State of Michigan

2014 Quarter 4 Highlights

Michigan Department of Health and Human Services

Surveillance for Healthcare-Associated and Resistant Pathogens (SHARP) Unit

Standardized Infection Ratios (SIRs) for NHSN Modules
Centers for Medicare and Medicaid Services (CMS) Required Elements[1]
State of Michigan 2014 Q4

Infection Type	MI Hosp[2]	MI CMS Obs[3]	MI CMS Pred[4]	MI CMS SIR[5]	MI CMS SIR p-value[6]	MI CMS SIR 95% CI[7]	MI Hosp[8]	MI CMS Obs	MI CMS Pred	MI CMS SIR	MI CMS SIR p-value	MI CMS SIR 95% CI
CAUTI[9]	86	204	180.759	1.129	0.0949	0.982, 1.292	Acute (83)	204	180.611	1.13	0.0927	0.982, 1.293
							CAH (<5)	-----	-----	-----	-----	-----
CLABSI[10]	86	54	159.766	**0.338**	<0.0001	0.256, 0.475	Acute (83)	58	158.36	**0.366**	<0.0001	0.281, 0.470
							CAH (<5)	-----	-----	-----	-----	-----
ICU[11]	86	52	142.567	**0.365**	<0.0001	0.275, 0.475	Acute (83)	52	142.514	**0.365**	<0.0001	0.257, 0.438
							CAH (<5)	-----	-----	-----	-----	-----
NICU[12]	16	2	17.198	**0.116**	<0.0001	0.019, 0.384	Acute (16)	2	17.198	**0.116**	<0.0001	0.019, 0.384
							CAH (<5)	-----	-----	-----	-----	-----
SSI COLO[13]	87	88	78.565	1.12	0.289	0.904, 1.373	Acute (81)	87	77.984	1.116	0.308	0.899, 1.369
							CAH (6)	1	0.582	.	.	.
SSI HYST[14]	88	22	19.675	1.118	0.584	0.719, 1.665	Acute (83)	22	19.486	1.129	0.554	0.726, 1.681
							CAH (5)	0	0.189	.	.	.
MRSA Bac LabID[15]	88	80	89.339	0.895	0.324	0.715, 1.109	Acute (84)	80	89.181	0.897	0.3319	0.716, 1.11
							CAH (<5)	-----	-----	-----	-----	-----
CDI LabID[16]	88	856	942.535	**0.908**	0.0045	0.849, 0.971	Acute (84)	855	942.045	**0.908**	0.0043	0.848, 0.970
							CAH (<5)	-----	-----	-----	-----	-----

Michigan Data for CMS Reporting

[1]Elements currently required for acute care facilities only
[2]Michigan Hospitals: the total number of hospitals sharing data with the SHARP Unit for each infection type
[3]Michigan Observed: Number of infections reported during the time frame overall for each module.
[4]Michigan Predicted: The overall number of infections predicted based on the type of hospital unit(s) under surveillance.
[5]Michigan SIR: Standardized Infection Ratio: Ratio of observed events compared to the number of predicted events, accounting for unit type or procedure. An SIR of 1 can be interpreted as having the same number of events that were predicted. An SIR that is between 0 and 1 represents **fewer** events than predicted, while an SIR of greater than 1 represents **more**. ↓ or ↑Indicates statistically significantly lower or higher than previous quarter (respectively).
Green Text or **Red Text** indicates significantly fewer or greater infections than expected (respectively).
[6]P-value: An SIR p-value of <0.05 is considered significantly different than expected. It can show either significantly more infections (if the SIR is greater than 1 and the p-value is <0.05) or significantly fewer (if the SIR is less than 1 and the p-value is <0.05).
[7]Michigan 95% CI: 95% confidence interval around the SIR estimate. A 95% CI indicates that 95% of the time, the actual SIR will fall within this interval.
[8]Number of Michigan hospitals sharing data with the SHARP Unit. Acute care hospitals fulfill requirements set by the Center for Medicare and Medicaid Services (CMS). CAH: Critical Access Hospital. CAHs currently have no reporting requirements for CMS.
[9]Catheter-Associated Urinary Tract Infection, [10]Central Line-Associated Blood Stream Infection, [11]ICU: CLABSIs from ICU-only, [12]NICU: CLABSIs from NICU-only, [13]Surgical Site Infection – Colon Surgery, [14]Surgical Site Infection – Abdominal Hysterectomy, [15]MRSA BacLabID: Inpatient facility-wide MRSA bacteremia Laboratory-Identified Event, [16]CDI LabID: Inpatient facility-wide *Clostridium difficile* Laboratory-identified Events

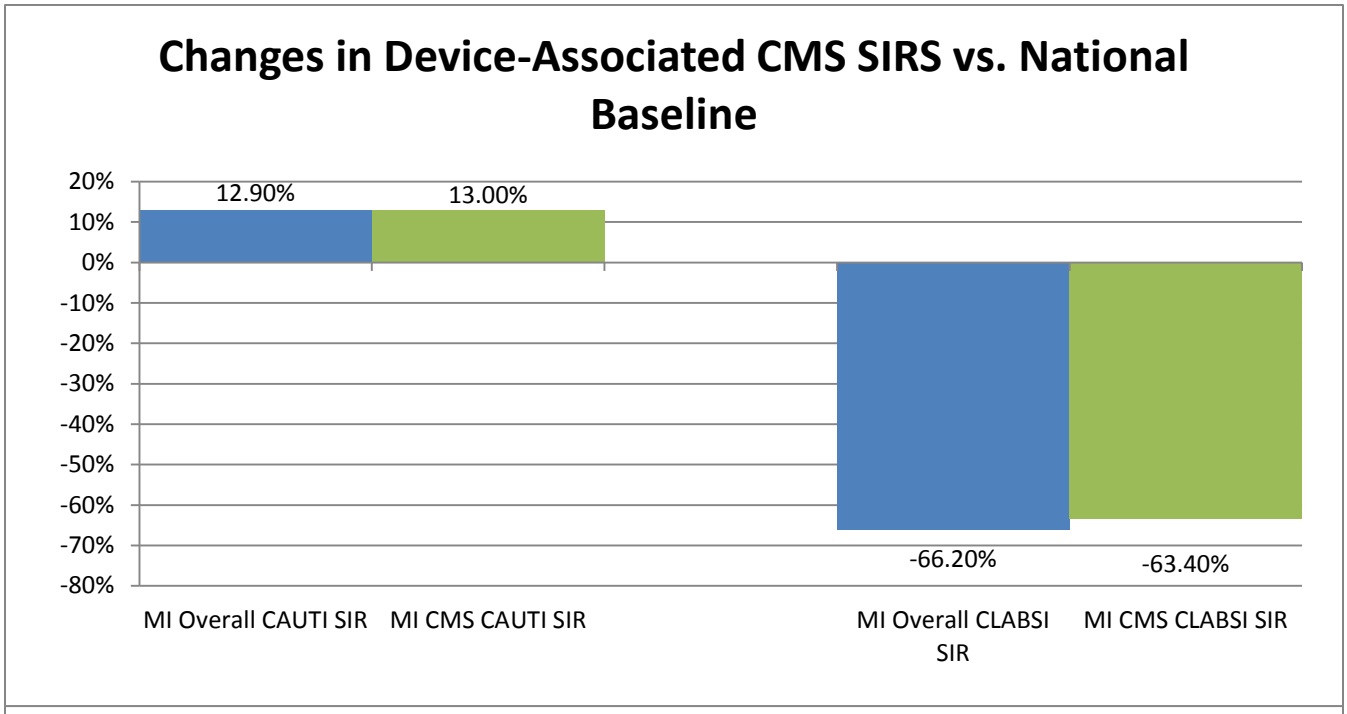
This report includes Michigan NHSN data for the fourth quarter of the 2014 calendar year. It demonstrates aggregate results from all data provided by Michigan hospitals to the MDCH SHARP Unit, as well as the subset of that data which are reported to the Centers for Medicare & Medicaid Services (CMS) to fulfill reporting requirements. Comprehensive Michigan Aggregate HAI Surveillance Reports can be found at www.michigan.gov/hai.

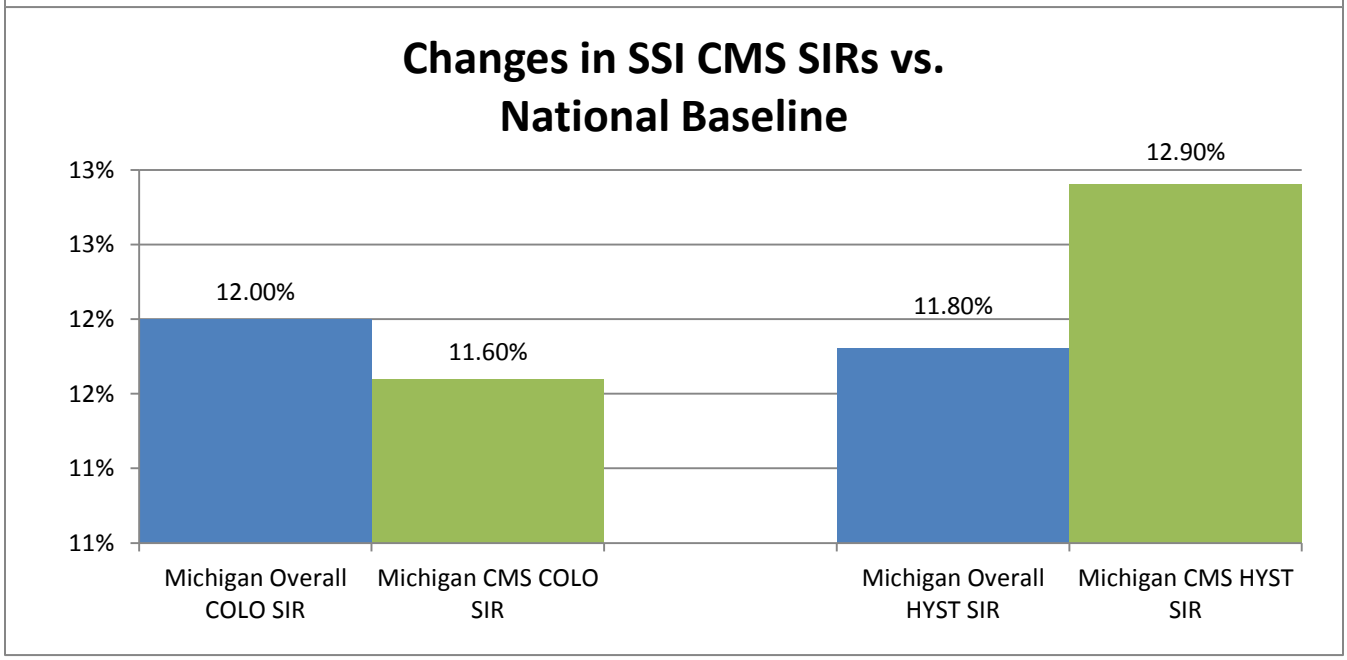
Standardized Infection Ratios (SIRs) for NHSN Modules: All Data and CMS-Required Elements

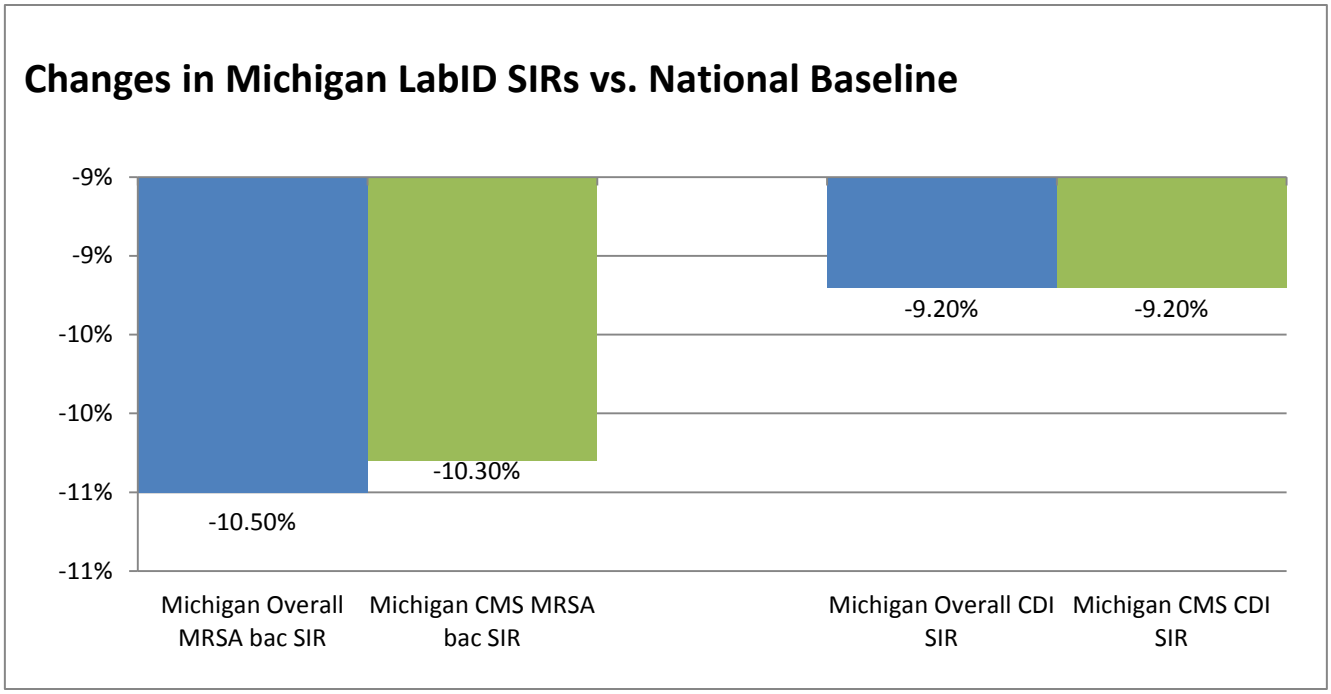
This table provides Standardized Infection Ratios (SIRs) for the six modules required by CMS in 2014, and displays both Michigan's **aggregate quarterly** and a subset of **CMS-required data (required for acute care only)** by facility type. CMS-required SIRs include adult, pediatric, and neonatal intensive care unit (ICU) data for CLABSIs and adult and pediatric ICU data for CAUTIs from acute care hospitals. CMS SSIs include only deep incisional primary and organ/space SSIs with an event date within 30 days of the procedures and use only age and American Society of Anesthesiologists (ASA) score to determine risk for colon surgeries (COLO) and abdominal hysterectomies (HYST) from acute care hospitals. CMS-required SIRs include MRSA bacteremia facility-wide Laboratory-identified data (only healthcare facility-onset events included) and *Clostridium difficile* facility-wide Laboratory-identified data (only healthcare facility-onset events included). Descriptions of terms used in the tables can be found in the table footnotes in the report.

Graphs Comparing SIR to Baseline

SIR graphs display a comparison of the Michigan Overall SIR and the Michigan CMS SIR to the National Baseline (0%). The percentage listed on each bar shows the percent difference each respective SIR is from the national baseline. National baseline data were collected in 2006-2008 for CLABSI and SSI, 2009 for CAUTI, and 2011 for CDI and MRSA. New baseline data for all modules will be collected in 2015.

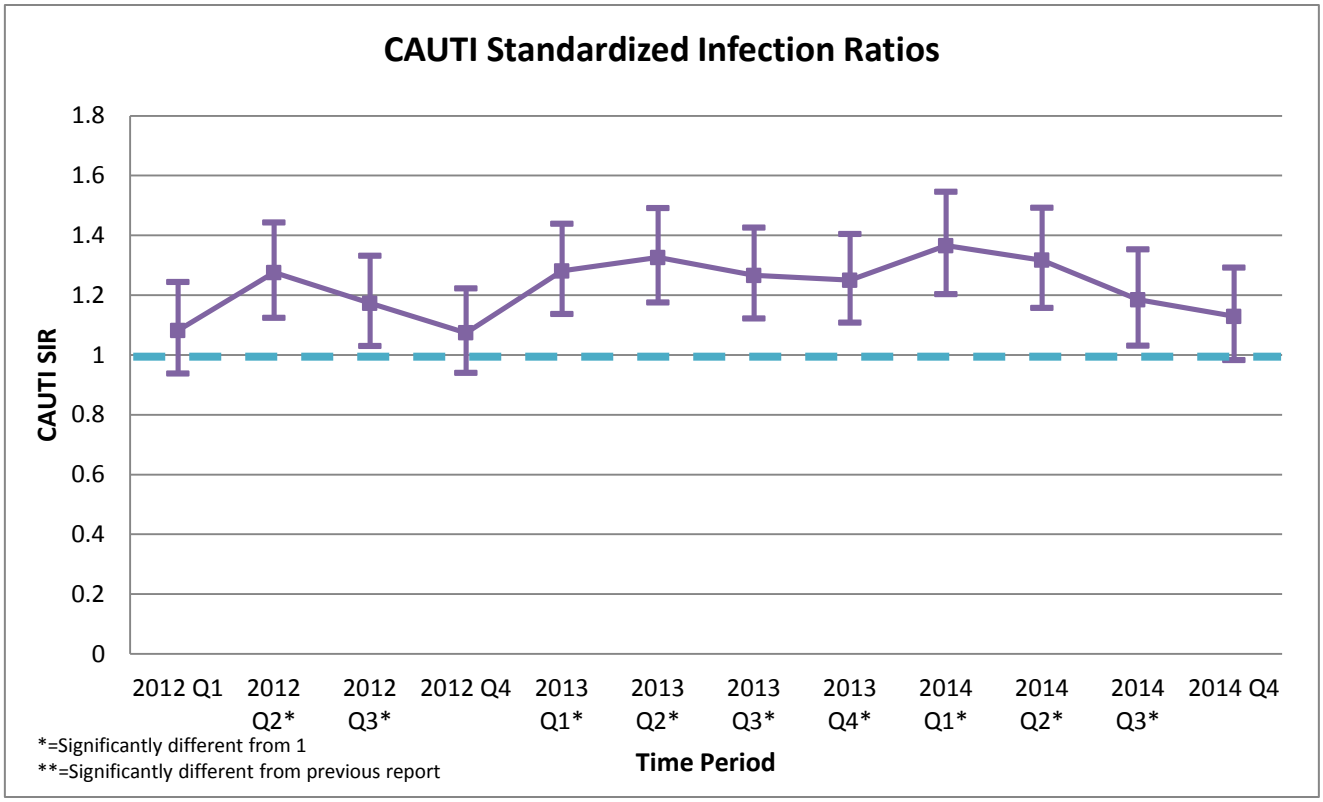


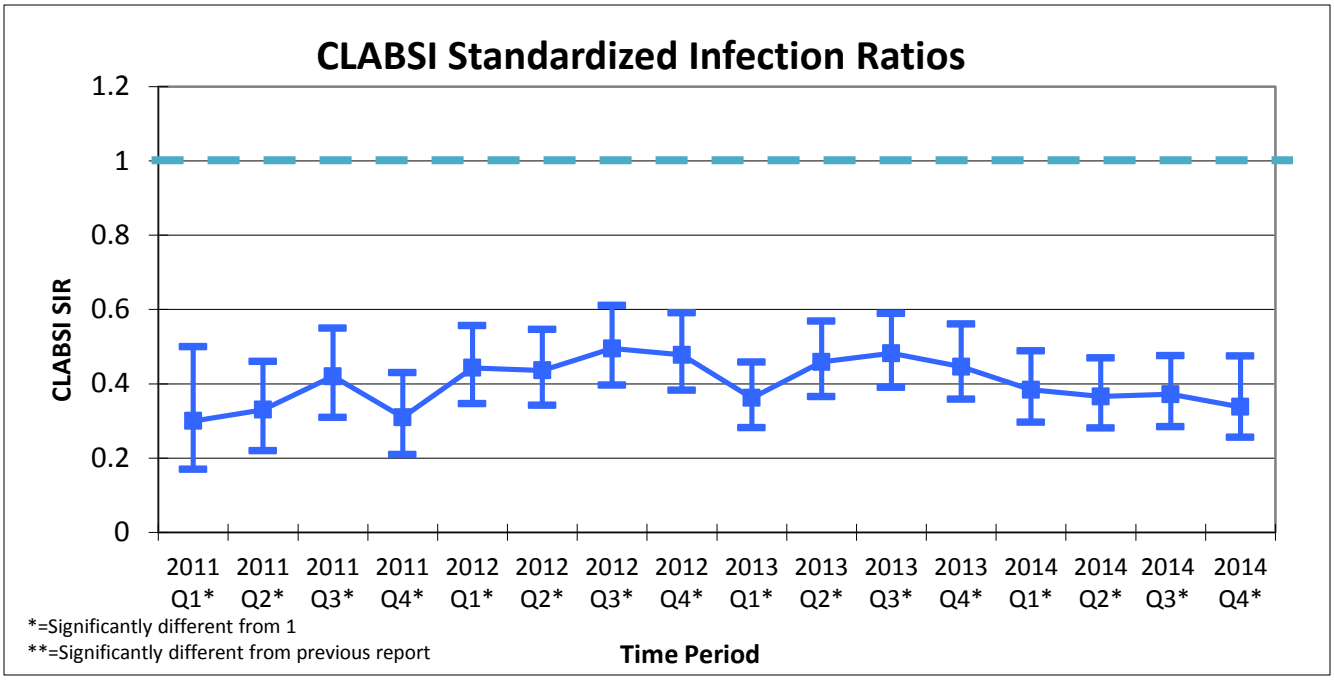


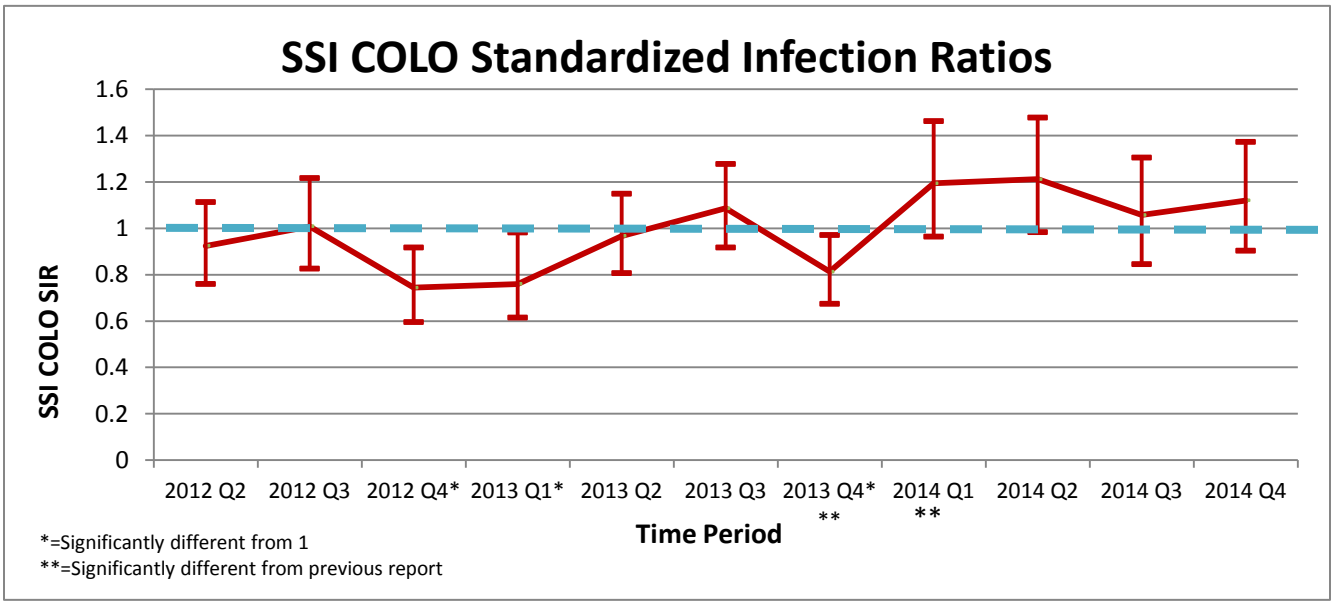


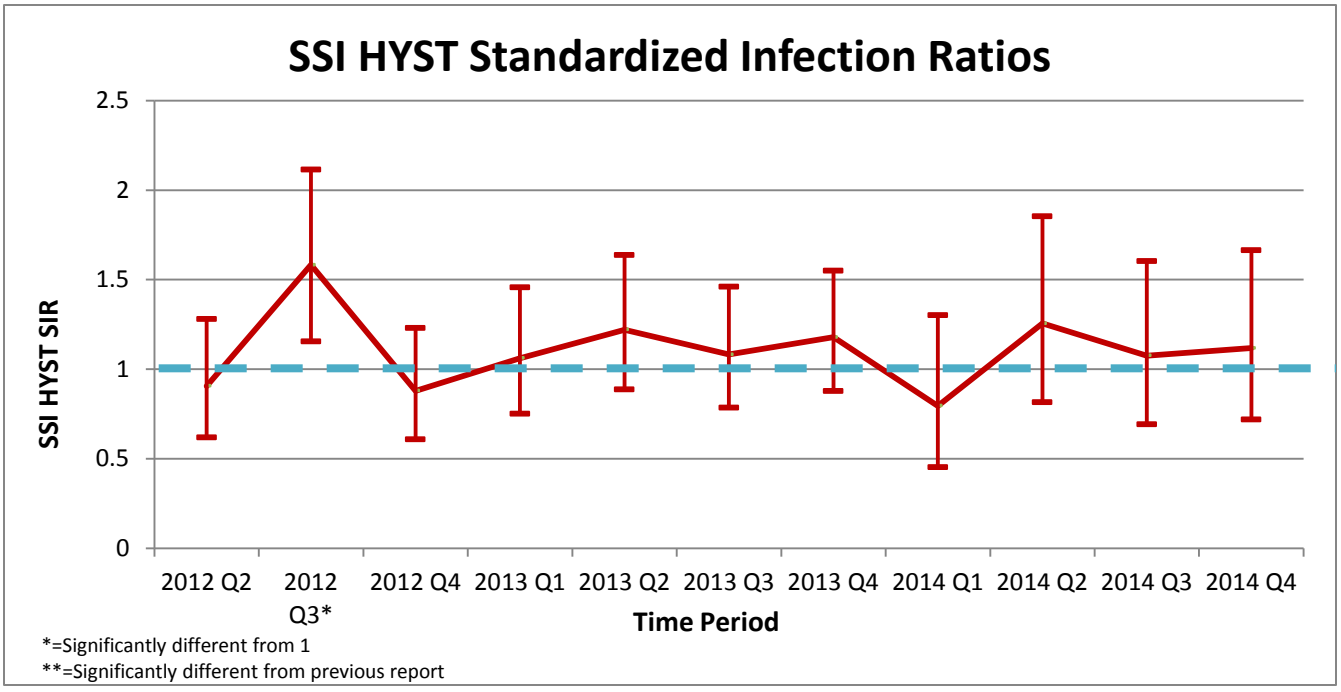
Michigan Quarterly Overall SIR Trends

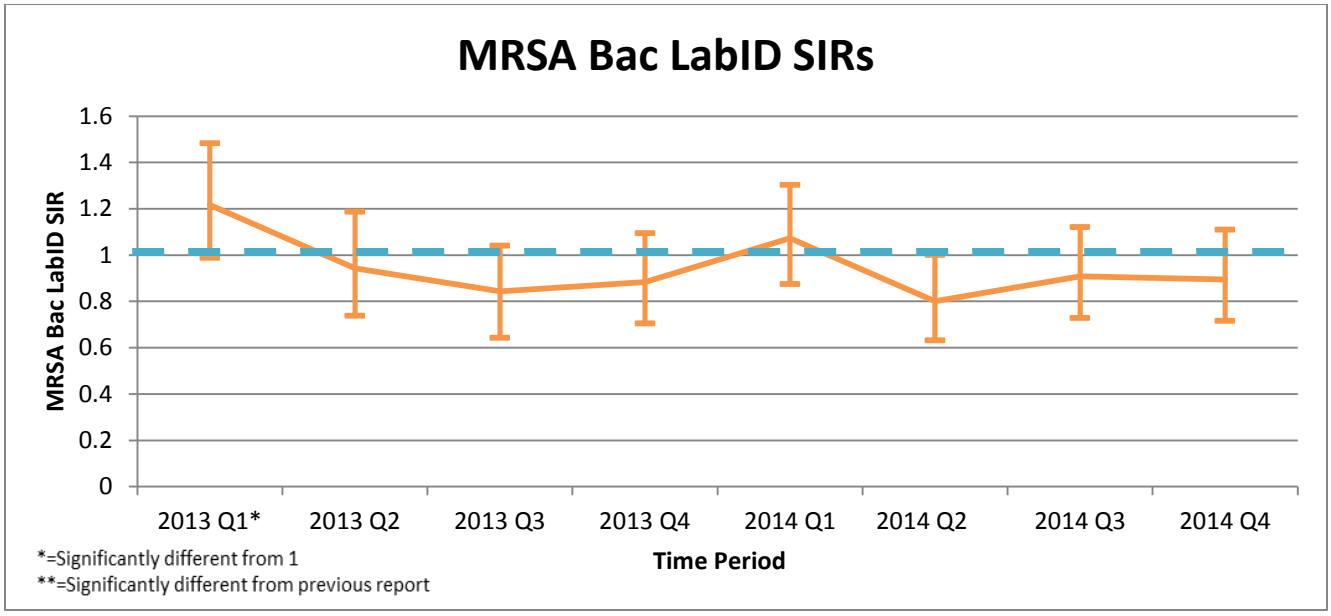
SIR trend graphs show Michigan Overall SIRs quarterly, when three or more data points are available. Each SIR is surrounded by its 95% confidence interval, and a reference line of 1 is provided. These trend graphs compare SIRs to 1 (baseline) as well as the previous quarter.

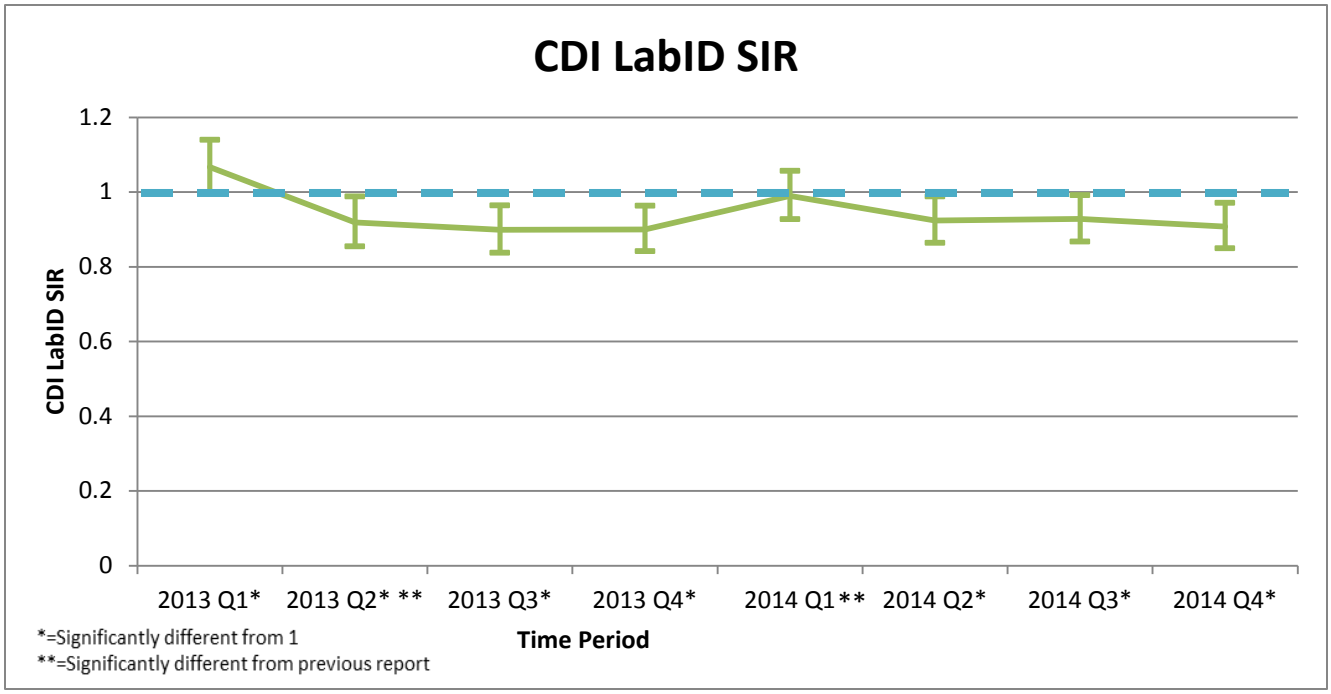



CLABSI Standardized Infection Ratios
CLABSI SIR
1.2
1
0.8
0.6
0.4
0.2
0
2011 Q1*
2011 Q2*
2011 Q3*
2011 Q4*
2012 Q1*
2012 Q2*
2012 Q3*
2012 Q4*
2013 Q1*
2013 Q2*
2013 Q3*
2013 Q4*
2014 Q1*
2014 Q2*
2014 Q3*
2014 Q4*
*=Significantly different from 1
**=Significantly different from previous report
Time Period


SSI COLO Standardized Infection Ratios
SSI COLO SIR
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
2012 Q2
2012 Q3
2012 Q4*
2013 Q1*
2013 Q2
2013 Q3
2013 Q4*
2014 Q1
2014 Q2
2014 Q3
2014 Q4
**
**
*=Significantly different from 1
**=Significantly different from previous report
Time Period


SSI HYST Standardized Infection Ratios
SSI HYST SIR
2.5
2
1.5
1
0.5
0
2012 Q2
2012 Q3*
2012 Q4
2013 Q1
2013 Q2
2013 Q3
2013 Q4
2014 Q1
2014 Q2
2014 Q3
2014 Q4
*=Significantly different from 1
**=Significantly different from previous report
Time Period





Conclusions

This report compiled Michigan HAI data voluntarily shared via NHSN with the MDCH SHARP Unit for the 2014 Quarter 4 reporting period. This highlight sheet presents a new format that will replace the formal quarterly reports. Semi-Annual and Annual reports will still be provided following a more traditional format.

Note that these data from participating hospitals have not been validated. Validation studies will be conducted as additional funding becomes available. This report contains data from many more facilities than in previous reports. Data will continue to become more reliable as additional Michigan hospitals participate in this surveillance initiative.

Please contact Allison Murad at MuradA@michigan.gov or at 517-335-8199 with any questions, comments, or suggestions regarding this report.