MRSA and VRE Surveillance
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.

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

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
NHSN: A Guide to the SIR

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

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 algorithms

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

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**

<table>
<thead>
<tr>
<th>NHSN Home</th>
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<tbody>
<tr>
<td>Reporting Plan</td>
</tr>
<tr>
<td>Event</td>
</tr>
<tr>
<td>Procedure</td>
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<tr>
<td>Summary Data</td>
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<td>Surveys</td>
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<td>Analysis</td>
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<td>Logout</td>
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</tbody>
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**MDRO and CDI Prevention Process and Outcome Measures Monthly Monitoring**

- **OBSERVATION UNIT**
  - **Location Code:** ED - ED
  - **Month:** January
  - **Year:** 2017

**General**

- **Setting:** Inpatient Total Patient Days: [ ]
- **Setting:** Outpatient Total Encounters: 5737

- **Location Code:** OBSERVATION UNIT
  - **Month:** January
  - **Year:** 2017

**General**

- **Setting:** Inpatient Total Patient Days: [ ]
- **Setting:** Outpatient Total Encounters: 306

- **Enter ED and 24 hour Observation encounters separately**
Add MRSA or VRE Event to NHSN

Enter all MRSA and VRE events
- Inpatient
- ED
- 24 hour observation

Event Type: LABID - Laboratory-identified MDRO or CDI Event
Date Specimen Collected: 10/8/2017
Specific Organism Type: MRSA - MRSA
Outpatient: No
Specimen Body Site/Source: CARD - Cardiovascular/ Circulatory/ Lymphatics
Specimen Source: BLDSPC - Blood specimen
Date Admitted to Facility: 10/01/2017
Location: 2 WEST - M/S ICU
Date Admitted to Location: 10/01/2017

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? Yes
Date of last discharge from your facility: 9/22/2017
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!

**Sample: California General Hospital**

2014-2017 MRSA Progress

- Began MRSA prevention initiative
- 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

HAIProgram@cdph.ca.gov