

Epidemiology, Surveillance and an Introduction to the National Healthcare Safety Network (NHSN)

Shasta IP Seminar, Sept. 26-27, 2024

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Objectives

- Discuss basic principles of epidemiology and how they apply to healthcare-associated infection (HAI) surveillance
- Review recommended surveillance practices
- Describe surveillance outcome and process measures for infection prevention

Epidemiology and Surveillance:

A Deep Dive



Epidemiology

- Definition: Study of disease factors affecting populations
 - Epi = upon or around
 - Demos = people
 - Logos = study of

Clinical care: focus on the individual

VS

Epidemiology: focus on the group

[CDC Principles of Epidemiology in Public Health Practice, Third Edition](http://cdc.gov/csels/dsepd/ss1978/lesson1/section1.html)

(cdc.gov/csels/dsepd/ss1978/lesson1/section1.html)

Infection Prevention and Healthcare Epidemiology

- Epidemiologic research and surveillance underlie HAI prevention
 - Use data for action!
- Healthcare epidemiology answers questions such as:
 - What factors contribute to increased infection rates?
 - What populations are at higher risk for developing HAI?
 - How have HAI changed over time?

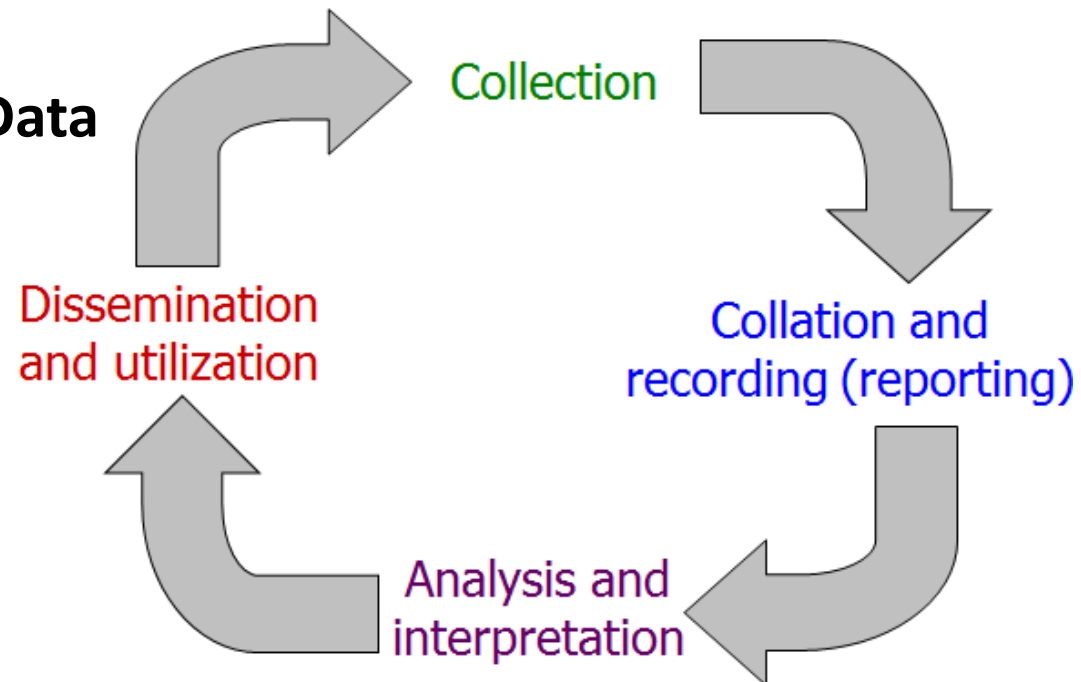
Goal is HAI prevention

Surveillance

Sur = over Veille = watch or watching watching over

A surveillance system is an information loop that starts and ends with communication and action

Flow of Surveillance Data



Key Tenets of HAI Surveillance

- A written plan serves as the foundation
 - What HAI am I tracking? Why?
 - How will data be used?
 - Where are opportunities to prevent HAI in my facility?
- The intensity of surveillance efforts need to be maintained over time
- Stay consistent over time; always apply same surveillance definitions

Process and Outcome Measures

- **Process measure:** how many urinary catheters on med/surg unit B
- **Outcome measure:** UTI rate for med/surg unit B
- By the *process* of eliminating unnecessary urinary catheters, the *outcome* was a reduction in CAUTIs for med/surg unit B

Surveillance Definitions

- Always refer to written definitions to ensure accuracy of applying case definitions
 - Use standardized, published, validated definitions where available
- For accurate and valid comparisons, use the same definitions
 - If definitions change, the comparability of rates over time will be compromised

“...align criteria and definitions and decrease subjectivity while maintaining epidemiologic standardization and clinical relevance.”

(NHSN Patient Safety Module, Chapter 2, January 2022)

Collect Surveillance Data

- Include IP, clinical staff, and others share the responsibility
- Limit collection to only what is needed
- Be involved in efforts when creating or revising the electronic health records to enable HAI data collection

Numerator Data

- Numerator = number of instances of the “event” being measured
- Examples:
 - HAI identified through **active** surveillance: CLABSI, CAUTI, SSI, VAP
 - HAIs identified by **laboratory** finding alone: CDI, MRSA BSI, VRE BSI
 - Care **practices, processes**, observations: hand hygiene compliance
- Record point in time or time period

Denominator Data

- Denominator = number of patients or procedures being followed, the population size, or person-time at risk (patient or line days)
- Examples:
 - Procedures
 - Patient days
 - Patient visits



Measuring Infections

Incidence

Number of persons in a population who develop a disease or condition within a specified period of time

Measure of new infections

Prevalence

Proportion of persons in a population who have a disease or condition at a given point in time

Measure of infections that are present

Prospective Surveillance

- Initiated when patient is still under care
- Advantages
 - Ability to capture information in real time
 - Can interview caregivers
 - Can gather findings not recorded in patient record
 - Easier to demonstrate temporality (e.g., before and after observations) and therefore make causal inferences

Retrospective Surveillance

- Closed record review after patient has been discharged
- Advantages:
 - Allows for comprehensive review of sequential events
 - Efficient
- Disadvantage:
 - Does not allow for prompt intervention
 - Important/relevant information may be missing
- Administrative (billing, coding) data alone **cannot accurately identify HAI**
 - May be useful for identifying **possible HAI**

Laboratory-based surveillance

A surveillance method in which the reports of cases come from clinical laboratory data only (forgoing case review/symptomatology)

Calculate and Analyze Infection Rates

Calculate rates and ratios by denominator type

- Total population at risk, or time at risk
- Used to calculate raw rate or incidence density rate:

Examples:

$$\frac{5 \text{ SSI}}{300 \text{ cardiac procedures}} \times 100 = 1.67$$

$$\frac{2 \text{ CLABSI}}{1500 \text{ line days}} \times 1000 = 1.33$$

$$\frac{218 \text{ patient days with central line}}{360 \text{ total patient days}} = 0.61$$

Risk Adjustment and Risk Factor Data

- Factors that increase a patient's risk for HAI include:
 - Patient characteristics and co-morbidities
 - Facility characteristics
 - Level I trauma
 - Level III NICU
 - Critical access hospital
 - Unit / ward type
 - Med/surg
 - Telemetry
 - ICU
- Community disease prevalence
- Invasive device use and duration
 - Central lines
 - Indwelling urinary catheters
 - Ventilator use
- Surgical procedure types, duration, approach
 - Use of robotics
 - Use of laparoscope versus open procedure

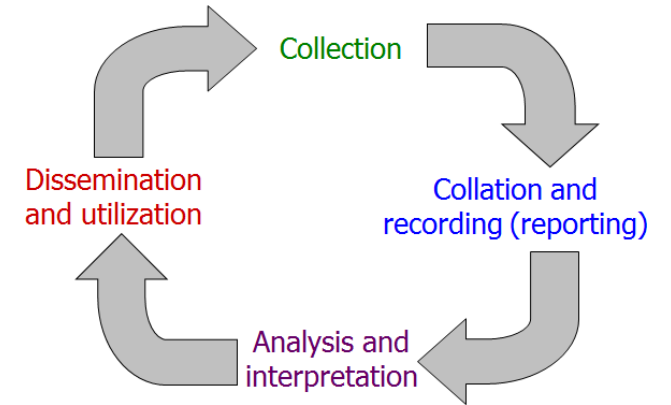
Data collection includes risk factor data necessary for risk adjustment

Standardized Infection Ratio (SIR)

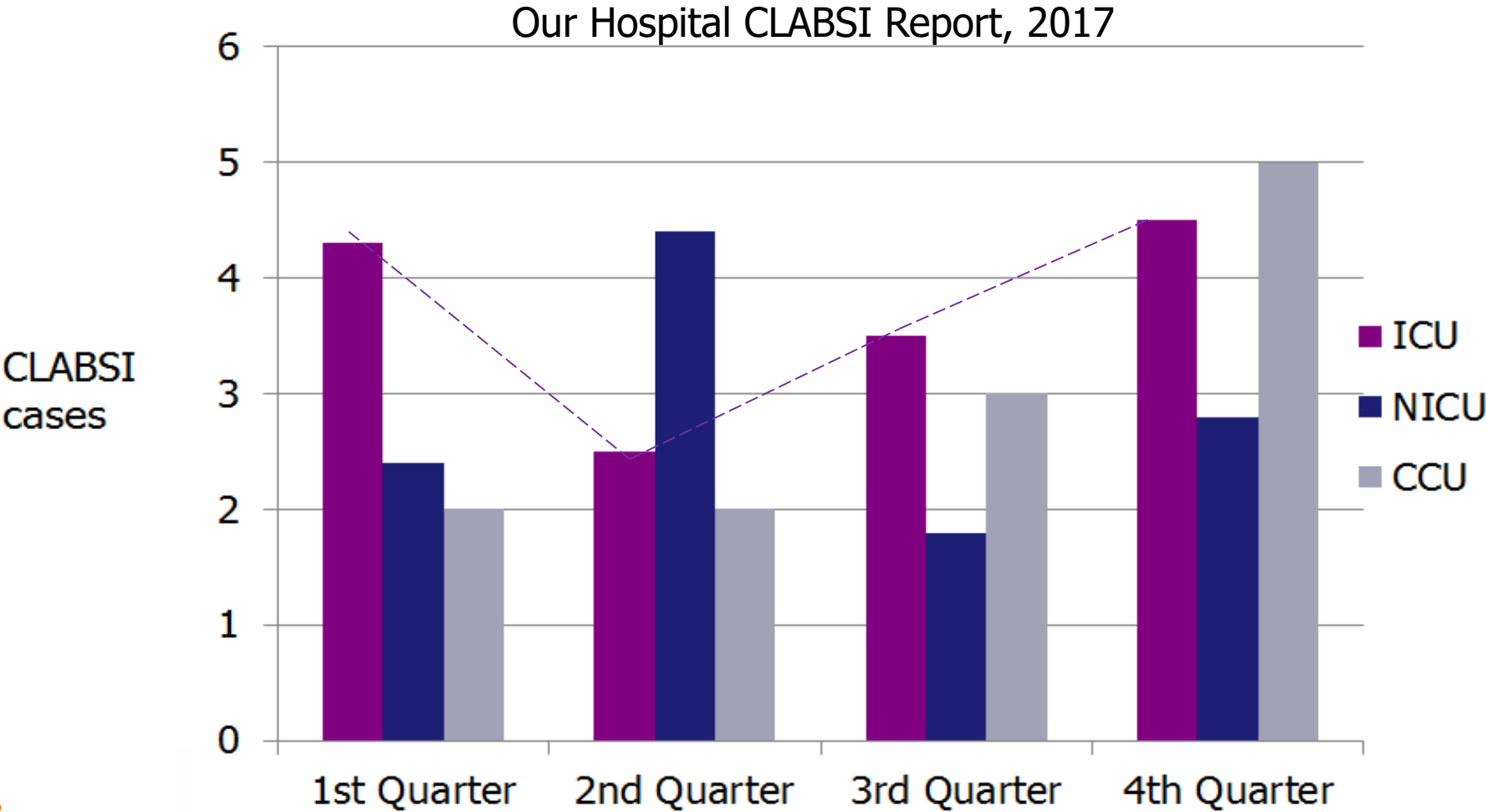
- Summary measure used to track HAI incidence
- Allows for tracking over time
- Compares the actual number of HAI reported to what would be predicted using 2015 baseline data
- Adjusted for risk factors significantly associated with HAI

Analysis and Interpretation

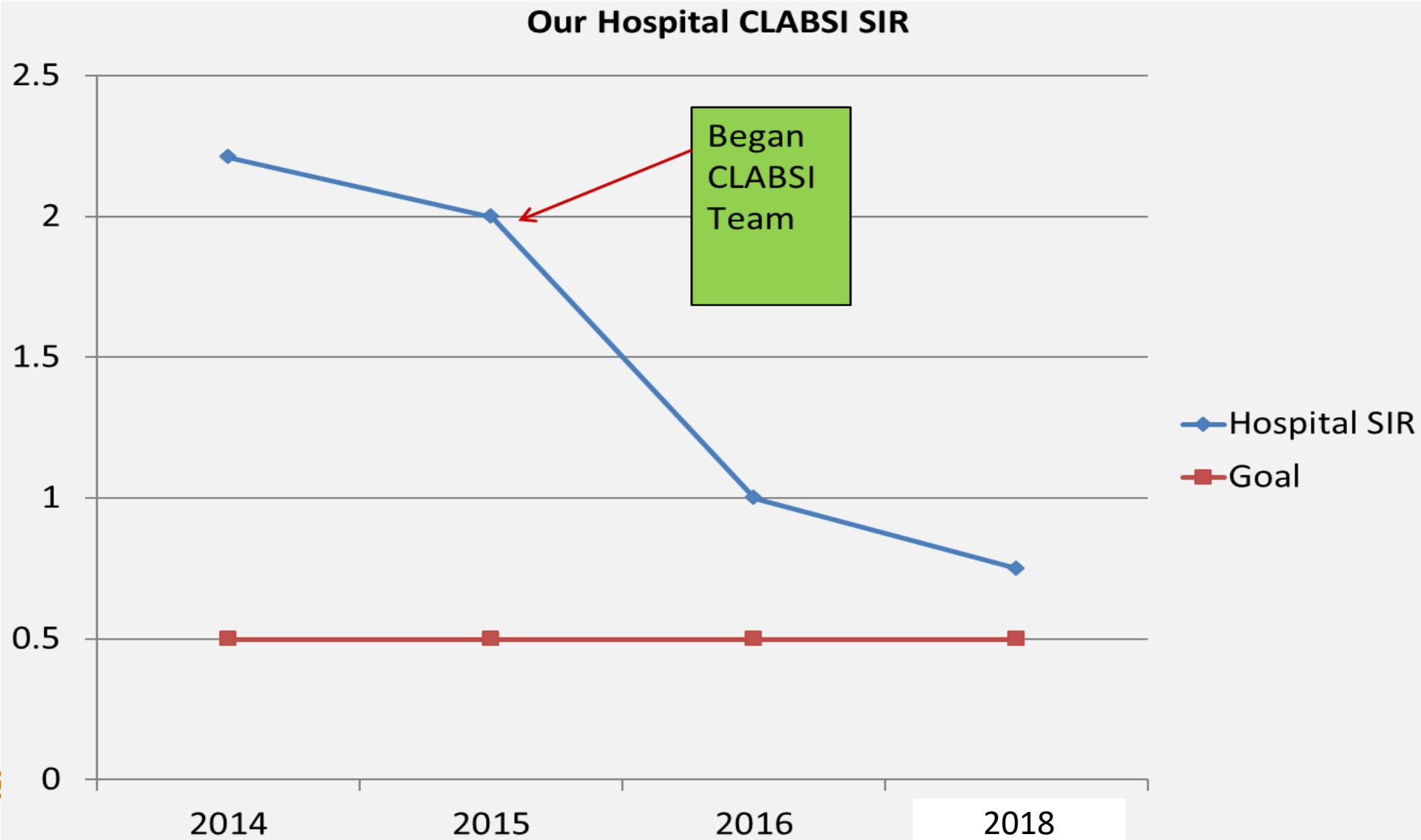
- What story did the data tell you?
 - Are things better?
 - Did the changes made make the difference in the results, or was there other things going on (called 'noise' or variables)
 - Are things worse?
 - Did the changes make things worse, or was there a failure to make the changes?
 - If so, why?



Sample Bar Charts

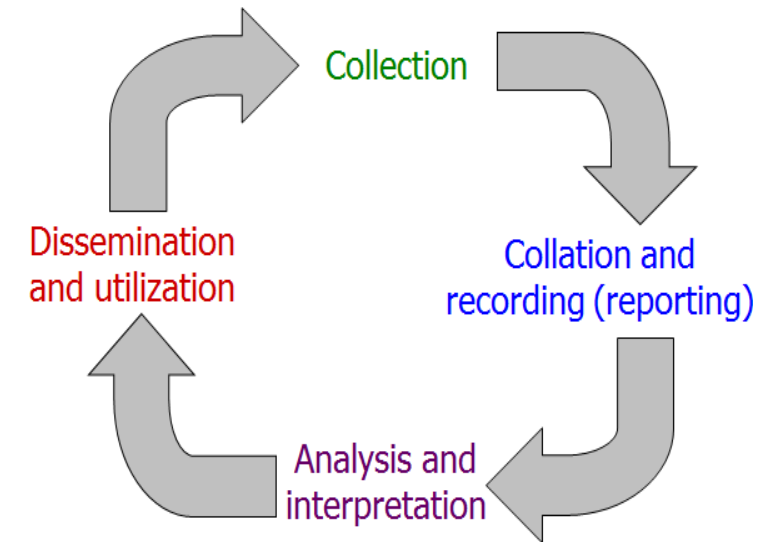


Sample Line Graphs and Histograms - 3



Report and Use Surveillance Data

- Plan for distribution of findings
- Report to health care providers most able to impact patient care
- Report in a manner to stimulate process improvement - committees
- Use visual displays of data (e.g., charts, graphs, tables)



Professional societies

- Association for Professionals in Infection Control and Epidemiology (APIC)
- Society for Healthcare Epidemiology of America (SHEA)
- Infectious Diseases Society of America (IDSA)
 - Guidance documents for definitions, white papers, and evidence-based protocols



Summary

“Infection surveillance, once the primary task of infection preventionists (IPs), has transitioned over time to assume a more limited place in a massively expanded scope of IP responsibilities. Infection surveillance data is used to measure success of infection prevention and control programs, to identify areas for improvement, and to meet public reporting mandates and pay for performance goals.”

– Sue Barnes, 2017, Infection Control Today

Introduction to the National Healthcare Safety Network (NHSN)

Objectives

- Review mandatory HAI surveillance and reporting requirements
- Describe National Healthcare Safety Network (NHSN) and key terms
- Demonstrate how to use NHSN
- Review how to interpret NHSN reports

National Healthcare Safety Network

- Centers for Disease Control and Prevention (CDC) surveillance system for HAI reporting from hospitals, long term care facilities, outpatient settings, inpatient rehabilitation, inpatient psychiatric, and hemodialysis facilities
 - Provides standardization
 - Data used for HAI public reporting and pay for performance programs
- **Required by CDPH for facilities to report required HAI data**
- Accessed through a secure, web-based interface; open to all U.S. healthcare facilities at no charge

Figure 1: NHSN Components



https://www.cdc.gov/nhsn/pdfs/pscmanual/pcsmanual_current.pdf

California HAI Reporting Requirements for Hospitals

Report data monthly per NHSN protocol

CDPH reporting deadline: 30 days after end of each quarter

- Central line associated bloodstream infections (**CLABSI**)
- MRSA bloodstream infections (**MRSA BSI**)
- VRE bloodstream infections (**VRE BSI**)
- *C. difficile* infections (**CDI**)
- Surgical site infections for 28 procedures (**SSI**)
- Influenza vaccination of healthcare practitioners (HCP)
- x Central Line Insertion Practices (CLIP) and preoperative antimicrobial administration reporting are **no longer required**

[AFL 21-18:GACH Reporting Requirements of HAI](https://cdph.ca.gov/Programs/CHCQ/LCP/Pages/AFL-21-18.aspx) | CDPH
(cdph.ca.gov/Programs/CHCQ/LCP/Pages/AFL-21-18.aspx)

Additional HAI Reporting Requirements for Facilities Participating in CMS Quality Improvement Programs

- Catheter-associated urinary tract infections (CAUTI)
- Ventilator-associated events (VAE) - **LTAC hospitals only**

[Healthcare Facility HAI Reporting Requirements to CMS via NHSN](https://www.cdc.gov/nhsn/PDFs/CMS/CMS-Reporting-Requirements.pdf) (PDF)
(<https://www.cdc.gov/nhsn/PDFs/CMS/CMS-Reporting-Requirements.pdf>)

NHSN Protocol Updates

- **NHSN Nurse Staffing Hours Indicator for ACH (optional)**
 - Critical care units only
 - Staffing hours worked for RN, LPN/LVN, and UAP
 - Assess nursing staffing trends and correlation to patient safety
- **Hospital Respiratory Data required by 11/1/2024 (CMS):** [Hospital Respiratory Data | NHSN | CDC](#)
 - COVID-19, Influenza, RSV
- **2022 HAI Rebaseline**
 - HAI and device utilization incidence data to be compared to 2022 NHSN data as the newest baseline year
 - These 2022 NHSN incidence data serve as the national source used to build models, estimate predicted events, and calculate NHSN's SIRs and SURs

[What is Rebaselining and Why is it Important? \(cdc.gov\)](#)


National Healthcare Safety Network (NHSN)

CDC > NHSN Home




- 🏠 NHSN Home
- NHSN Login
- About NHSN +
- Enroll Facility Here +
- CMS Requirements +
- Change NHSN Facility Admin
- Resources by Facility -**
- COVID-19 Information +
- Acute Care / Critical Access Hospitals
- Ambulatory Surgery Centers
- Long-term Acute Care Hospitals
- Inpatient Rehabilitation Facilities
- Inpatient Psychiatric Facilities
- Patient Safety Component +
- Long-term Care Facility Component +
- Dialysis Component +
- Biovigilance Component +
- Healthcare Personnel Safety +


Resources by Facility



**New to NHSN?
Enroll Facility
Here**
For first-time facility
enrollment



**Change NHSN
Facility Admin**
Submit request form to
change facility
administrator



**Training
Resources**
Training videos, Quick
Learns & Educational
Roadmaps

Select a Facility Type

Reporting & Surveillance Resources for Enrolled Facilities

**Acute Care / Critical Access
Hospitals**
Acute care or other short-term stay facilities (critical access
facilities, oncology facilities, military/VA facilities)

Long-term Care Facilities
Nursing homes, assisted living and residential care, chronic care
facilities and skilled nursing facilities

Ambulatory Surgery Centers
Outpatient Surgery Centers

Long-term Acute Care Facilities

Inpatient Psychiatric Facilities

Inpatient Rehabilitation Facilities

Dialysis Facilities
Outpatient and Home Dialysis Facilities

<https://www.cdc.gov/NHSN>
Surveillance protocols, forms,
analysis resources, FAQ, training,
CMS requirements, newsletters



Map NHSN Locations

- Each NHSN patient care area is defined by the type of patients receiving care in that location
- Define (or redefine) a patient care location:
 - Step 1: Determine the acuity level (e.g., critical care, ward)
 - Step 2: Determine the type of service (e.g., burn, surgical, cardiac)
- Hospital designates each location type
- Important to review location mapping **yearly** to ensure correct risk adjustments applied for each location

NHSN Patient Safety Manual: Chapter 15

Monthly Reporting Plan

NHSN Home

Alerts

Dashboard

Reporting Plan ▶

Patient ▶

Event ▶

Procedure ▶

Summary Data ▶

Import/Export

Surveys ▶


Analysis ▶

Users ▶

Facility ▶

Group ▶

Logout



Add Monthly Reporting Plan

Add

Find


marked with *

California General Hospital (ID 15633) ▼

Year *: ▼

☐ No NHSN Patient Safety Modules Followed

Device-Associated Module


	Locations
	2 WEST - M/S ICU

Add Row

Clear All Rows

Copy from Previous Month

Procedure-Associated Module


	Procedures
	APPY - Appendix surgery ▼

Add Row

Clear All Rows

Copy from Previous Month

Antimicrobial Use and Resistance Module


	Locations	Antimicrobial Use	Antimicrobial Resistance
	▼	<input type="checkbox"/>	<input type="checkbox"/>

Add Row


Clear All Rows

Copy from Previous Month

Multi-Drug Resistant Organism Module

	Locations
	▼

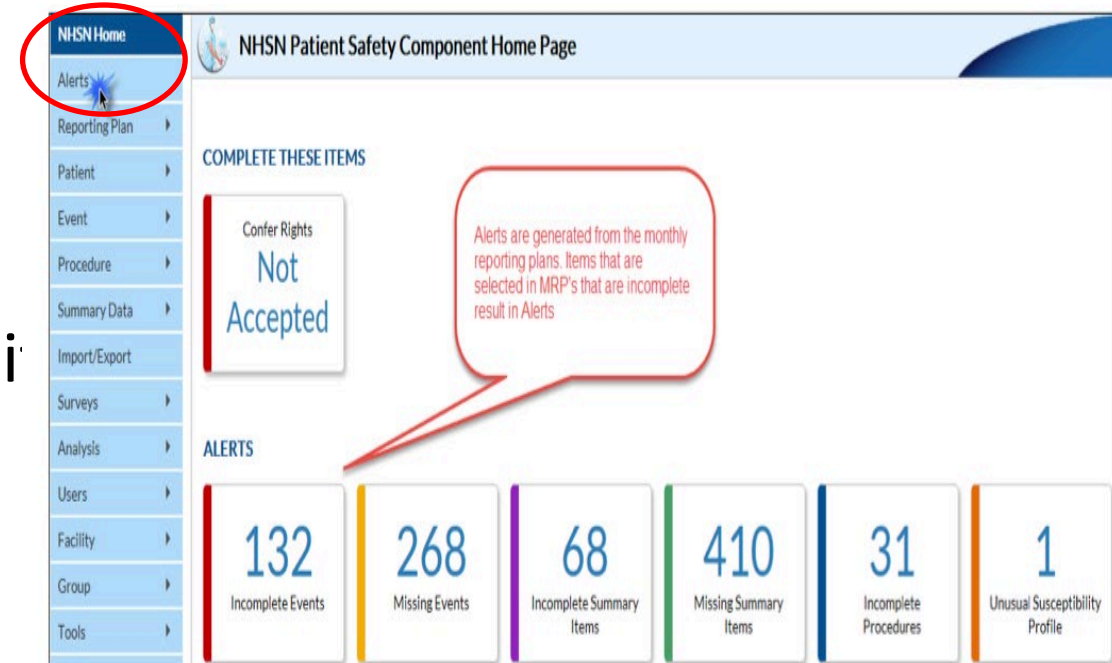
- Your monthly reporting plan tells NHSN in what modules you will enter data each month
- Plan must include CDPH reporting requirements
- May add plans ahead of time for each month for the entire year



California Department of
PublicHealth

Alerts and Resolving Alerts

- Automatic checks
- Alerts must be cleared before analysis
- If applicable, check the Report No Events box
- Events or no events must be entered if unit is included in reporting plan



Use Your NHSN Data

- Generate data sets
- Data sets are specific to each NHSN user

The screenshot displays the NHSN - National Healthcare Safety Network interface. On the left is a vertical sidebar with a dark blue header 'NHSN Home' and a list of menu items: Alerts, Dashboard, Reporting Plan, Patient, Event, Procedure, Summary Data, Import/Export, Surveys, Analysis, Users, Facility, Group, and Logout. The 'Analysis' item is highlighted with a red rectangular box. A dropdown menu is open from 'Analysis', showing three options: 'Generate Data Sets' (highlighted in blue), 'Reports', and 'Statistics Calculator'. The main content area has a light blue header 'Generate Data Sets' with a medical icon. Below this, the section is titled 'Generate Patient Safety Analysis Data Sets'. It contains two paragraphs of text: 'Datasets generated will include data for the 3 most recent full calendar years up until today's date for the Patient Safety Component. To include all years check the box below.' and 'For all other components, datasets generated will include all years. Note that any analysis options you run will be limited to the time period shown on the date range bar.' Below the text is a checkbox labeled 'Include all data reported to NHSN for this component within the parameters of rights conferred.' which is currently unchecked. At the bottom of the main area, there is a date range bar with markers for '1/2014' and '9/2017'. A 'New' button is visible next to the date range bar. The text 'Last Generated: Sep 15 2017 12:02PM' is displayed at the bottom right of the interface.

NHSN Analysis Options and Reports

- Analysis Reports are available only if you generate a data set
- Multiple report options available

NHSN - National Healthcare Safety Network

NHSN Home

Alerts

Dashboard

Reporting Plan ▶

Patient ▶

Event ▶

Procedure ▶

Summary Data ▶

Import/Export

Surveys ▶

Analysis ▶

Users ▶

Facility ▶

Group ▶

Logout



Analysis Reports

Expand All

Collapse All

Search

Device-Associated (DA) Module

Central Line-Associated BSI

Line Listing - All CLAB Events

Frequency Table - All CLAB Events

Bar Chart - All CLAB Events

Pie Chart - All CLAB Events

Rate Table - CLAB Data for ICU-Other

Run Chart - CLAB Data for ICU-Other

Rate Table - CLAB Data for NICU

Run Chart - CLAB Data for NICU

Rate Table - CLAB Data for SCA/ONC

Run Chart - CLAB Data for SCA/ONC

SIR SIR - Acute Care Hospital CLAB Data

Central Line Device Use

als CLAB Data

als Central Line Device Use

CLAB Data

SIR SUR - Long Term Acute Care Central Line Device Use

SIR SIR - Inpatient Rehab Facilities CLAB Data

SIR SUR - Inpatient Rehab Facilities Central Line Device Use

Custom Reports

Mucosal Barrier Injury CLABSI

Ventilator-Associated PNEU

Ventilator-Associated Events

Urinary Catheter-Associated UTI

Central Line Insertion Practices

Procedure-Associated (PA) Module

- ▶ Run Report
- ⚙️ Modify Report
- 📄 Export Data Set

Sample Rate Table

- Review your rate tables routinely to verify that infections and denominator data are reported each month

National Healthcare Safety Network
Rate Table for Central Line-Associated BSI Data for ICU-Ot
 As of: September 23, 2017 at 6:20 PM
 Date Range: BS2_CLAB_RATESICU summaryYM 2016M01 to 2016M12

loccdc=IN:ACUTE:CC:CT CCN= 99999 facType=HO

location	summaryYM	CLABCount	numCLDays	CLABRate	numPatDays
CCU	2016M01	0	187	0.000	410
CCU	2016M02	1	226	4.425	392
CCU	2016M03	0	242	0.000	383
CCU	2016M04	0	165	0.000	388
CCU	2016M05	0	217	0.000	341
CCU	2016M06	1	197	5.076	353
CCU	2016M07	0	207	0.000	386
CCU	2016M08	0	164	0.000	289
CCU	2016M09	0	180	0.000	342
CCU	2016M10	0	176	0.000	356
CCU	2016M11	0	53	0.000	469
CCU	2016M12	0	197	0.000	398

NHSN Standardized Infection Ratio (SIR)

- Used by NHSN to report infection incidence
 - SIR instead of infection rate
- Driven by need for a single summary measure of infection incidence that adjusts for differences in infection risk
- SIR compares the number of HAI reported by your hospital with a predicted number of HAI calculated by NHSN

NHSN Risk Adjustment

NHSN applies risk adjustment to determine the predicted number of HAI for your hospital based on 2015 referent data

HAI	Factors in Risk Adjustment
CDI	Test type, community onset prevalence, facility bed size*, facility medical school affiliation*, number of ICU beds*, facility type*, reporting from ED or 24-hr observation unit
CLABSI	ICU vs ward, medical school affiliation*, facility bed size*, facility type* average length of stay* (LTACH), birth weight (NICU)
MBI-LCBI	Acute care hospitals only; ICU vs ward, facility bed size*, medical school affiliation*
MRSA BSI	Community onset prevalence, average length of stay*, medical school affiliation*, facility type*, number of ICU beds*
SSI	Age, ASA score, wound class (contaminated or dirty), procedure duration, general anesthesia, emergency procedure, gender, BMI, diabetes, trauma, endoscope, procedure type (primary, revision), approach, spine level, closure, duration of labor, oncology, facility bed size*, medical school affiliation*
* Data from NHSN Annual Survey	

Calculating Standardized Infection Ratio (SIR)

- Standardized infection ratio

$$\text{SIR} = \frac{\text{Observed HAI}}{\text{Predicted HAI}}$$

Example:

Hospital A has 4 MRSA BSI over 23,500 patient days. National data predicted 2.5 MRSA BSI.

$$\text{SIR} = \frac{4}{2.5} = 1.6$$

What is p Value?

As far as the SIR goes...

The **p-value** is a statistical measure that tells us whether the number of observed infections is statistically significantly different than the number of predicted infections (i.e., whether the SIR is significantly different from 1.0).

If the **p-value** ≤ 0.05 , we can conclude that the number of observed infections is statistically significantly different than the number of predicted infections.

If the **p-value** > 0.05 , we conclude that the number of observed infections is **not** statistically significantly different than the number of predicted infections.

What is *Confidence Interval*?

And how about that 95% Confidence Interval (CI)?

The 95% CI is a statistical range of values for which we have a high degree of confidence that the true SIR lies within that range.

If the **CI does not include 1**, then the SIR is significantly different than 1.0 (i.e., the number of observed infections is significantly different than the number predicted).

Example: 95% CI= (0.85, 0.92)

If the **CI includes the value of 1**, then the SIR is **not** significantly different than 1.0 (i.e., the number of observed infections is not significantly different than the number predicted).

Example: 95% CI= (0.85, 1.24)

If the **SIR is 0.000** (i.e., the infection count is 0 and the number of predicted infections is ≥ 1.0), the lower bound of the 95% CI will **not** be calculated.

SIR Interpretation

Summary Yr	Infection Count	Number Expected	Central Line Days	SIR	SIR p-value	95% Confidence Interval
2016	9	7.191	3786	1.25	0.2962	0.653, 2.184

1. 9 HAI CLABSI in 2016, only 7.2 were expected. The SIR is 1.25 or 25% higher than what would be predicted from national data
2. The difference is not significantly different than **that predicted by** the national hospital data because our estimate is not very precise
3. The SIR varies from 35% below to more than double the predicted value (.65 – 2.2)
4. Continue to monitor CLABSI rates over time. More data will help us better understand how we compare to other similar hospitals

SIR Interpretation - 2

Summary Yr/Half	InfCount	Number Expected	Central Line Days	SIR	SIR p-value	95% Confidence Interval
2016H1	74	26.606	10065	2.78	0.0000	2.184, 3.492

This report indicates the following:

1. 74 HAI CLABSI per 10,065 line days, 26.6 were predicted
2. The SIR is 2.78, nearly 3 times higher than what would be predicted
3. The precision of this estimate shows that the hospital is between 2 and 3 ½ times higher than predicted (C.I. 2.2 – 3.5)
4. This facility needs to implement a CLABSI prevention program immediately

Sample Standardized Infection Ratio (SIR) Table for One Year – by Location

Shows each location's predicted number of CLABSI

Shows each locations SIR and p-value indicating if the SIR is significantly lower or higher than predicted

location	summaryYr	months	infcount	numPred	numcldays	SIR	SIR_pval	SIR95CI
4 M/S	2016	12	1	2.862	3288	0.349	0.2778	0.017, 1.723
5 MED	2016	12	3	4.237	4867	0.708	0.5940	0.180, 1.927
6E ONC	2016	12	5	4.406	4158	1.135	0.7309	0.416, 2.516
6S 6W	2016	12	1	2.330	2676	0.429	0.4214	0.021, 2.117
CCU	2016	12	2	2.227	2211	0.898	0.9634	0.151, 2.967
CMU NEW	2016	12	1	1.905	2188	0.525	0.5813	0.026, 2.589
ICCU	2016	12	2	1.333	1477	1.501	0.5352	0.252, 4.958
ICU	2016	12	11	4.463	4430	2.465	0.0085	1.296, 4.284

NHSN: A Guide to the SIR

THE NHSN STANDARDIZED INFECTION RATIO (SIR)

A Guide to the SIR

Updated April 2022. Please see Pages 14- 48.

- How to interpret SIR
- How SIR is calculated
- Risk adjustment factors for specific HAI



cdc.gov/nhsn/pdfs/ps-analysis-resources/nhsn-sir-guide.pdf

Standardized Utilization Ratio (SUR)

National Healthcare Safety Network

SUR for Central Line Device Use for Acute Care Hospitals (2015 baseline) - By OrgID

As of: July 8, 2021 at 10:51 AM

Date Range: All B02_CLAB_RATE8ALL

orgID=10018 medType=G

orgID	ccn	summaryYH	numCLDays	numPatDays	numPredDDays	SUR	SUR_pval	SUR95CI	SUR_pctl
10018	88888	2019H1	2974	3530	776.379	3.831	0.0000	3.695, 3.970	100
10018	88888	2019H2	981	1529	284.308	3.380	0.0000	3.172, 3.599	100

1. This report includes central line utilization data from acute care hospitals for 2015 and forward.
2. The SUR is only calculated if number of predicted device days (numPredDDays) is ≥ 1 . Lower bound of 95% Confidence Interval only calculated when number of observed device days > 0 .
3. The predicted device utilization days is calculated based on national aggregate NHSN data from 2015. It is risk adjusted for CDC location, hospital beds, medical school affiliation type, and facility type.

The number of
central line days/the
number of predicted
central line days =
SUR*

*Calculated SUR is also
available for CAUTI surveillance

THE NHSN STANDARDIZED UTILIZATION RATIO (SUR)

A Guide to the SUR

Updated April 2022



[CDC NHSN Standardized Utilization Ratio \(SUR\) Guide](https://cdc.gov/nhsn/pdfs/ps-analysis-resources/nhsn-sur-guide-508.pdf) (PDF)
cdc.gov/nhsn/pdfs/ps-analysis-resources/nhsn-sur-guide-508.pdf

Targeted Assessment for Prevention (TAP) Reports

- Available for CDI, CLABSI, CAUTI
- Identifies **number of infections that need to be prevented** to reach targeted goal
 - Called the cumulative attributable difference (CAD) in NHSN
 - Lists results by location for CLABSI and CAUTI
- Assists in deciding where to focus infection prevention efforts

cdc.gov/hai/prevent/tap.html

The screenshot displays the CDC's Healthcare-Associated Infections (HAI) website. The header includes the CDC logo and the tagline "CDC 24/7: Saving Lives. Protecting People™". A search bar and an "Advanced Search" link are visible. The main navigation bar is titled "Healthcare-Associated Infections (HAIs)". Below this, a breadcrumb trail shows "CDC > Healthcare-associated Infections (HAI) > Preventing HAIs". A sidebar on the left lists various HAI topics, including "Healthcare-associated Infections (HAI)", "HAI Data", "Types of Infections", "Diseases and Organisms", "Preventing HAIs", "Staph BSI Prevention Strategies", "CDI Prevention Strategies", "Urine Culture Stewardship", and "Targeted Assessment for Prevention (TAP)". The main content area is titled "The Targeted Assessment for Prevention (TAP) Strategy" and features a large graphic with the letters T, A, and P in blue and green, representing the Target, Assess, and Prevent components of the strategy. Below the graphic, a paragraph explains the TAP Strategy as a framework for quality improvement developed by the CDC, used to prevent healthcare-associated infections (HAIs) by targeting facilities and units with an excess burden of HAIs, administering TAP Facility Assessment Tools to identify gaps, and accessing infection prevention resources within the TAP Implementation Guides to address those gaps. The paragraph also defines the cumulative attributable difference (CAD) as the number of infections that must be prevented to achieve an HAI reduction goal, calculated by subtracting a numerical prevention target from an observed number of HAIs. The TAP Reports allow for the ranking of facilities or locations within individual facilities by the CAD to prioritize prevention efforts where they will have the greatest impact.

Using the Cumulative Attributable Difference (CDA) to Explain Rates

- Eliminates statistical terms when explaining results
- “If our medical ICU had eliminated (#) CLABSIs, we would have met our goal”
- In this example, eliminating 23 C. difficile HAI cases out of 61 would have met the facility goal

Number of Beds	Patient Days	COHCFA Prevalence	CDIF Facility Incident HO LabID Event Count	CDIF Facility Incident HO LabID Number Expected	Facility CAD	SIR
354	60059	0.14	61	55.034	22.48	1.108

NHSN Help

- Use NHSN website
www.cdc.gov/nhsn
- Email NHSN questions to
nhsn@cdc.gov
- For technical questions about CDPH NHSN requirements, email HAI_Data@cdph.ca.gov


National Healthcare Safety Network (NHSN)





CDC's National Healthcare Safety Network is the nation's most widely used healthcare-associated infection tracking system. NHSN provides facilities, states, regions, and the nation with data needed to identify problem areas, measure progress of prevention efforts, and ultimately eliminate healthcare-associated infections.

In addition, NHSN allows healthcare facilities to track blood safety errors and important healthcare process measures such as healthcare personnel influenza vaccine status and infection control adherence rates.



See CDC's newest antibiotic resistance and HAI data
New Data Tools


About NHSN
 CDC's NHSN is the largest HAI reporting system in the U.S.


Data and Reports
 See national and state reports using NHSN data.


Guidelines and Recommendations
 Review CDC HAI prevention guidelines.


NHSN Member Login


New to NHSN? Enroll Facility Here
 For first time facility enrollment.


Reporting and Surveillance for Enrolled Facilities
 Training, protocols, forms, support materials, analysis resources and FAQs.


Group Users
 View resources for group users.


CDA Submission Support Portal (CSSP)
 Toolkits, FAQs, webinars and resources for testing and validation for CDA implementers.


[Training / Demo](#)


[Newsletters / Members](#)
[Meeting Updates](#)


[Email Updates](#)


[State-based HAI Prevention Activities](#)

Summary

- NHSN is a surveillance system used for recording data which meets the regulatory reporting requirements for CDPH and CMS
- NHSN has many analysis features to assist users in interpreting and presenting their data
- Resources are available for interpretation and analysis of NHSN data from:
 - [CDC](https://cdc.gov/nhsn) (cdc.gov/nhsn)
 - [CDPH](https://cdph.ca.gov/HAI) (cdph.ca.gov/HAI)

Questions?

For more information,
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