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>Category</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community-Onset (CO)</td>
<td>For Inpatient surveillance, a LabID event collected ≤3 days after admission to the facility (i.e., days 1, 2, 3 or admission)</td>
</tr>
<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>
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 the correct MDRO & CDI LabID Event determinations

- Note: California hospitals are required to report all CDI from inpatient, ED and 24 hour observation locations

https://nhsn.cdc.gov/nhsntraining/labid-calculator/mdrolabidcalc.html
Add Monthly MDRO Summary Data to NHSN

<table>
<thead>
<tr>
<th>MDRO and CDI Prevention Process and Outcome Measures Monthly Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setting: Inpatient Total Facility Patient Days *: 5927</td>
</tr>
<tr>
<td>Total Facility Admissions *: 1247</td>
</tr>
<tr>
<td>Setting: Outpatient Total Facility Encounters:</td>
</tr>
<tr>
<td>If monitoring MDRO in a FACWIDE location, then subtract all counts from patient care units with unique CCNs (IRF and IPF) from Totals:</td>
</tr>
<tr>
<td>MDRO Patient Days *: 4874</td>
</tr>
<tr>
<td>MDRO Admissions *: 1100</td>
</tr>
<tr>
<td>MDRO Encounters:</td>
</tr>
<tr>
<td>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:</td>
</tr>
<tr>
<td>CDI Patient Days *: 4570</td>
</tr>
<tr>
<td>CDI Admissions *: 1007</td>
</tr>
<tr>
<td>CDI Encounters:</td>
</tr>
</tbody>
</table>

- **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

- 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

Has patient been discharged from your facility in the past 4 weeks? Yes

Date of last discharge from your facility: 9/22/2017
Healthcare-Associated Infections Program

NHSN MRSA and VRE Analysis Reports

- 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
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