



**Standardized Infection Ratios (SIRs) for NHSN Modules
Centers for Medicare and Medicaid Services (CMS) Required Elements¹
State of Michigan 2014 Q3**

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 p-value	MI CMS SIR 95% CI
CAUTI ⁹	84	212	178.896	1.185	0.0173	1.033, 1.353	Acute (82)	212	178.811	1.186	0.017	1.034, 1.354
							CAH (<5)	-----	-----	-----	-----	-----
CLABSI ¹⁰	84	59	158.786	0.372	<0.0001	0.285, 0.476	Acute (82)	59	158.768	0.372	<0.0001	0.285, 0.476
							CAH (<5)	-----	-----	-----	-----	-----
ICU ¹¹	84	51	140.270	0.364	<0.0001	0.274, 0.474	Acute (82)	51	140.252	0.364	<0.0001	0.274, 0.474
							CAH (<5)	-----	-----	-----	-----	-----
NICU ¹²	17	8	18.516	0.432	0.0073	0.201, 0.820	Acute (17)	8	18.516	0.432	0.0073	0.201, 0.820
							CAH (<5)	-----	-----	-----	-----	-----
SSI COLO ¹³	89	82	77.569	1.057	0.606	0.846, 1.305	Acute (83)	81	77.312	1.048	0.664	0.963, 1.454
							CAH (6)	1	0.257	.	.	.
SSI HYST ¹⁴	88	22	20.44	1.076	0.709	0.692, 1.603	Acute (83)	22	20.335	1.082	0.69	0.695, 1.611
							CAH (5)	0	0109	.	.	.
MRSA Bac LabID ¹⁵	88	83	91.385	0.908	0.383	0.728, 1.120	Acute (84)	83	91.286	0.909	0.388	0.729, 1.121
							CAH (<5)	-----	-----	-----	-----	-----
CDI LabID ¹⁶	88	864	931.367	0.928	0.0269	0.867, 0.991	Acute (84)	864	929.978	0.929	0.0302	0.869, 0.993
							CAH (<5)	-----	-----	-----	-----	-----

Michigan Data for CMS Reporting

¹Elements currently required for acute care facilities only
²Michigan Hospitals: the total number of hospitals sharing data with the SHARP Unit for each infection type
³Michigan Observed: Number of infections reported during the time frame overall for each module.
⁴Michigan Predicted: The overall number of infections predicted based on the type of hospital unit(s) under surveillance.
⁵Michigan 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).
⁶P-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).
⁷Michigan 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.
⁸Number 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.
⁹Catheter-Associated Urinary Tract Infection, ¹⁰Central Line-Associated Blood Stream Infection, ¹¹ICU: CLABSIs from ICU-only, ¹²NICU: CLABSIs from NICU-only, ¹³Surgical Site Infection – Colon Surgery, ¹⁴Surgical Site Infection – Abdominal Hysterectomy, ¹⁵MRSA BacLabID: Inpatient facility-wide MRSA bacteremia Laboratory-Identified Event, ¹⁶CDI LabID: Inpatient facility-wide *Clostridium difficile* Laboratory-identified Events

This report includes Michigan NHSN data for the third quarter of the 2014 calendar year. It demonstrates aggregate results from all data provided by Michigan hospitals to the MDHHS 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.

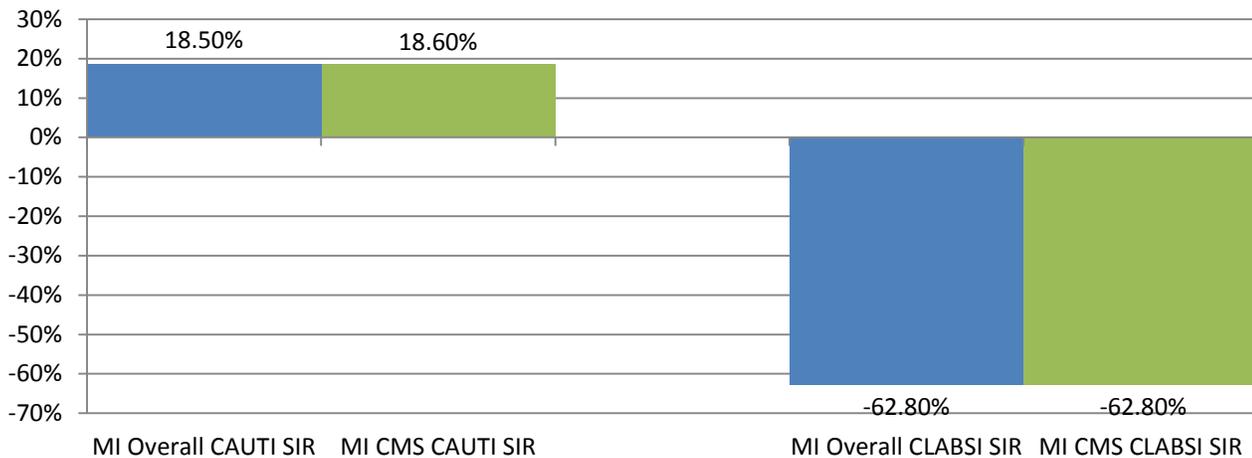
Standardized Infection Ratios (SIRs) for NHSN Modules: All Data and CMS-Required Elements

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.

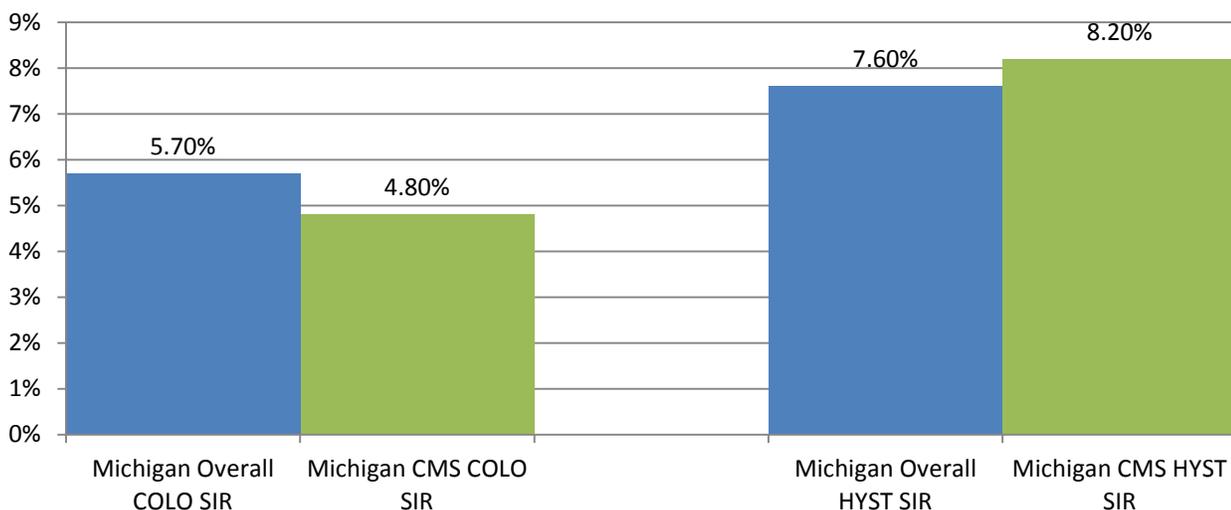
Graphs Comparing SIR to Baseline

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.

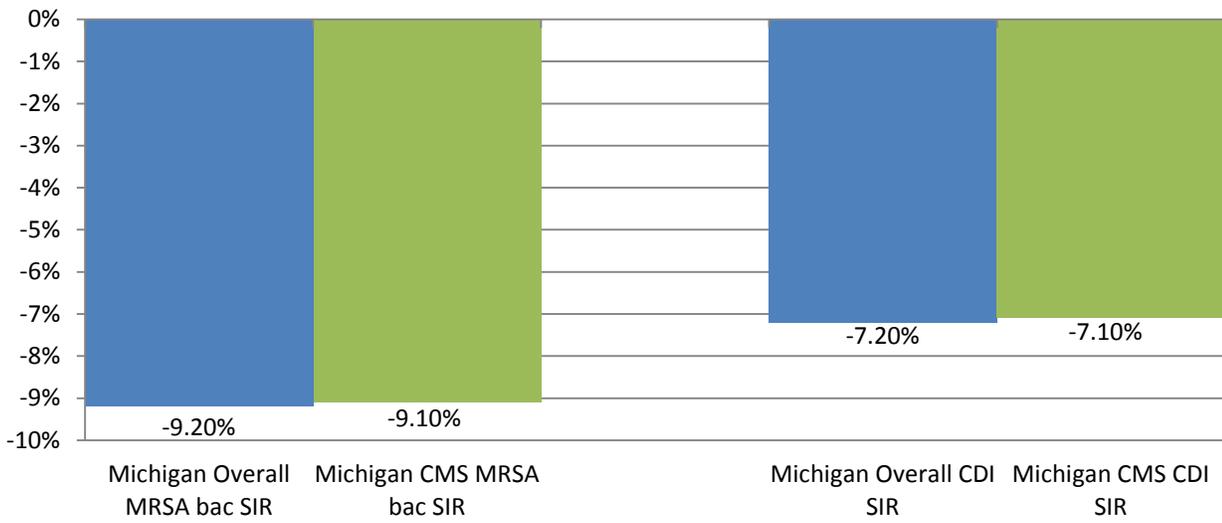
Changes in Device-Associated CMS SIRs vs. National Baseline



Changes in SSI CMS SIRs vs. National Baseline



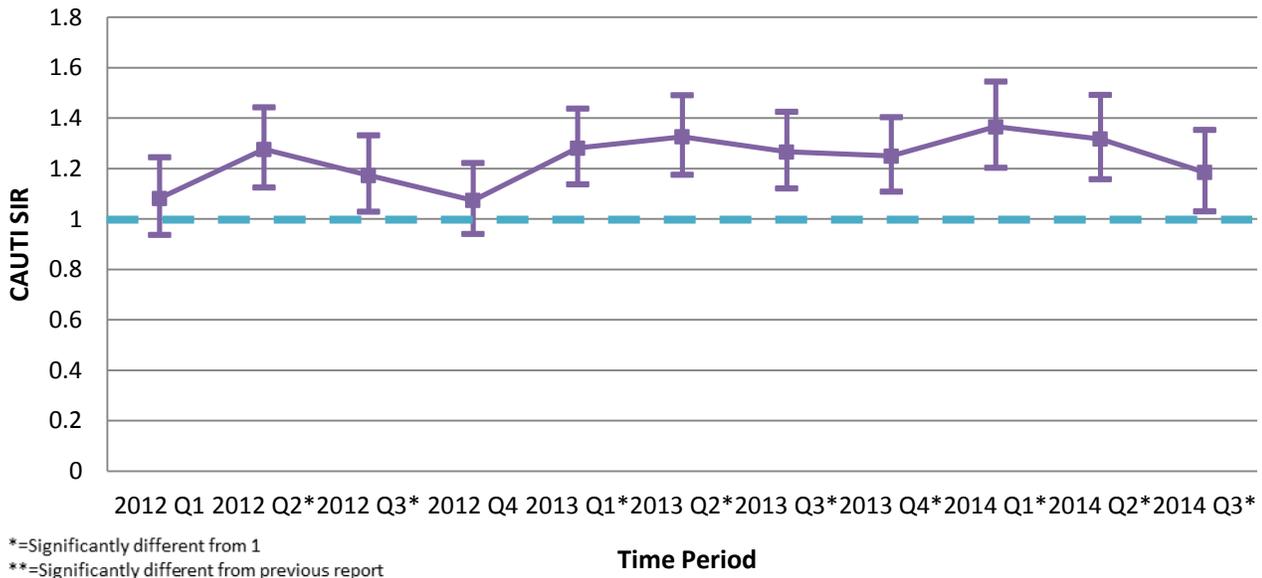
Changes in Michigan LabID SIRs vs. National Baseline



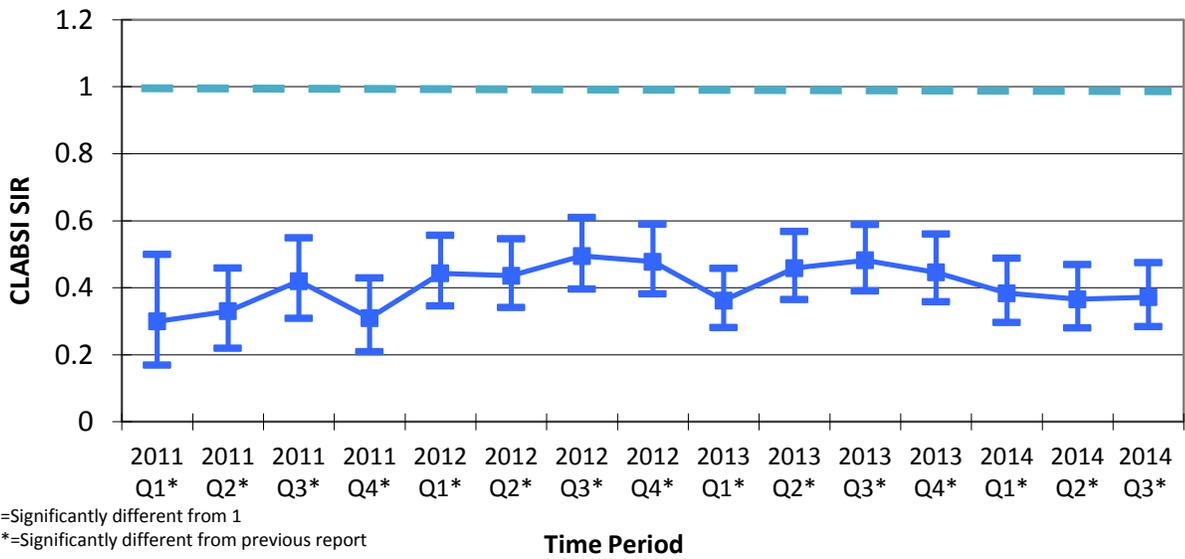
Michigan Quarterly Overall SIR Trends

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.

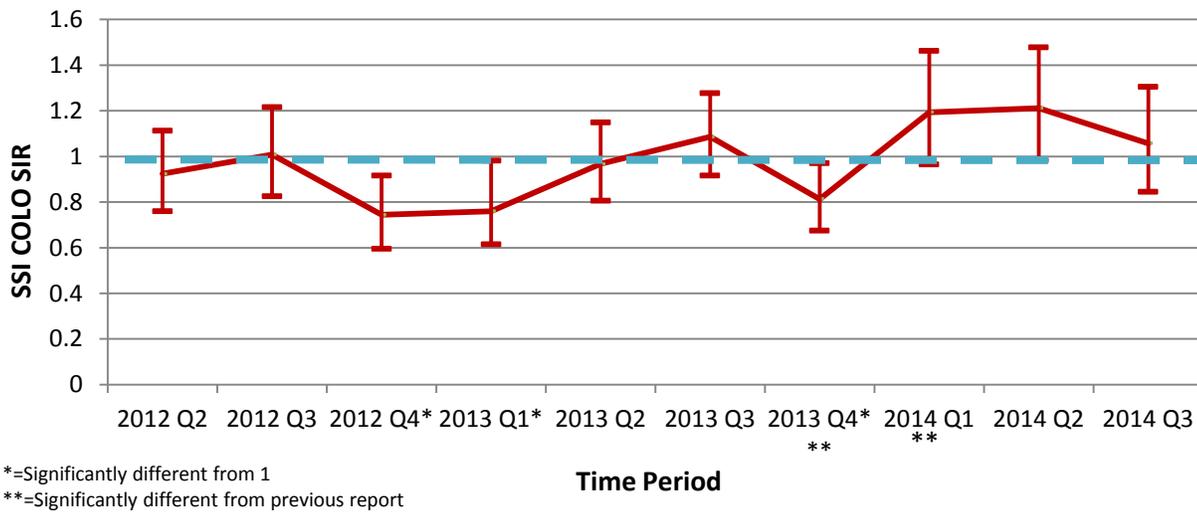
CAUTI Standardized Infection Ratios



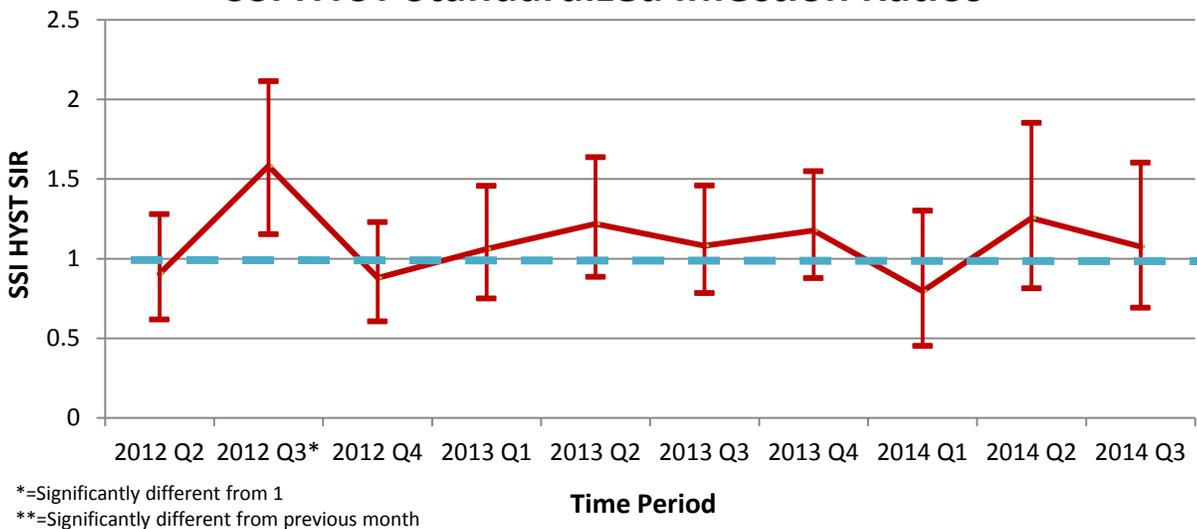
CLABSI Standardized Infection Ratios

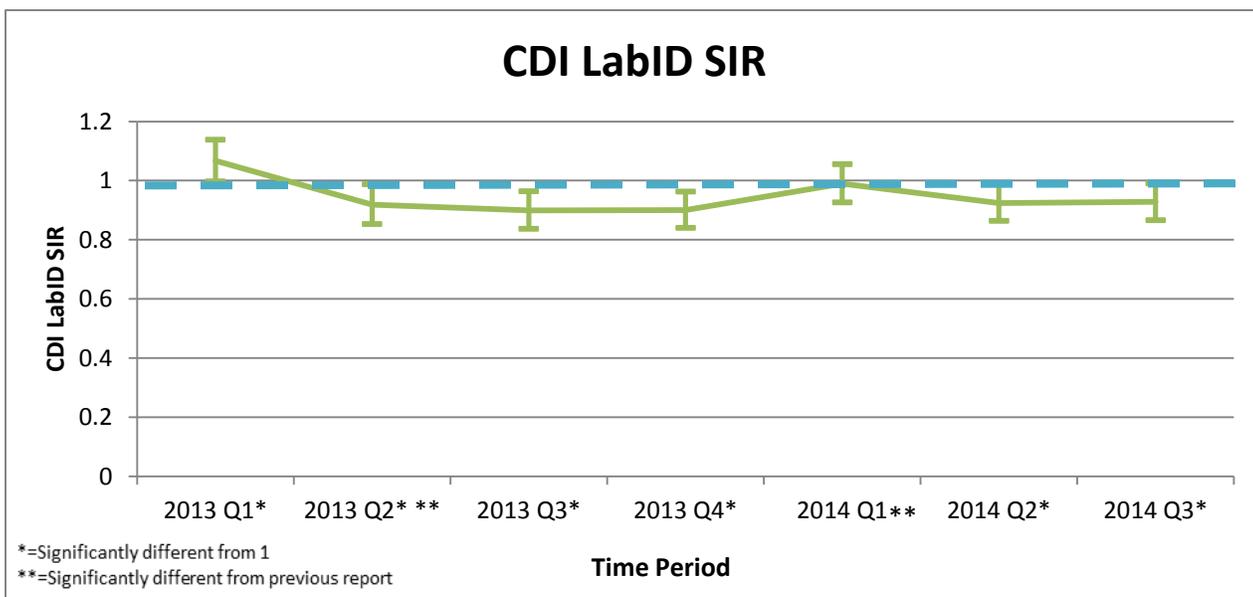
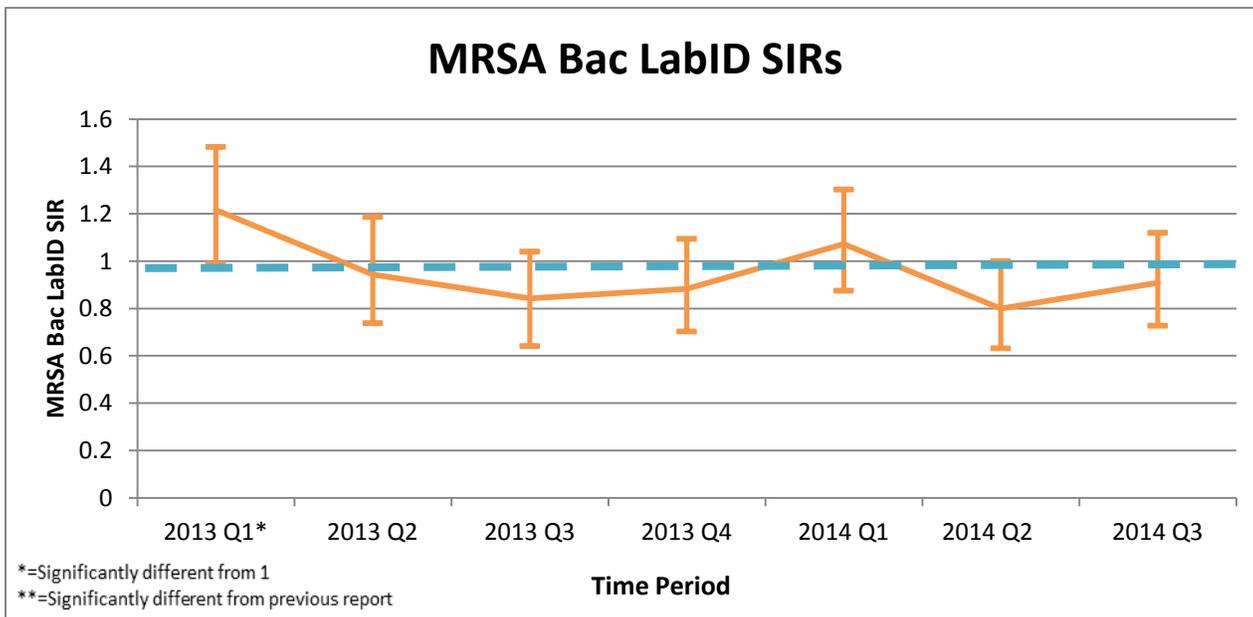


SSI COLO Standardized Infection Ratios



SSI HYST Standardized Infection Ratios





Conclusions

This report compiled Michigan HAI data voluntarily shared via NHSN with the MDHHS SHARP Unit for the 2014 Quarter 3 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.