show descriptive variable names ([Print List](#))

Analysis Data Set: CLAB\_Events    Type: Line Listing

Title/Format

Time Period

**Filters**

Display Variables

Sort Variables

Display Options

Additional Filters:



Show



Clear

AND OR

AND OR

location ▼

equal ▼

MICU - MEDICAL ICU ▼

# Modifying Report (Line Listing)

## Modify "Line Listing - All CLAB Events"

☐ Show descriptive variable names (Print List)

Analysis Data Set: CLAB\_Events

Type: Line Listing

Data Set Generated On: 01/25/2017 09:25:00

Title/Format

Time Period

Filters

Display Variables

Sort Variables

Display Options

### Display Variables:

#### Available Variables:

evntDateYH  
evntDateYM  
evntDateYQ  
evntDateYr  
evntToDisDays  
id2  
lcbiPath  
lcbiPathDesc  
linkedproc  
locationType  
locCDC  
locCDCDesc  
locLabel  
locStatus  
mbi\_lcbi

All

Selected

Add selected variables to the report

All

#### Selected Variables:

orgID  
patID  
dob  
gender  
eventDate  
eventType  
spcEvent  
location

Up

Down

Undo

# Modifying Report (Line Listing)

## Modify "Line Listing - All CLAB Events"

☐ Show descriptive variable names ([Print List](#))

Analysis Data Set: CLAB\_Events

Type: Line Listing

Last Generated: December 5, 2022 5:24 PM

Title/Format

Time Period

Filters

Display Variables

**Sort Variables**

Display Options

### Sort Variables:

#### Available Variables:

admDateYH  
admDateYM  
admDateYQ  
admDateYr  
admitDate  
admToDisDays  
admToEvntDays  
bedsize  
birthWtCode  
birthWtCodeDesc  
cdad  
centralLine  
clab\_exclude  
completedFlag  
contribDeath

All

Selected

< Selected

<< All

#### Selected Variables:

ageAtEvent  
birthWt  
CCN

Up

Down

Undo

# Modifying Report (Line Listing)

## Modify "Line Listing - All CLAB Events"

☐ Show descriptive variable names ([Print List](#))

Analysis Data Set: CLAB\_Events

Type: Line Listing

Last Generated: December 5, 2022 5:24 PM

Title/Format

Time Period

Filters

Display Variables

Sort Variables

Display Options

Line Listing Options:

Page by variable:

orgID  
patID  
dob  
gender  
sexAtBirth  
genderIdentity  
admitDate  
eventID  
eventDate  
eventType  
spcEvent  
location

# Modifying Report (SIR Report)

## Modify "SIR - Acute Care Hospital CLAB Data"

☐ Show descriptive variable names (Print List)

Analysis Data Set: bs2\_CLAB\_RatesICU

Type: SIR

Data Set Generated On: 02/23/2017 12:20:00

Title/Format

Time Period

Filters

Display

Additional Filters:



Show



Clear

AND OR

AND OR

bsiPlan

equal

Y

locationType

equal

CC - CC

AND OR

locationType

equal

CC\_N - CC\_N

In this example, each Group is separated by "OR" and each rule within a group is connected by "AND". This report will select events and denominator data if the BSI Plan is Yes and the location type is CC or if the location type is CC\_N.

# Modifying Report (SIR Report)

**Modify "SIR - Acute Care Hospital CLAB Data"**

☐ Show descriptive variable names ([Print List](#))

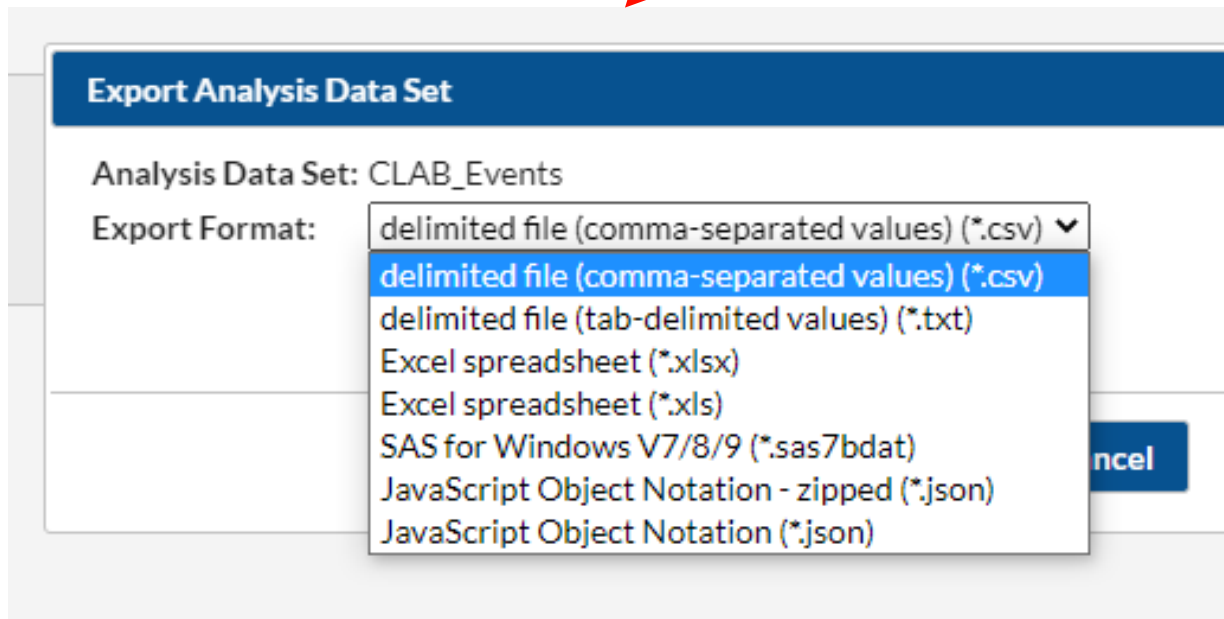
Title/FormatTime PeriodFiltersDisplay Options

SIR Options:

Group by: summaryYH ▼CumulativesummaryYHsummaryYMsommaryYQsummaryYr



# Viewing Report



# Interpreting Report (SIR Report – Option “Run”)

## National Healthcare Safety Network

### SIR for Central Line-Associated BSI Data for Acute Care Hospitals (2015 baseline) - By OrgID

As of: March 10, 2017 at 9:58 AM

Date Range: BS2\_CLAB\_RATE\$ALL summaryYr 2015 to 2015

orgID=10000 CCN=32M22222 medType=M

orgID	summaryYQ	infCount	numPred	numcldays	SIR	SIR_pval	sir95ci
10000	2015Q1	4	1.903	1917	2.102	0.1701	0.668, 5.070
10000	2015Q2	4	2.310	2018	1.731	0.2878	0.550, 4.176
10000	2015Q3	0	0.026	32	.	.	
10000	2015Q4	0	0.042	49	.	.	

# Creating a Custom Report

## Modify "CROBERTS - Line Listing for All CDIF LabID Events"

☒ Show descriptive variable names ([Print List](#))

Analysis Data Set: LabID\_Events

Type: Line Listing

Data Set Generated On: 01/09/2018 16:35:00

Title/Format

**Time Period**

Filters

Display Variables

Sort Variables

Display Options

Time Period:

Date Variable


Beginning

Ending

Spec Collected~Yr/Mon

01/2015

12/2017


 Clear Time Period

☐ Enter Date variable/Time period at the time you click the Run button

**Specify a name for your Analysis Report:**


Analysis Report Name: CROBERTS - Line Listing for All CDIF LabID Events


- ☒ Overwrite existing Custom Analysis Report (Save)
- ☐ Create a new Custom Analysis Report based on this one (Save as)

 Save

Cancel

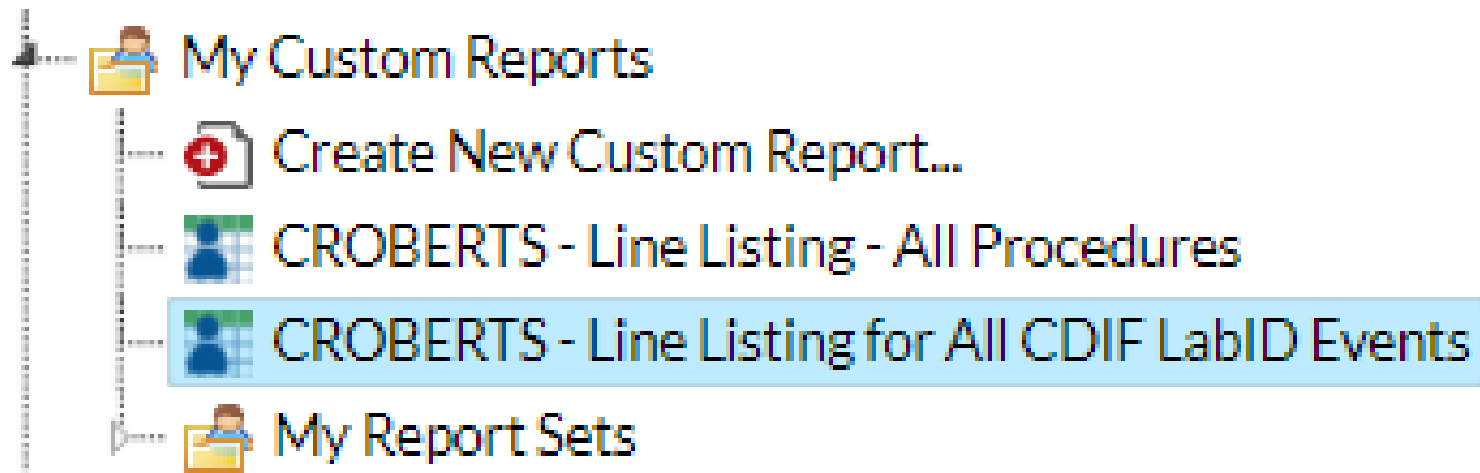
 Run

 Save...

 Export...

Close

# Creating a Custom Report



# NHSN Resources

## Analysis Tools

- [A Guide to the Standardized Infection Ratio](#)
- [A Guide to the Standardized Utilization Ratio](#)
- [AR Option Standardized Resistant Infection Ratio Guide](#)
- [AR Option Pathogen-specific Standardized Infection Ratio Guide](#)
- [NHSN Patient Safety Component Analysis Quick References Guides](#)

## General Tools

- [2025 Patient Safety Component Manual](#)
- [Charting the Course: 2022 NHSN HAI Rebaseline](#)
- [CDC's Rebaseline Project FAQ](#)

# Contact

- **NHSN Related**
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  - [Vicky.Lindsey@tn.gov](mailto:Vicky.Lindsey@tn.gov)
- **Infection Prevention**
  - [HAI.Health@tn.gov](mailto:HAI.Health@tn.gov)