MRSA Bacteremia and C. difficile (CDI) LabID Events Standardized Infection Ratio (SIR) Report in NHSN

Updated December 2016

Description

The SIR is a risk-adjusted summary measure that compares the observed number of LabID events to the predicted number of LabID events based on NHSN aggregate data from 2015*. This document explains how to calculate and interpret the SIR for MRSA bacteremia and *C. difficile* LabID events. The first example below demonstrates how to generate SIR tables for FacWideIN MRSA bacteremia LabID event surveillance. The second example demonstrates how to generate SIR tables for FacWideIN *C. difficile* LabID event surveillance.

** MRSA and CDI LabID Event SIRs for acute care and critical access hospitals can be calculated under the original baseline data (2010-2011) by running the "Baseline Set 1" report in NHSN found at the following analysis folders: Baseline Set 1> MDRO/CDI – LabID Events.*

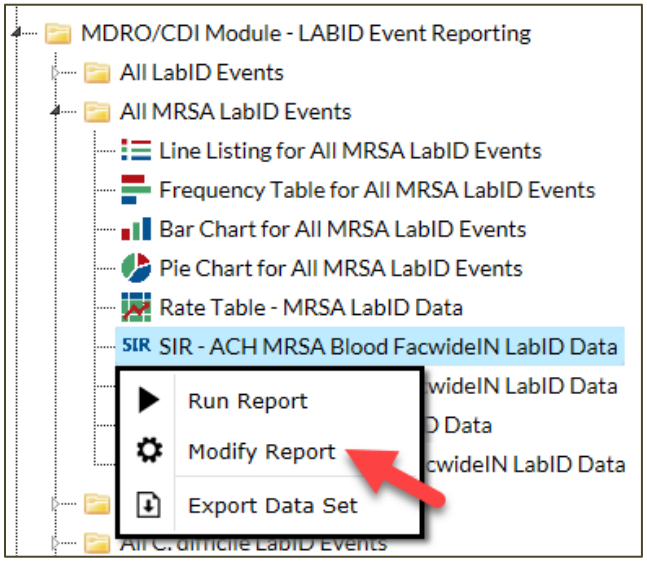
Example 1: MRSA Bacteremia

You are interested in viewing your acute care hospital's (ACH) MRSA bacteremia LabID event SIRs for the first and second quarter of 2015 (calculated on the updated national baseline), and you would like to see the SIR for each quarter separately.

To find the MRSA bacteremia LabID event SIR report, go to 'Analysis' > 'Reports' from the left-hand navigation bar in NHSN. Then navigate as follows through the tree-view diagram: 'MDRO/CDI Module- LabID Event Reporting' folder > 'All MRSA LabID Events' subfolder > 'SIR – ACH MRSA Blood FacwideIN LabID Data'.

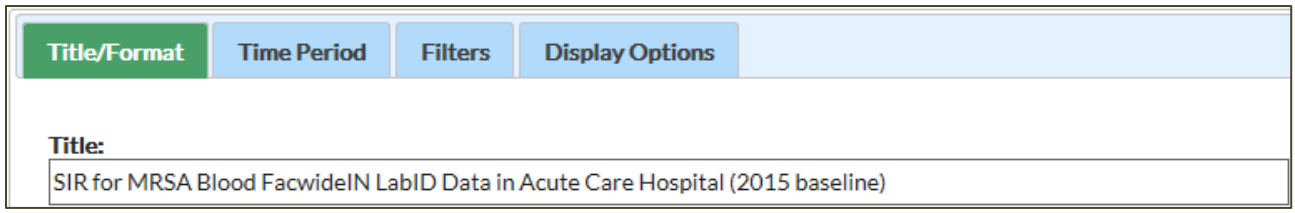
NOTE: Please select the SIR report that corresponds to your facility type. If your facility is a critical access hospital (CAH), long-term acute care hospital (LTAC) or inpatient rehabilitation facility (IRF), run the SIR report that is listed with your facility type's acronym.

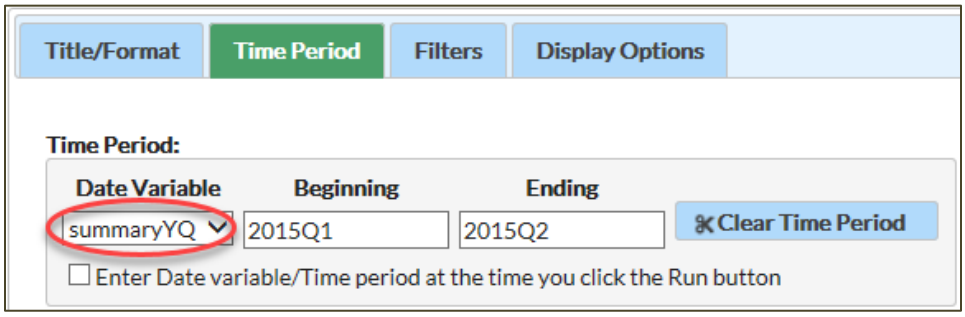
Click on this report and select "Modify Report".

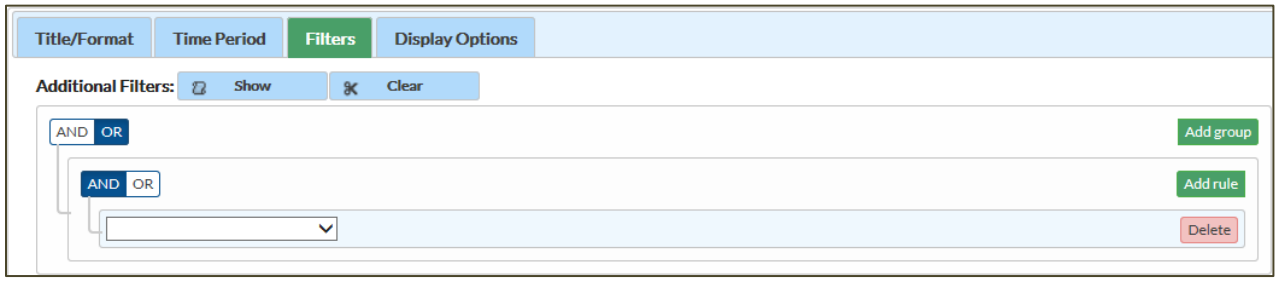


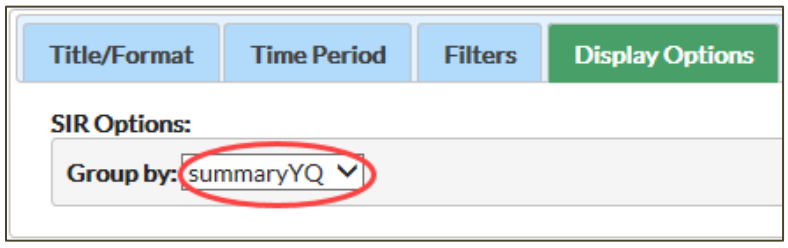
MRSA Bacteremia and C. difficile (CDI) LabID Events Standardized Infection Ratio (SIR) Report in NHSN

Modifying the Report









NOTE for Acute Care Hospitals: Monthly SIRs are not available for acute care hospitals (i.e., when group by = summaryYM). The risk adjustment model used to calculate the number of predicted events involves the quarter's community-onset prevalence rate, which uses data entry for all 3 months of the quarter.

MRSA Bacteremia and C. difficile (CDI) LabID Events Standardized Infection Ratio (SIR) Report in NHSN

Results

National Healthcare Safety Network
SIR for MRSA Blood FacwideIN LabID Data in Acute Care Hospital (2015 baseline)
As of: November 30, 2016 at 9:10 AM
Date Range: BS2_LABID_RATESMRSA summaryYQ 2015Q1 to 2015Q2

Facility Org ID= [redacted] CMS Certification Number= [redacted]

Location	Summary Yr/Qtr	Months	MRSA Blood Incident LabID Count	Number Predicted	Patient Days	SIR	SIR p-value	95% Confidence Interval
FACWIDEIN	2015Q1	3	3	1.003	10621	2.991	0.1000	0.761, 8.140
FACWIDEIN	2015Q2	2	4	0.262	5650	.	.	

Interpretation

- During the first quarter (January-March) of 2015, there were 3 healthcare facility-onset (HO) MRSA blood incident events identified in the facility, and we observed a total of 10,621 patient days from all applicable inpatient locations (FacWideIN) in the facility.
    - Based on the NHSN 2015 baseline data, 1.003 HO MRSA blood incident events were predicted in our facility
    - This results in an SIR of 2.991 (3/1.003), signifying that during this time period, our facility identified more MRSA blood incident events than predicted
    - Because the p-value is above 0.05 and the 95% confidence interval includes 1, we do not have enough evidence to conclude that the facility observed statistically significantly more MRSA blood incident events than predicted

- During the second quarter (April-June) of 2015, there were 4 HO MRSA blood incident events identified in the facility, and we observed a total of 5,650 patient days from all applicable inpatient locations (FacWideIN) in the facility.
    - Based on the NHSN 2015 baseline data, 0.262 HO MRSA blood incidents were predicted.
    - Since the number of predicted infections is less than 1, an SIR is not calculated.
    - Since the SIR is not calculated, the p-value and confidence interval are also not calculated. In this situation, facilities are encouraged to review their HAI-specific rate tables in NHSN in order to track HAI incidence in the facility.

When analyzing these data as a Group user, an additional overall SIR will be calculated for all facilities in the Group.

Please see "Additional Resources" for links to troubleshooting steps and guidance on MRSA SIRs for CMS Quality Reporting Programs.

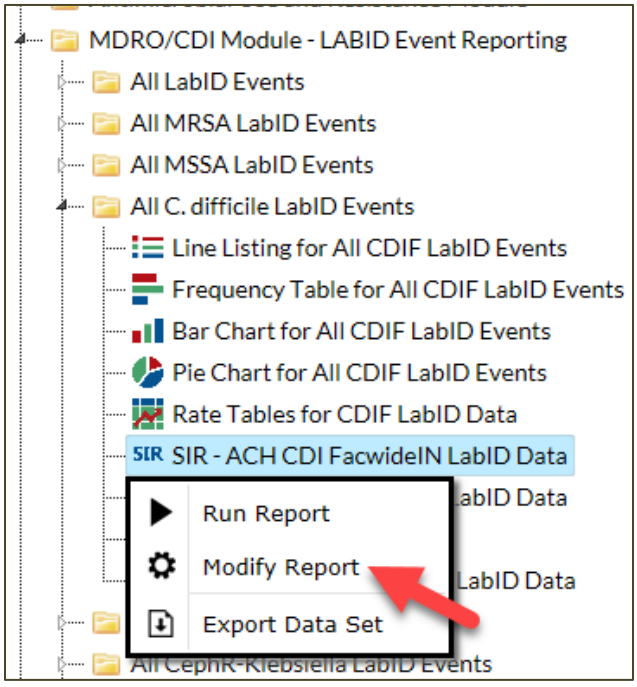
Example 2: *C. difficile* (CDI) LabID Event

CDI SIRs are only available on the quarter-level or higher (i.e., monthly CDI SIRs are not available), and are only calculated when data for the entire quarter has been entered in NHSN. The risk adjustment models used to calculate the number of predicted events for all facility types contain variable(s) that require data entry for all 3 months of the quarter.

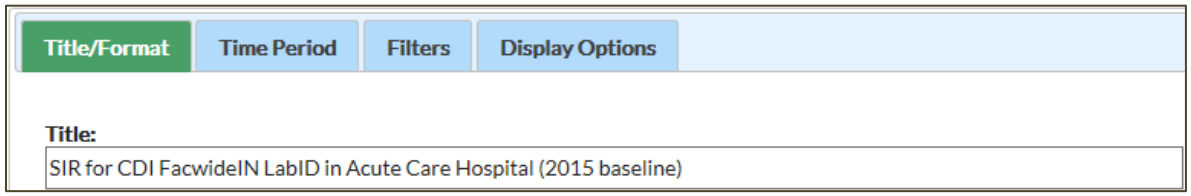
Example: You are interested in viewing your acute care hospital's (ACH) CDI LabID event SIRs for the first and second quarter of 2015 (calculated on the updated national baseline), and you would like to see the SIR for each quarter separately.

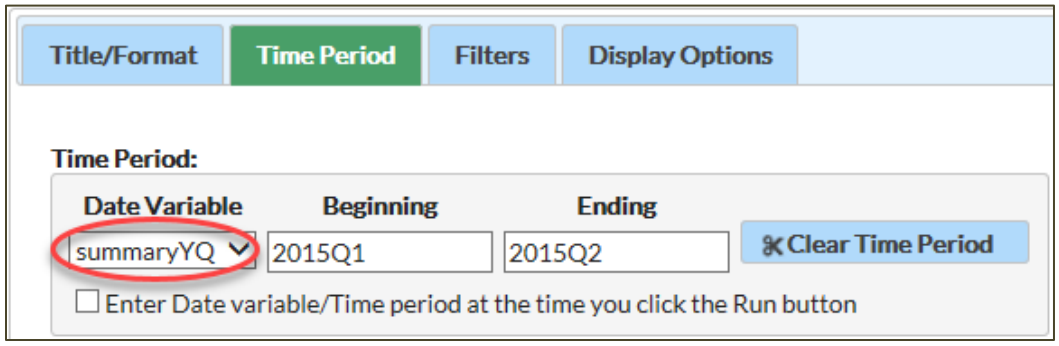
To find the CDI LabID event SIR report, go to 'Analysis' > 'Reports' from the left-hand navigation bar in NHSN. Then navigate as follows through the tree-view diagram: 'MDRO/CDI Module- LabID Event Reporting' folder > 'All C.difficile LabID Events' subfolder > 'SIR – ACH CDI FacwideIN LabID Data'. Click on this report and select "Modify Report".

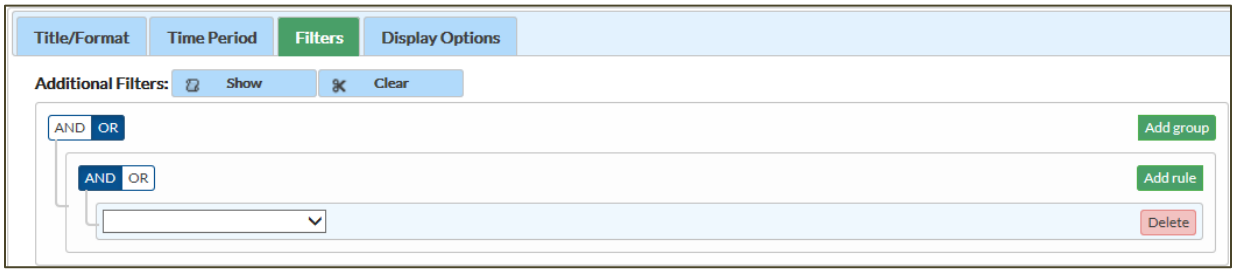
NOTE: Please select the SIR report that corresponds to your facility type. If your facility is a critical access hospital (CAH), long-term acute care hospital (LTAC) or inpatient rehabilitation facility (IRF), run the SIR report that is listed with your facility type's acronym.

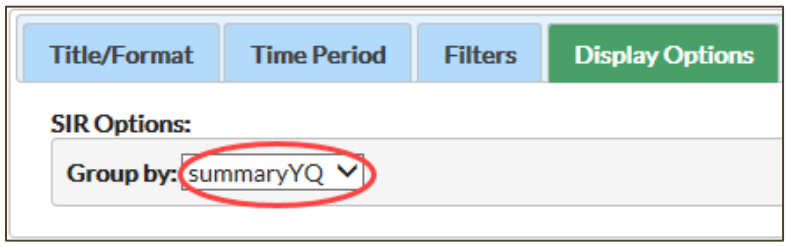


Modifying the Report









NOTE for all facilities: Monthly SIRs are not available (i.e., when group by = summaryYM). The risk adjustment model used to calculate the number of predicted events for all facility types contain variable(s) that require data entry for all 3 months of the quarter.

Results

National Healthcare Safety Network
SIR for CDI FacwideIN LabID in Acute Care Hospital (2015 baseline)
As of: November 30, 2016 at 9:26 AM
Date Range: BS2_LABID_RATESCDIF summaryYQ 2015Q1 to 2015Q2

Facility Org ID= CMS Certification Number=

Location	Summary Yr/Qtr	Months	CDIF Facility Incident HO LabID Event Count	Number Predicted	Patient Days	SIR	SIR p-value	95% Confidence Interval
FACWIDEIN	2015Q1	3	4	6.627	10621	0.604	0.3132	0.192, 1.456
FACWIDEIN	2015Q2	3	0	4.331	10520	0.000	0.0132	, 0.692

Note for Acute Care Hospitals: a second table in the CDI SIR Report will appear when a quarter has an outlier community-onset (CO) prevalence rate, above 2.6 CO events per 100 admissions. An SIR cannot be calculated for a quarter with an outlier CO prevalence rate.

Interpretation

- During the first quarter (January-March) of 2015, there were 4 healthcare facility-onset (HO) CDI LabID events identified in the facility, and we observed a total of 10,621 patient days from all applicable inpatient locations (FacWideIN) in the facility.
    - Based on the NHSN 2015 baseline data, 6.627 HO CDI LabID events were predicted in the facility.
    - This results in an SIR of 0.604 (4/6.627), signifying that during this time period, the facility identified fewer CDI LabID events than predicted.
    - Because the p-value is above the significance level of 0.05 and the 95% confidence interval includes 1, there was not enough evidence to conclude that the facility observed statistically significantly fewer CDI LabID events than predicted.

- During the second quarter (April-June) of 2015, there were 0 HO CDI LabID events identified in the facility, and we observed a total of 10,520 patient days from all applicable inpatient locations (FacWideIN) in the facility.
    - Based on the NHSN 2015 baseline data, 4.331 HO CDI LabID events were predicted in the facility.
    - This results in an SIR of 0 (0/4.331), signifying that during this time period, our facility did not identify greater or fewer CDI LabID events than predicted.
    - Because the p-value is below the significance level of 0.05 and the 95% confidence interval does not include 1, we can conclude that the facility observed statistically significantly fewer HO CDI LabID events than predicted. NOTE: the lower bound of the 95% confidence interval is not calculated when the SIR = 0.

When analyzing these data as a Group user, an additional overall SIR will be calculated for all facilities in the Group.

Additional Resources:

MRSA SIR Troubleshooting Guide: https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/mrsacdi_tips.pdf

Acute Care Hospitals: Running the MRSA SIR for CMS Quality Reporting: https://www.cdc.gov/nhsn/pdfs/cms/cms-ipps-mrsa-sir.pdf

Acute Care Hospitals: Running the CDI SIR for CMS Quality Reporting: https://www.cdc.gov/nhsn/pdfs/cms/cms-ipps-cdi-sir.pdf