

MRSA and VRE Surveillance

Last Updated 2017

Basics of Infection Prevention
Healthcare-Associated Infections Program
Center for Health Care Quality
California Department of Public Health



Objectives

- Review methicillin resistant *Staphylococcus aureus* (MRSA) and vancomycin resistant enterococcus (VRE) bloodstream infection (BSI) surveillance methods and definitions
- Discuss importance of accurate data collection
- Demonstrate how to report MRSA and VRE BSI data to National Healthcare Safety Network (NHSN)
- Discuss NHSN data analysis and feedback to staff

MRSA / VRE BSI Surveillance

- Report MRSA and VRE blood specimens only
- Review possible primary sources for BSI (e.g., wound or UTI)
 - For MRSA/VRE BSI in patients with CAUTI:
 - Increase CAUTI adherence monitoring and feedback
 - For MRSA/VRE BSI and wounds:
 - Increase hand hygiene, environmental cleaning, and contact precautions adherence monitoring
- Review antibiotic stewardship program
- If positive MRSA or VRE BSI, **and** a CLABSI, report event in both modules

MRSA/VRE LabID Surveillance

NHSN algorithm categorizes MRSA/VRE cases according to the admission date and specimen collection dates entered

Community-Onset (CO)	For Inpatient surveillance, a LabID event collected ≤ 3 days after admission to the facility (i.e., days 1, 2, 3 or admission)
Healthcare Facility-Onset (HO)	LabID event collected > 3 days after admission to the facility (on or after day 4)
Community-Onset Healthcare Facility - Associated (CO-HCFA)	LabID event collected from a patient who was discharged from the facility ≤ 4 weeks prior to current date of stool specimen collection

NHSN Patient Safety Manual: Chapter 12

MRSA/VRE BSI LabID Surveillance Data Collection

- Important data to collect for NHSN SIR calculation
 - Annual Survey data
 - Date of admission
 - Date of specimen collection
 - Location at time of collection
- Do not enter a repeat specimen from the same location if less than 14 days since last positive specimen
- If the patient is transferred to a new location and a new specimen is positive in less than 14 days since the last specimen – REPORT it

MRSA/VRE BSI LabID Surveillance, continued

- NHSN also tracks if MRSA/VRE case is new or recurrent
 - Considered **recurrent** if >2 weeks and ≤8 weeks after last CDI event reported for that patient
- All MRSA/VRE cases should be identified and entered into NHSN
 - There is no advantage to not identifying and entering all CDI cases into NHSN

NHSN Patient Safety Manual: Chapter 12

Interpreting MRSA Surveillance Data

- NHSN calculates an SIR for MRSA, not for VRE
- NHSN analysis applies risk adjustment for:
 - Prevalence of CDI (community onset CDI)
 - Average length of stay*
 - Hospital size *
 - Facility Type*
 - Medical school affiliation*
 - Number of ICU beds*
 - Outpatient community-onset prevalence

* Data in the hospital Annual Survey

NHSN: A Guide to the SIR

<https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/nhsn-sir-guide.pdf>

NHSN: A Guide to the SIR

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

THE NHSN STANDARDIZED INFECTION RATIO (SIR)

A Guide to the SIR

Updated July 2017. Please see [Page 2](#).



NHSN: A Guide to the SIR

<https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/nhsn-sir-guide.pdf>

LabID Event Protocol MDRO Module

- **All** MRSA and VRE blood specimens are reported for facility including emergency departments (ED) and 24 hour observation units
- Attribute the infection to the location where the specimen was collected - unless admitted from another affiliated outpatient location and admitted on the same calendar day – then attribute infection to the admitting unit.
- For denominator - enter monthly facility wide patient days, admissions, and ED and 24 hour observation encounters (i.e. visits)

NHSN Patient Safety Manual: Chapter 12

MDRO/CDI LabID Event Calculator

Help users learn how to accurately apply the MDRO & CDI LabID Event algorithm

- Assist users to make the correct MDRO & CDI LabID Event determinations
- Note: California hospitals are required to report CDI from inpatient, ED and 24 hour observation locations

National Healthcare Safety Network (NHSN)

MDRO & CDI LabID Event Calculator

Enter a Reporting Plan...

Choose an organism to track:

Select
MRSA
MSSA
VRE
CephR-Klebsiella
CRE-Ecoli
CRE-Klebsiella
MDR-Acinetobacter
CDIF-C. difficile

☐ All Specimen Types ☐ Blood Specimens Only

☒ Use Generic Locations ☐ Type In Your Own

Choose a reporting month:

Select ▼

Choose a reporting year:

Select ▼

Next...

MDRO & CDI LabID Event Calculator

<https://nhsn.cdc.gov/nhsntraining/labid-calculator/mdrolabidcalc.html>

Add Monthly MDRO Summary Data to NHSN



MDRO and CDI Prevention Process and Outcome Measures Monthly Monitoring

Setting: Inpatient Total Facility Patient Days *: 5927

Total Facility Admissions *: 1247

Setting: Outpatient Total Facility Encounters:

If monitoring MDRO in a FACWIDE location, then subtract all counts from patient care units with unique CCNs(IRF and IPF) from Totals:

MDRO Patient Days *: 4874

MDRO Admissions *: 1100

MDRO Encounters:

If monitoring *C. difficile* in a FACWIDE location, then subtract all counts from patient care units with unique CCNs(IRF and IPF) as well as NICU and Well Baby counts from Totals:

CDI Patient Days *: 4570

CDI Admissions *: 1007

CDI Encounters:

- **Total facility patient days**
- **Total facility admissions**
- **Total facility MDRO patient days** (Facility Pt Days minus units with unique CCN such as IRF and IPF)
- **Total facility MDRO patient admissions** (Facility Pt Days minus units with unique CCN such as IRF and IPF)
- **CDI Patient Days** (Facility Pt Days minus NICU/Well baby and units with unique CCN such as IRF and IPF)
- **CDI Patient Admissions**(Facility Pt Days minus NICU/Well baby and units with unique CCN such as IRF and IPF)
- ED and 24 hour Observation encounters entered separately

Add Monthly MDRO Summary Data to NHSN -2

NHSN Home

Reporting Plan ▶

Event ▶

Procedure ▶

Summary Data ▶

Surveys ▶

Analysis ▶

Logout



MDRO and CDI Prevention Process and Outcome Measures Monthly Monitoring

Location Code *: OBSERVATION UNIT

Month *: January

Year *: 2017

General

Setting: Inpatient Total Patient Days :

Setting: Outpatient Total Encounters *: 306

Location Code *: ED - ED

Month *: January

Year *: 2017

General

Setting: Inpatient Total Patient Days :

Setting: Outpatient Total Encounters *: 5737

- Enter ED and 24 hour Observation encounters separately

Add MRSA or VRE Event to NHSN

NHSN Home

Alerts

Dashboard

Reporting Plan ▶

Patient ▶

Event ▶

Procedure ▶

Summary Data ▶

Import/Export

Surveys ▶

Analysis ▶

Users ▶

Facility ▶

Group ▶

Logout



Add Event

Mandatory fields marked with *

Fields required for record completion marked with **

Fields required when in Plan marked with >

Add

Event Information

Event Type *: LABID - Laboratory-identified MDRO or CDI Event ▼

Date Specimen Collected *: 10/8/2017 6

Specific Organism Type *: MRSA - MRSA ▼

Outpatient *: N - No ▼

Specimen Body Site/Source *: CARD - Cardiovascular/ Circulatory/ Lymphatics ▼

Specimen Source *: BLDSPC - Blood specimen ▼

Date Admitted to Facility *: 10/01/2017 6

Location *: 2 WEST - M/S ICU ▼

Date Admitted to Location *: 10/01/2017 6

Last physical overnight location of patient immediately prior to arriving into facility (applies to specimen(s) collected in outpatient setting or <4 days after inpatient admission):

Has patient been discharged from your facility in the past 4 weeks? *: Y - Yes ▼

Date of last discharge from your facility *: 9/22/2017 6

Enter all MRSA and VRE events

- Inpatient
- ED
- 24 hour observation

NHSN MRSA and VRE Analysis Reports

NHSN Home
Alerts
Dashboard
Reporting Plan ▶
Patient ▶
Event ▶
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Summary Data ▶
Import/Export
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Facility ▶
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Logout



Analysis Reports

Expand All

Collapse All

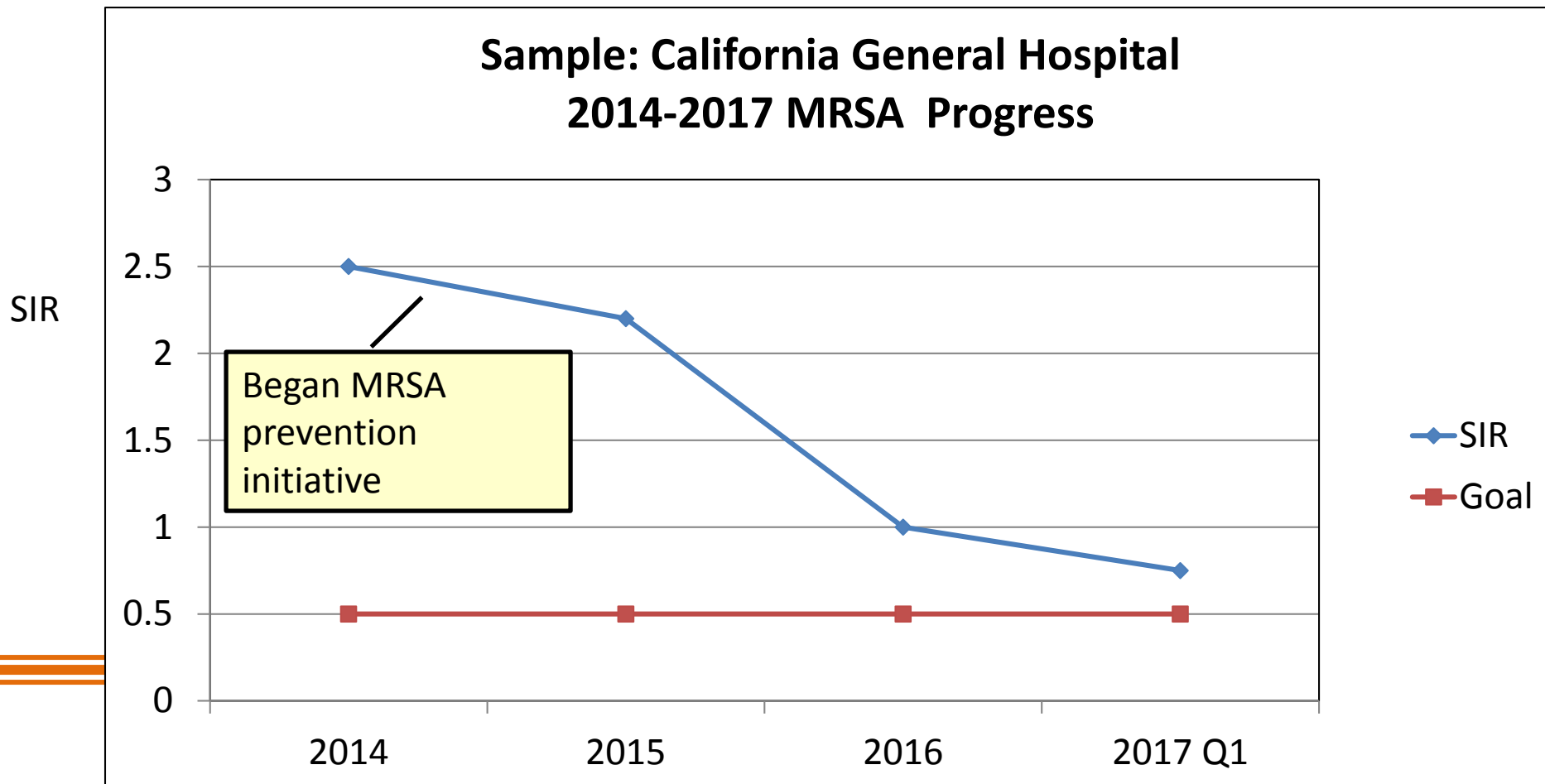
Search

- 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
 - All LabID Events
 - All MRSA LabID Events
 - Line Listing for All MRSA LabID Events
 - Frequency Table for All MRSA LabID Events
 - Bar Chart for All MRSA LabID Events
 - Pie Chart for All MRSA LabID Events
 - Rate Table - MRSA LabID Data
 - SIR SIR - ACH MRSA Blood FacwideIN LabID Data**
 - SIR SIR - CAH MRSA Blood FacwideIN LabID Data
 - SIR SIR - IRF MRSA Blood LabID Data
 - SIR SIR - LTAC MRSA Blood FacwideIN LabID Data
 - All MSSA LabID Events
 - All C. difficile LabID Events
 - All VRE LabID Events
 - All CephR-Klebsiella LabID Events
 - All CRE LabID Events
 - All CRE-Klebsiella LabID Events

- Generate data set prior to creating a report
- Choose report according to need
 - MRSA SIR report- Your incidence compared to expected incidence
 - VRE: Line list or rate tables and charts

Track Progress Over Time

- Feedback results to staff
- Celebrate successes!



MRSA and VRE Surveillance Summary

- Report all MRSA and VRE blood specimens to NHSN
- Accurate denominator summary data are necessary for NHSN to calculate SIR and perform analysis
- Perform surveillance and feedback SIR or rates with adherence monitoring results to all units and leadership

Questions?

For more information,
please contact any
HAI Program Team member

Or email

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