

# 🔑 Keys to Success with NHSN Data 🔑

## Let's talk p-value.

*As far as the SIR goes...*

The **p-value** is a statistical measure that tells us whether the number of observed infections is statistically significantly different than the number of predicted infections (i.e., whether the SIR is significantly different from 1.0).

If the **p-value**  $\leq 0.05$ , we can conclude that the number of observed infections is statistically significantly different than the number of predicted infections.

If the **p-value**  $> 0.05$ , we conclude that the number of observed infections is **not** statistically significantly different than the number of predicted infections.

## Presenting - wait for it - *the* Standardized Infection Ratio (SIR)!

$$SIR = \frac{\text{Observed (O) HAIs}}{\text{Predicted (P) HAIs}}$$

If the **SIR**  $> 1.0$ , then **more** HAIs were observed than predicted, based on the 2015 national aggregate data.

If the **SIR**  $< 1.0$ , then **fewer** HAIs were observed than predicted, based on the 2015 national aggregate data.

If the **SIR** = **1.0**, then the **same** number of HAIs were observed as predicted, based on the 2015 national aggregate data.

## And how about that 95% Confidence Interval (CI)?

The 95% CI is a statistical range of values for which we have a high degree of confidence that the true SIR lies within that range.

If the **CI does not include 1**, then the SIR is significantly different than 1.0 (i.e., the number of observed infections is significantly different than the number predicted).

**Example:** 95% CI = (0.85, 0.92)

If the **CI includes the value of 1**, then the SIR is **not** significantly different than 1.0 (i.e., the number of observed infections is not significantly different than the number predicted).

**Example:** 95% CI = (0.85, 1.24)

If the **SIR is 0.000** (i.e., the infection count is 0 and the number of predicted infections is  $\geq 1.0$ ), the lower bound of the 95% CI will **not** be calculated.

**Remember**

The SIR will **not** be calculated if the number of predicted infections is **less than 1.0**.

This rule was instituted to avoid the calculation and interpretation of statistically imprecise SIRs, which typically have extreme values.

## Analysis Reports: Baseline Set 1 *vs.* Baseline Set 2

- 📁 Device-Associated (DA) Module
- 📁 Procedure-Associated (PA) Module
- 📁 HAI Antimicrobial Resistance (DA+PA Modules)
- 📁 Antimicrobial Use and Resistance Module
- 📁 MDRO/CDI Module - LABID Event Reporting
- 📁 MDRO/CDI Module - Infection Surveillance
- 📁 MDRO/CDI Module - Process Measures
- 📁 MDRO/CDI Module - Outcome Measures
- 📁 CMS Reports
- 📁 TAP Reports
- 📁 Baseline Set 1

BS2 Reports

BS1 Reports

## Name that Baseline!

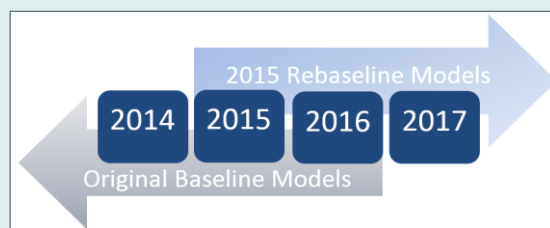
### Original models:

Data from **December 31, 2016** and earlier

### 2015 Rebaseline models:

Data from **January 1, 2017** and forward

**\*note:** both original and 2015 baseline models are available for **Jan 1, 2015 - Dec 31, 2016** data



## Additional Resources

SIR Guide: <https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/nhsn-sir-guide.pdf>

Information about Transitioning to 2015 SIR Baselines:

NHSN Rebaseline webpage: <https://www.cdc.gov/nhsn/2015rebaseline/>

### Original SIR Baselines for Acute Care Hospitals:

CLABSI (original baseline= 2006–2008): <https://www.cdc.gov/nhsn/PDFs/dataStat/2009NHSNReport.pdf>

CAUTI (original baseline= 2009): [https://www.cdc.gov/nhsn/PDFs/NHSNReport\\_DataSummaryfor2009.pdf](https://www.cdc.gov/nhsn/PDFs/NHSNReport_DataSummaryfor2009.pdf)

SSI (original baseline= 2006–2008): [https://www.cdc.gov/nhsn/PDFs/pscManual/SSI\\_ModelPaper.pdf](https://www.cdc.gov/nhsn/PDFs/pscManual/SSI_ModelPaper.pdf)

MRSA bacteremia and CDI LabID event (original baseline= 2010–2011):

<https://www.cdc.gov/nhsn/pdfs/mrsa-cdi/riskadjustment-mrsa-cdi.pdf>

December 2010 Special Edition NHSN Newsletter – Introduction to SIR (original baseline):

[https://www.cdc.gov/nhsn/pdfs/newsletters/nhsn\\_nl\\_oct\\_2010se\\_final.pdf](https://www.cdc.gov/nhsn/pdfs/newsletters/nhsn_nl_oct_2010se_final.pdf)

### Original SIR Baselines for Long-term Acute Care Hospitals (LTACHs) and Inpatient Rehabilitation Facilities (IRFs):

<https://www.cdc.gov/nhsn/xls/reportdatatables/nhsn-2013-report.xlsx>

### NHSN Analysis Trainings & Other Resources:

Analysis Resources, Trainings, and NHSN Data Dictionary:

<https://www.cdc.gov/nhsn/ps-analysis-resources/index.html>

Targeted Assessment for Prevention (TAP) General Information: <https://www.cdc.gov/hai/prevent/tap.html>

Quick Reference Guides: How to run and interpret NHSN reports (including SIR and TAP reports):

<https://www.cdc.gov/nhsn/ps-analysis-resources/reference-guides.html>

Quick Reference Guides: Standardized Utilization Ratio (SUR): <https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/run-interpret-sur-reports.pdf>