

How to Interpret Your Individual Hospital Report

2010–2011 Annual Report

- The data included in your individual facility report are included in the statewide data reported in the aggregate 2010–2011 Annual Report, which can be found at: http://www.michigan.gov/documents/mdch/Annual_NHSN_Draft_FINAL_389633_7.pdf
- The data included in your individual facility report were pulled on February 14, 2012 (unless otherwise noted at the top of your report). This is the same date the aggregate data were pulled.
- Because the data were pulled on this date, any data entered afterwards (even if it was backdated to the included time period) were not included. Therefore, some data that are currently entered in NHSN may not have been present as of the data pull date, and will not be displayed in these reports.
- Your report will only reference facility data that MDCH SHARP received through NHSN (data that your facility entered and conferred rights to). Your facility may be utilizing modules of NHSN that are not shared with MDCH SHARP.
- Your facility may not be conducting all possible surveillance options described in this document. If your facility does not report a particular infection type in the tables listed, the modules not reported will be represented with “-----”.
- It is important to compare different locations within your facility to each other, as well as to Michigan and national measures, for discrepancies. This can lead to discovering errors in data entry or problems within certain locations. This report can be used to evaluate areas that may need infection control work.

Descriptions for Device-Associated Modules (Tables):

There are two main tables for this module. The first includes data for **infection rates** while the second includes data for **device utilization ratios**. The overall data for your facility are in bold at the top of the tables, while individual location data are listed underneath. If you provided NICU Device data, there will be separate rate and ratio tables for these data.

Device-Associated Infection Rate Table:

- **Rate per 1,000 Device Days:** Your facility infection rate per 1,000 device days for the time period. You can use these rates to compare the different locations within your facility to each other, and each location to the Michigan and national rates. Numbers lower than the Michigan and/or national rate are great. Numbers that are similar to these rates are also good. If your numbers are greater than the Michigan and/or national rates, then it might be worthwhile to explore this area further.
- **MI Rate:** The overall infection rate in Michigan (taken from the facilities sharing data with the SHARP Unit) per 1,000 device days, for the time period. This is an overall rate — therefore, it does not account for location or facility type.
- **NHSN Rate:** An aggregated national rate per 1,000 device days in facilities and locations similar to yours. This is taken from the 2009 CDC NHSN report, the most recent report available, and references national data from 2006–2008. These rates can be used to compare your locations to national equivalent locations.
- **Incidence Density P-value:** the p-value for the infection rate at your facility compared to the national NHSN rate. A p-value is a test of significance and difference, comparing the

results at your facility to the national rate. P-values less than or equal to 0.05 are considered statistically significantly different than the national rate, and can be either higher or lower. A number significantly lower than the average is desirable (having a rate that is lower than the national average and p-value less than 0.05). Significant p-values are highlighted in either green (significantly better than the national rate) or red (significantly worse).

- Incidence Density Percentile: the percentile of your facility's rate compared to all other hospitals nationwide. A percentile of 80 can be interpreted as 80% of hospitals having a lower infection rate. Thus, 20% of hospitals across the nation have a higher infection rate and 80% have a lower infection rate than your facility. A low percentile is desirable.

Device-Associated Device Utilization Ratio Table:

- Device Utilization (DU) Ratio: a ratio comparing the number of device days to the number of patient days at your facility for the included time period. For example, a DU ratio of 0.25 means that of the total patient days, 25% were also device days. A lower ratio is desirable; fewer device days allow less time for a device-associated infection to occur.
- MI Ratio: The Michigan Device Utilization Ratio for the same time period, computed from the facilities sharing data with the SHARP Unit. This is an aggregate DU Ratio, so it can be used as a generalized comparison, but does not take facility type or location information into account.
- NHSN Ratio: A national Device Utilization Ratio for similar facilities and locations. Because this ratio accounts for facility and location type, it is a more accurate comparison to see how your facility is doing compared to a national rate. This rate is taken from the 2009 CDC NHSN report, the most recent report available, and references national data from 2006–2008.
- Proportion P-Value: The p-value for the device utilization ratio at your facility compared to the national NHSN Rate. See Incidence Density p-value for details on how to interpret a p-value.
- Proportion Percentile: The percentile of how the device utilization ratio at your facility compares to all other hospitals nationwide. See Incidence Density Percentile for details on how to interpret a percentile.

Descriptions for Device-Associated Modules (Graphs):

These are a graphical representation of the information provided in the tables. There should be a set of two graphs displaying overall device data for your hospital.

- The Device-Associated Rates graph shows CAUTI, CLABSI, and VAP rates for your facility overall compared to the Michigan and national rates. The colors of each bar correspond to the colors of the table.
- The Device Utilization (DU) Ratios graph shows Urinary Catheter, Central Line, and Ventilator Utilization Ratios compared to the Michigan and national DU ratios.

Descriptions for Procedure-Associated Modules (SSIs):

There is one table for this module. Your facility overall SSI rates and SIRs are at the top of the table in bold. Rates and SIRs by procedure are listed below.

Surgical Site Infections — Overall and by Procedure Type

- **Number of predicted infections:** The number of infections predicted by NHSN for your facility during this time period. Prediction is based on analysis of similar facilities and calculated by NHSN using a logistic regression model. It accounts for variables such as patient age, ASA score, duration of procedure, and medical school affiliation. As more data are being shared with NHSN nationally, this calculation will become more accurate.
- **SIR (Standardized Infection Ratio):** Compares the number of infections in your facility to the number of predicted infections. An SIR of 1 means that the same number of infections occurred as were predicted. An SIR less than 1 means the facility is having fewer infections than predicted. For example, an SIR of 0.5 means that the facility had 50% fewer infections than predicted. Similarly, an SIR greater than 1 represents an elevated number of infections at the facility. For example, an SIR of 1.25 may be interpreted as 25% more infections than predicted.
 - SIRs are only calculated if the number of predicted infections is greater than or equal to 1.
- **SIR-Associated p-value:** the p-value calculated for your facility comparing your SIR to 1. See Incidence Density P-value for details on interpreting a p-value.
- **SIR-Associated Confidence Interval:** Another demonstration of statistical significance. A 95% Confidence Interval means that, out of all the times an SIR may be calculated, 95% of the time the true SIR falls within this range. There are two numbers given, the upper and lower bounds. If the interval between the two numbers includes 1, then your observed number of infections are not statistically significantly different than expected (interpreted as being “fair”). If the interval does not surround 1, then your observed number of infections is statistically significantly different than expected (either higher or lower). This is interpreted as being “good” if your SIR is lower, and “not good” if your SIR is higher.
 - Note that the lower bound of 95% Confidence Interval is only calculated if the number of all infections is greater than zero.

Descriptions for Multidrug-Resistant Organism Module:

There is a table for each MDRO Module your hospital reports. At the top of each table in bold is the overall rates for your hospital, followed by specific locations.

- **Events, Patient Days, and Rate:** overall and/or for different locations within your facility. A comparison MI Rate is also provided, taken from the annual report. There is currently no national comparison available. The Michigan comparison rate does not take into account any factors, such as facility type, location, etc. therefore, it should only be used as an indication of the average for the state.

Please contact Allison (Gibson) Murad at MuradA@michigan.gov or at 517-335-8199 with any questions, comments, or suggestions regarding your individual hospital report, or the general format of the report or of this document.