

# State of Michigan

2015 Quarter 1 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<sup>1</sup> State of Michigan 2015 Q1

Infection Type	MI Hosp <sup>2</sup>	MI CMS Obs <sup>3</sup>	MI CMS Pred <sup>4</sup>	MI CMS SIR <sup>5</sup>	MI CMS SIR p-value <sup>6</sup>	MI CMS SIR 95% CI <sup>7</sup>	MI Hosp <sup>8</sup>	MI CMS Obs	MI CMS Pred	MI CMS SIR	MI CMS p-value	MI CMS SIR 95% CI
CAUTI <sup>9</sup>	94	177	292.186	0.606↓	<0.0001	0.521, 0.700	Acute (85)	176	290.918	0.605↓	<0.0001	0.520, 0.699
							CAH (9)	1	1.2684	0.788	0.9193	0.039, 3.888
CLABSI <sup>10</sup>	92	118	258.358	0.457	<0.0001	0.380, 0.545	Acute (84)	118	257.852	0.458	<0.0001	0.380, 0.546
							CAH (8)	0	0.506	.	.	.
ICU/Ward <sup>11</sup>	92	112	238.051	0.470	<0.0001	0.389, 0.564	Acute (84)	112	237.545	0.471	<0.0001	0.390, 0.565
							CAH (8)	0	0.506	.	.	.
NICU <sup>12</sup>	17	6	20.307	0.295	0.0003	0.120, 0.615	Acute (17)	6	20.307	0.295	0.0003	0.120, 0.615
							CAH (<5)	-----	-----	-----	-----	-----
SSI COLO <sup>13</sup>	87	78	81.370	0.959	0.7210	0.763, 1.190	Acute (83)	78	80.696	0.967	0.7770	0.769, 1.200
							CAH (<5)	-----	-----	-----	-----	-----
SSI HYST <sup>14</sup>	87	19	22.004	0.863	0.5380	0.535, 1.323	Acute (83)	19	21.886	0.868	0.5540	0.538, 1.331
							CAH (<5)	-----	-----	-----	-----	-----
MRSA Bac LabID <sup>15</sup>	91	77	83.961	0.917	0.4527	0.729, 1.140	Acute (84)	77	83.614	0.921	0.4755	0.732, 1.145
							CAH (7)	0	0.347	.	.	.
CDI LabID <sup>16</sup>	90	849	953.524	0.890	0.0006	0.832, 0.952	Acute (84)	848	949.139	0.893	0.0009	0.835, 0.955
							CAH (6)	1	4.3845	0.228	0.0796	0.011, 1.125

### Michigan Data for CMS-Required Reporting

<sup>1</sup>Elements currently required for acute care facilities only

<sup>2</sup>Michigan Hospitals: the total number of hospitals sharing data with the SHARP Unit for each infection type.

<sup>3</sup>Michigan Observed: Number of infections reported during the time frame overall for each module (includes acute care, critical access, and rehab hospitals).

<sup>4</sup>Michigan Predicted: The overall number of infections predicted based on the type of hospital unit(s) under surveillance.

<sup>5</sup>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).

<sup>6</sup>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).

<sup>7</sup>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.

<sup>8</sup>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.

<sup>9</sup>Catheter-Associated Urinary Tract Infection, <sup>10</sup>Central Line-Associated Blood Stream Infection, <sup>11</sup>ICU/Ward: CLABSIs from ICU and Med, Surg, or Med/Surg Wards Only, <sup>12</sup>NICU: CLABSIs from NICU-only, <sup>13</sup>Surgical Site Infection – Colon Surgery, <sup>14</sup>Surgical Site Infection – Abdominal Hysterectomy, <sup>15</sup>MRSA BacLabID: Inpatient facility-wide MRSA bacteremia Laboratory-Identified Event, <sup>16</sup>CDI LabID: Inpatient facility-wide *Clostridium difficile* Laboratory-identified Events

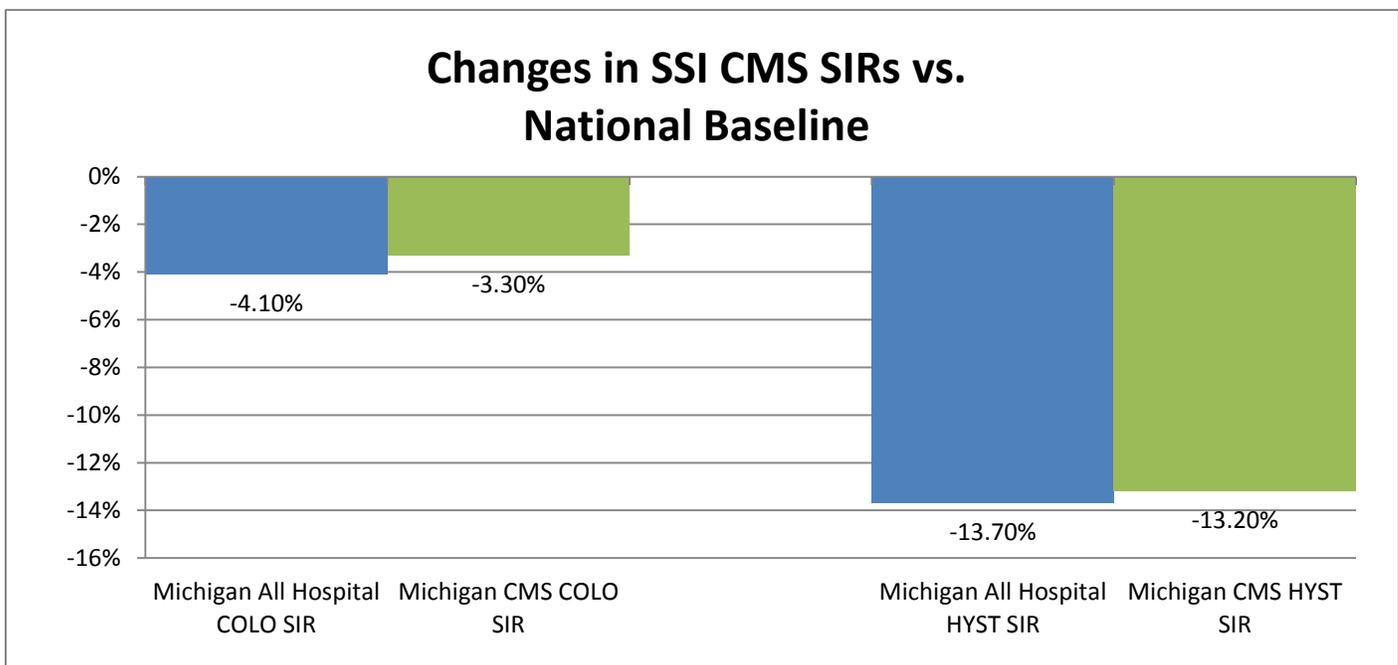
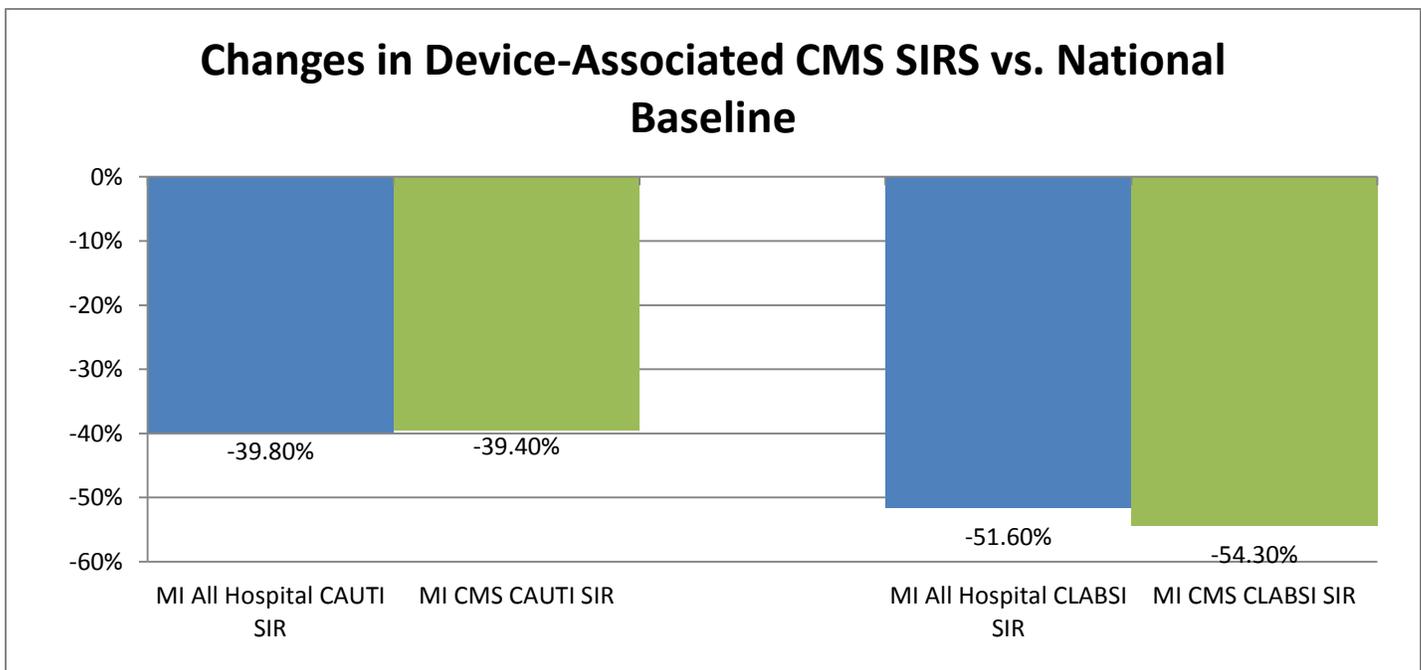
This report includes Michigan NHSN data for the first quarter of the 2015 calendar year. It demonstrates aggregate results from all data provided by Michigan hospitals to the MDCH SHARP Unit using CMS definitions, as well as the subset of that data which are actually reported to the Centers for Medicare & Medicaid Services (CMS) to fulfill reporting requirements. Comprehensive Michigan Aggregate HAI Surveillance Reports can be found at [www.michigan.gov/hai](http://www.michigan.gov/hai).

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

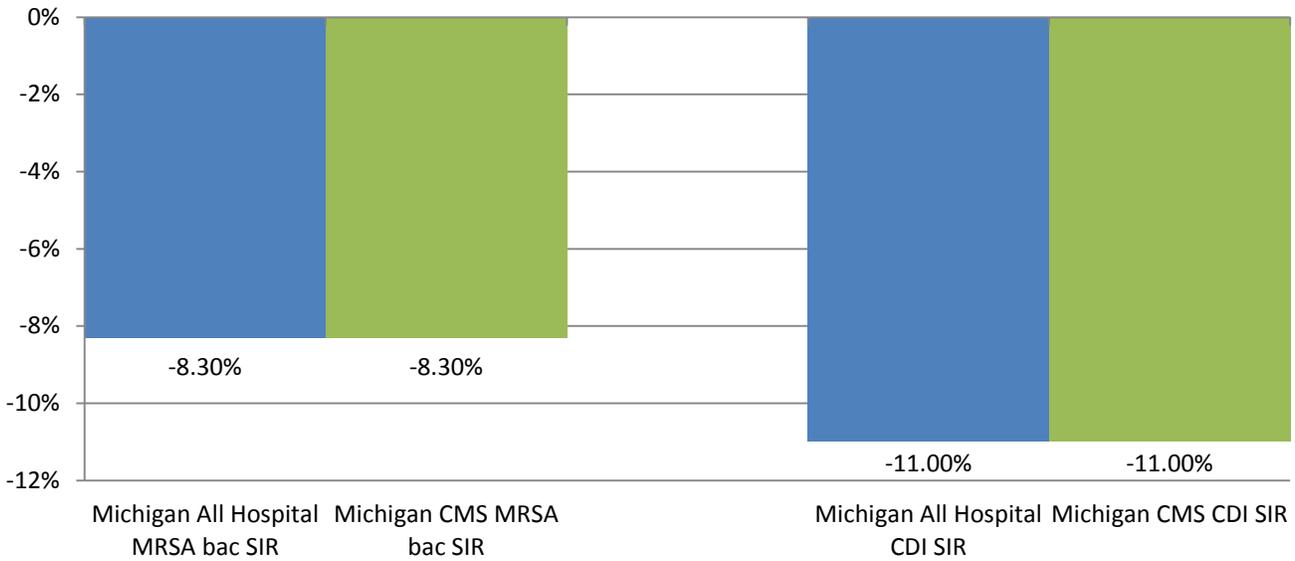
This table provides Standardized Infection Ratios (SIRs) for the six modules required by CMS in 2014, and displays both Michigan’s **aggregate quarterly** and a subset of **CMS-required data (required for acute care only)** by facility type. CMS-required SIRs include: adult, pediatric, and neonatal intensive care unit (ICU) data along with medical, surgical, and medical/surgical ward data (new in 2015) for CLABSIs; adult and pediatric ICU data along with medical, surgical, and medical/surgical ward data (new in 2015) for CAUTIs; deep incisional primary and organ/space SSIs with an event date within 30 days of colon surgery (COLO) or abdominal hysterectomy (HYST) (SIRs use only age and American Society of Anesthesiologists (ASA) score to determine risk); facility-wide MRSA bacteremia laboratory-identified (LabID) events (only healthcare facility-onset events included); and facility-wide *Clostridium difficile* LabID events (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.



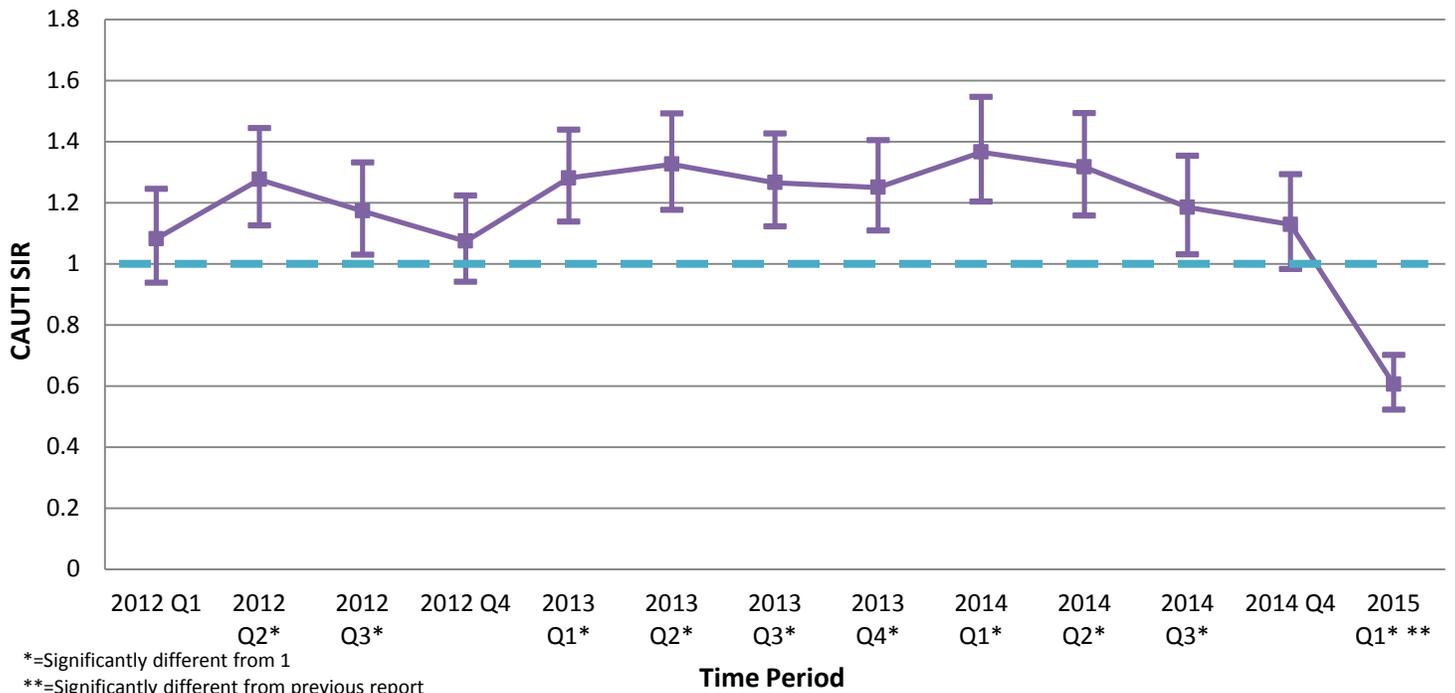
## Changes in Michigan LabID SIRs vs. National Baseline



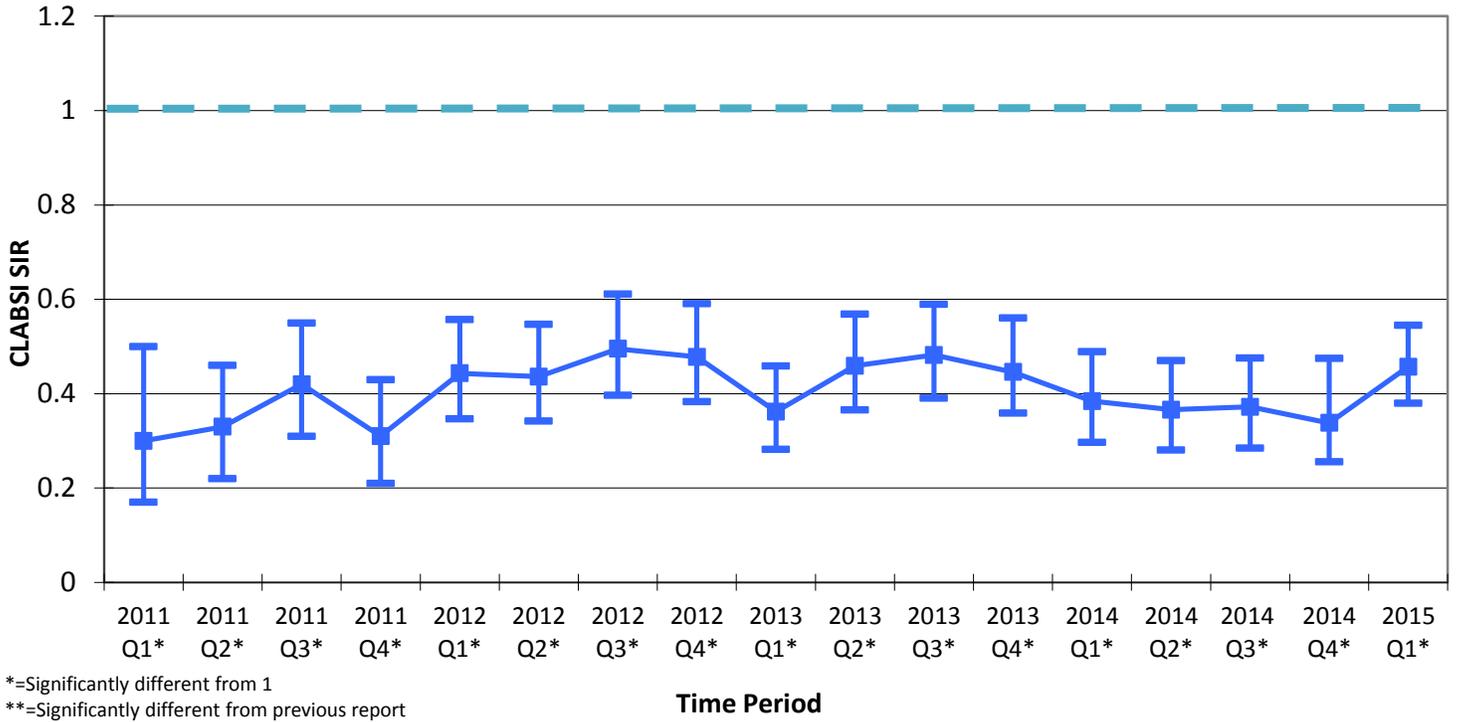
### Michigan Quarterly Overall SIR Trends

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. Note: the CAUTI definition now excludes all non-bacterial pathogens, and therefore, the number of CAUTIs reported in 2015 and forward may be lower than in previous years.

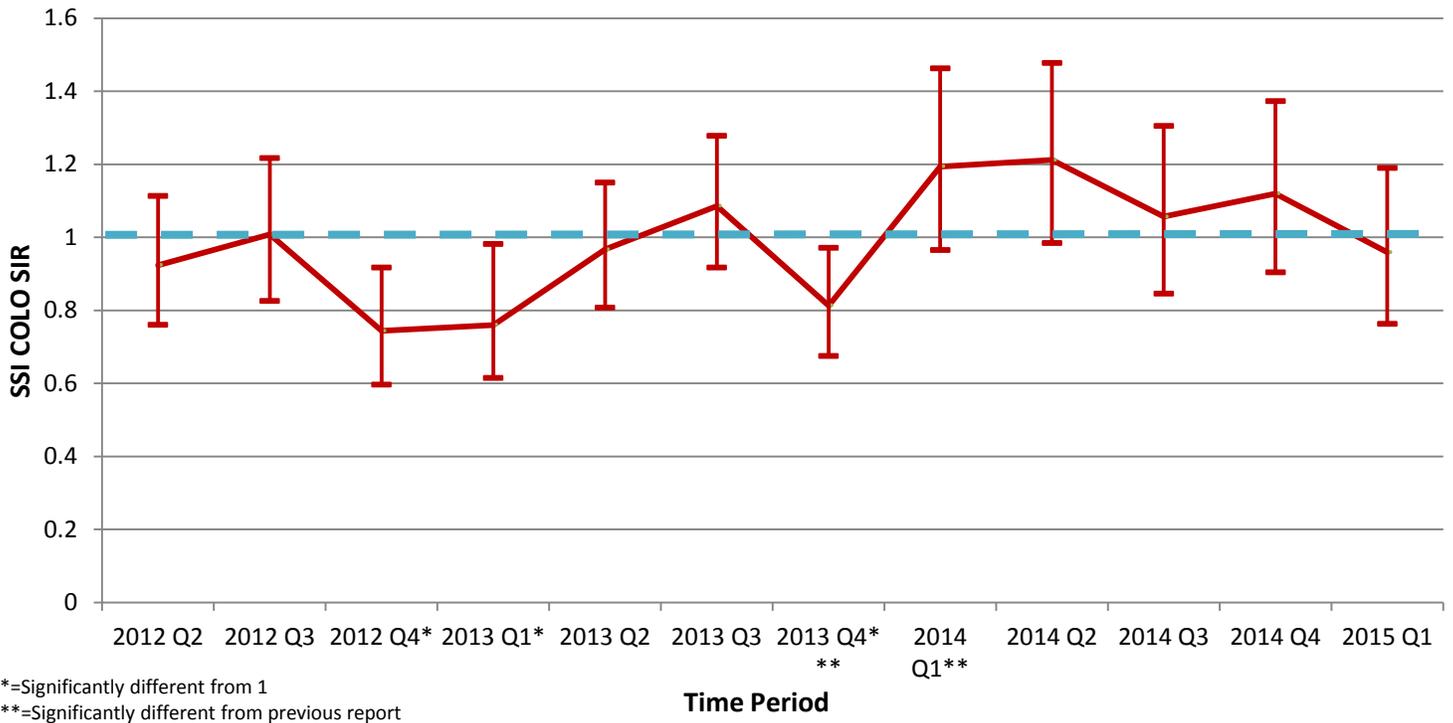
## CAUTI Standardized Infection Ratios



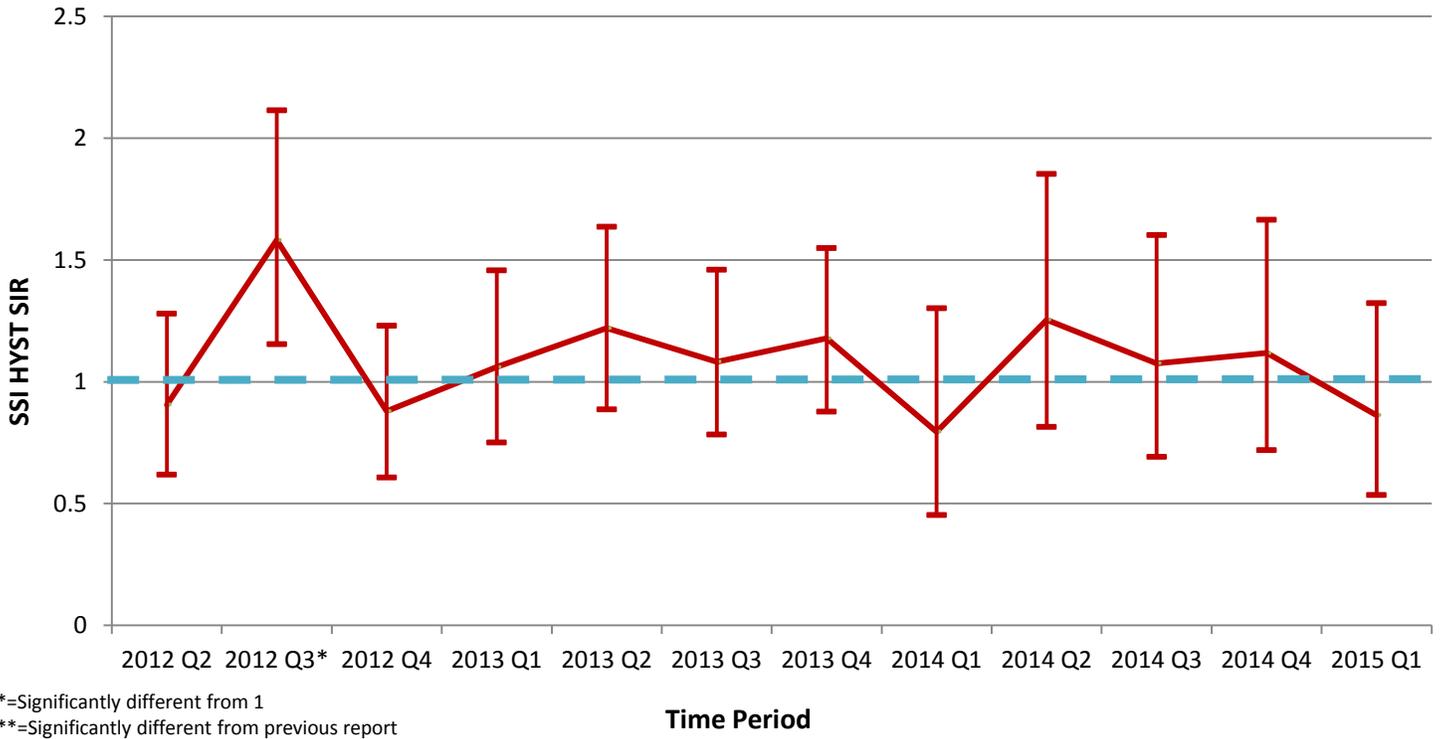
## CLABSI Standardized Infection Ratios



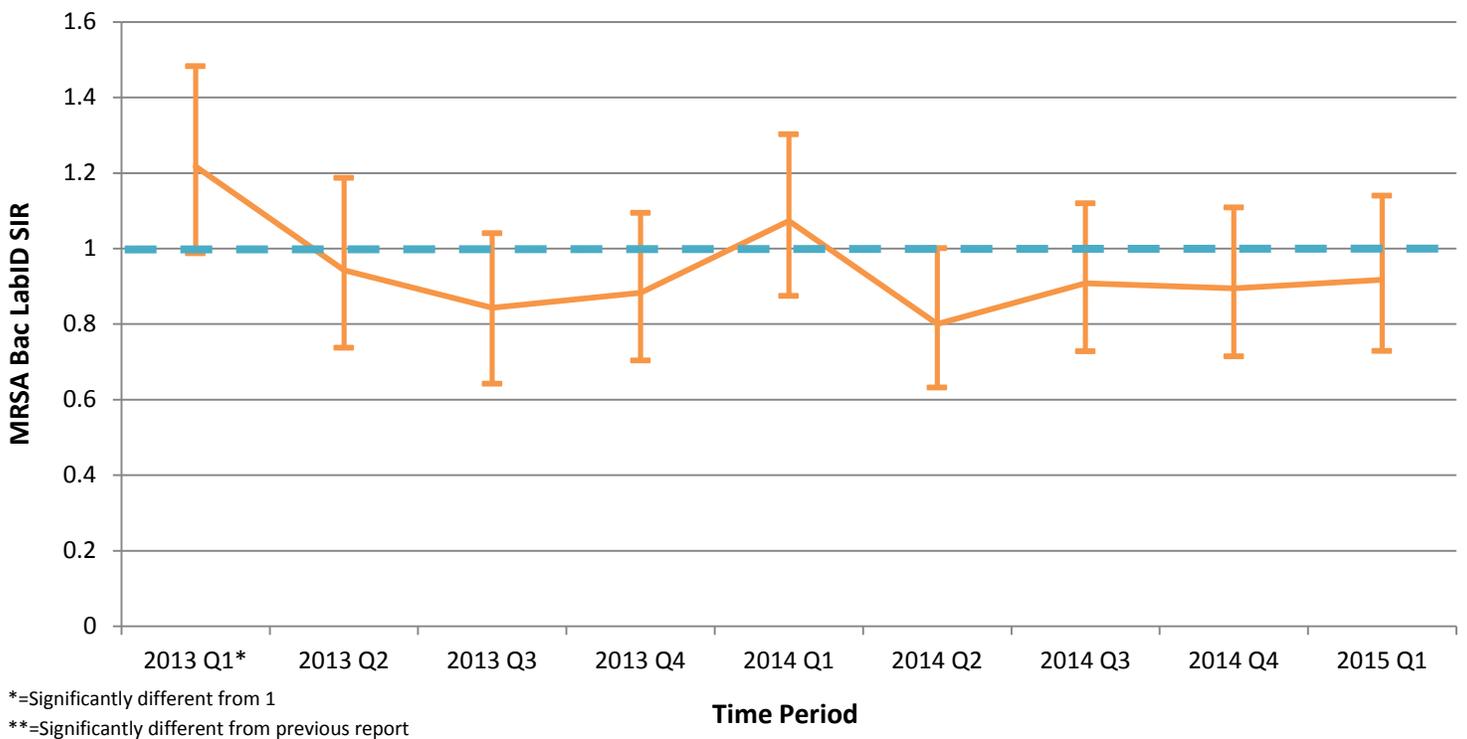
## SSI COLO Standardized Infection Ratios



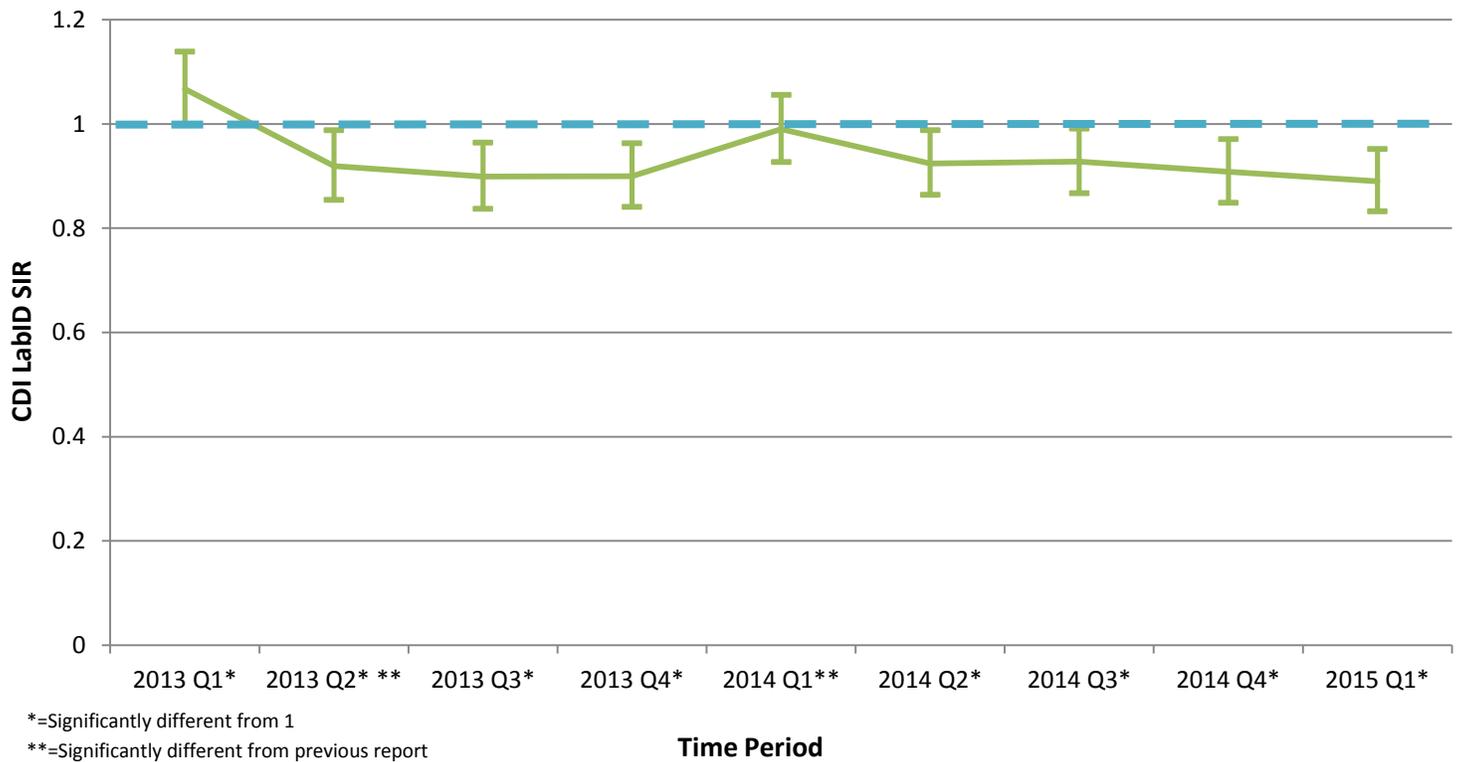
## SSI HYST Standardized Infection Ratios



## MRSA Bacteremia LabID Standardized Infection Ratios



## CDI LabID Standardized Infection Ratios



### Conclusions

This report compiled Michigan HAI data voluntarily shared via NHSN with the MDHHS SHARP Unit for the 2015 Quarter 1 reporting period. Note that these data from participating hospitals have not been validated. SHARP Unit-led validation studies are scheduled to begin in the Fall of 2015. Initial validation activities will focus on 2014 ICU CLABSI and CAUTI data.

Beginning with 2015 data, CAUTI and CLABSI SIRs include applicable ward-level data in addition to ICU-level data, per CMS IPPS requirements. Because pediatric surgical wards were excluded from the baseline, they will also be excluded from the current SIR. The CAUTI definition now excludes all non-bacterial pathogens, and therefore, the number of CAUTIs reported in 2015 and forward may be lower than in previous years.

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