

## Analyzing HAI Data over a Time Period with Different Definitions

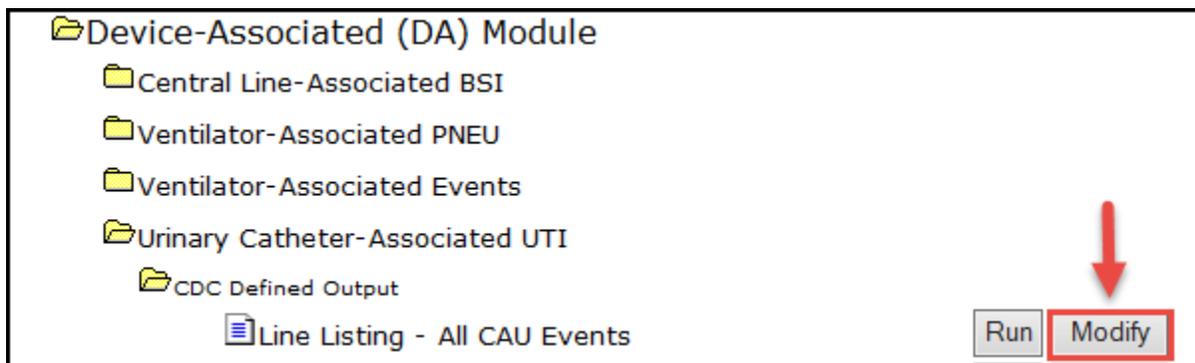
NHSN HAI definitions have recently evolved in order to reflect the most accurate surveillance methods. However, this dynamic nature can pose a problem when attempting to conduct analyses of rates or SIRs over time periods where definitions changes have occurred. This document will provide guidance on how to deal with this issue, using the 2015 CAUTI definition changes as an example. For this example, imagine you are attempting to compare 2015 CAUTI rates with 2014 CAUTI rates for a specific unit type.

**Note:** SIRs cannot be calculated for past data using new definitions, as it is not possible to obtain pooled means (and therefore expected values) from the baseline period using the new definitions.

There are three basic steps you will need to perform:

### 1. Export NHSN data from the application.

To export datasets, go to Analysis->Output Options, click “Modify” on the line listing report for the HAI you would like to examine, and click “Export Analysis Data Set” at the top of the page. For CAUTI, this would be under Device-Associated Module->Urinary Catheter-Associated UTI->CDC Defined Output->Line Listing- All CAU Events.



**Analysis Data Set: CAU\_Events** **Export Analysis Data Set**

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**Modify Attributes of the Output:**

Last Modified On: **11/27/2015**

Output Type: **Line Listing**

Output Name:

Output Title:

**2. Calculate the “new” numerator for the past time period using the new definition.**

This step involves applying the most recent definition criteria to past events, to obtain an estimate of what past data would look like if the new definition were applied. Keep in mind that this is just an estimate, as there may be information required to apply the definitions fully that is not captured by NHSN.

To apply the 2015 CAUTI definition to 2014 data, you must restrict 2014 events to only those with at least one bacterial pathogen listed and with colony counts greater than or equal to 100,000 CFU/mL (other aspects of the definition change cannot be applied because they are not recorded in NHSN at the time of diagnosis). Please see the UTI Bacteria tab on the NHSN Organisms List (found here: <http://www.cdc.gov/nhsn/xls/master-organism-com-commensals-lists.xlsx>) for a full list of all acceptable pathogens for CAUTI under the 2015 definition. To limit events to those with colony counts greater than or equal to 100,000 CFU/mL, only include events where the variable **cr\_lab1cult2org="Y"**.

You can also view a summary of all the 2015 CAUTI definitions changes on page 7 of this document: <http://www.cdc.gov/nhsn/pdfs/newsletters/vol9-3-enl-sept-2014.pdf>.

The result of this step will be to obtain a revised number of CAUTI for 2014, using the 2015 definition.

**3. Obtain denominator data and calculate comparable rates.**



Once you have the revised numerator data for 2014, you can use the same denominator data to calculate unit-specific rates for 2014 and 2015. You can find your denominator data in the rate report datasets, as indicated below:

<b>Device-Associated (DA) Module</b>																								
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Central Line-Associated BSI</li> <li>Ventilator-Associated PNEU</li> <li>Ventilator-Associated Events</li> <li>Urinary Catheter-Associated UTI                             <ul style="list-style-type: none"> <li>CDC Defined Output                                     <table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;"> <ul style="list-style-type: none"> <li>Line Listing - All CAU Events</li> <li>Frequency Table - All CAU Events</li> <li>Bar Chart - All CAU Events</li> <li>Pie Chart - All CAU Events</li> <li><b>Rate Table - CAU Data for ICU-Other/SCA/ONC</b></li> <li>Run Chart - CAU Data for ICU-Other/SCA/ONC</li> <li><b>Rate Table - CAU Data for NICU</b></li> <li>Run Chart - CAU Data for NICU</li> <li><b>Rate Table - CAU Data for LTAC</b></li> <li>Run Chart - CAU Data for LTAC</li> <li><b>Rate Table - CAU Data for IRF</b></li> <li>Run Chart - CAU Data for IRF</li> </ul> </td> <td style="padding: 2px; vertical-align: top;"> <table border="0" style="width: 100%; border-collapse: collapse;"> <tr><td style="text-align: right; padding-right: 5px;">Run</td><td style="text-align: left; padding-left: 5px;">Modify</td></tr> <tr><td style="text-align: right; padding-right: 5px;">Run</td><td style="text-align: left; padding-left: 5px;">Modify</td></tr> <tr><td style="text-align: right; padding-right: 5px;">Run</td><td style="text-align: left; padding-left: 5px;">Modify</td></tr> <tr><td style="text-align: right; padding-right: 5px;">Run</td><td style="text-align: left; padding-left: 5px;">Modify</td></tr> <tr><td style="text-align: right; padding-right: 5px;">Run</td><td style="text-align: left; padding-left: 5px;">Modify</td></tr> <tr><td style="text-align: right; padding-right: 5px;">Run</td><td style="text-align: left; padding-left: 5px;">Modify</td></tr> <tr><td style="text-align: right; padding-right: 5px;">Run</td><td style="text-align: left; padding-left: 5px;">Modify</td></tr> <tr><td style="text-align: right; padding-right: 5px;">Run</td><td style="text-align: left; padding-left: 5px;">Modify</td></tr> <tr><td style="text-align: right; padding-right: 5px;">Run</td><td style="text-align: left; padding-left: 5px;">Modify</td></tr> <tr><td style="text-align: right; padding-right: 5px;">Run</td><td style="text-align: left; padding-left: 5px;">Modify</td></tr> </table> </td></tr> </table> </li> </ul> </li> </ul> </li></ul>			<ul style="list-style-type: none"> <li>Line Listing - All CAU Events</li> <li>Frequency Table - All CAU Events</li> <li>Bar Chart - All CAU Events</li> <li>Pie Chart - All CAU Events</li> <li><b>Rate Table - CAU Data for ICU-Other/SCA/ONC</b></li> <li>Run Chart - CAU Data for ICU-Other/SCA/ONC</li> <li><b>Rate Table - CAU Data for NICU</b></li> <li>Run Chart - CAU Data for NICU</li> <li><b>Rate Table - CAU Data for LTAC</b></li> <li>Run Chart - CAU Data for LTAC</li> <li><b>Rate Table - CAU Data for IRF</b></li> <li>Run Chart - CAU Data for IRF</li> </ul>	<table border="0" style="width: 100%; border-collapse: collapse;"> <tr><td style="text-align: right; padding-right: 5px;">Run</td><td style="text-align: left; padding-left: 5px;">Modify</td></tr> <tr><td style="text-align: right; padding-right: 5px;">Run</td><td style="text-align: left; padding-left: 5px;">Modify</td></tr> <tr><td style="text-align: right; padding-right: 5px;">Run</td><td style="text-align: left; padding-left: 5px;">Modify</td></tr> <tr><td style="text-align: right; padding-right: 5px;">Run</td><td style="text-align: left; padding-left: 5px;">Modify</td></tr> <tr><td style="text-align: right; padding-right: 5px;">Run</td><td style="text-align: left; padding-left: 5px;">Modify</td></tr> <tr><td style="text-align: right; padding-right: 5px;">Run</td><td style="text-align: left; padding-left: 5px;">Modify</td></tr> <tr><td style="text-align: right; padding-right: 5px;">Run</td><td style="text-align: left; padding-left: 5px;">Modify</td></tr> <tr><td style="text-align: right; padding-right: 5px;">Run</td><td style="text-align: left; padding-left: 5px;">Modify</td></tr> <tr><td style="text-align: right; padding-right: 5px;">Run</td><td style="text-align: left; padding-left: 5px;">Modify</td></tr> <tr><td style="text-align: right; padding-right: 5px;">Run</td><td style="text-align: left; padding-left: 5px;">Modify</td></tr> </table>	Run	Modify	Run	Modify																
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In these datasets, use the number of urinary catheter days (numucathdays) aggregated for each time period (2014 and 2015) for each unit type as the denominator for the rates.

After you have calculated your rates for each unit, in each year, you can compare them statistically using the “Compare Two Incidence Density Rates” function of the Statistics Calculator in NHSN. For more information on using the Statistics Calculator, please see this document:

<http://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/statscalc.pdf>.