Introduction to NHSN Analysis for the Patient Safety Component
(Own Your Data!)

March 2012
Objectives

- Review reasons for analyzing your NHSN data
- Describe the dataset generation process
- Discuss the structure of the analysis output options tree view
- Explain standard output options
- Illustrate basic modifications to standard output options
- Describe how data can be exported from NHSN
Why Analyze?

- Analysis tools within NHSN help facilitate internal validation activities.
- Reports generated from NHSN can help inform prioritization and success of prevention activities.
- Data entered into NHSN may be used by: CDC, CMS, your state health department*, your corporation*, special study groups*, etc.
- At the end of the day, these are YOUR data – you should know your data better than anyone else.
- Take ownership and discover how your data can tell a story about your facility!

*dependent on membership to groups in NHSN and facility’s acceptance of conferred rights to data.
GENERATING DATASETS
Generating Datasets

- Generating datasets is the first step in performing analysis in NHSN
  - Organizes data into defined sets for analysis
  - Copies and freezes data
  - Allows for quicker generation of reports
  - When analyzing data in NHSN, you are using a *copy* of your data, not the live database

- Each user has his/her own analysis datasets
  - Based on a user’s rights

- May take several minutes to complete this process
- You may navigate or leave NHSN while datasets are generating
To generate datasets, navigate to Analysis > Generate Datasets.

On the Generate Datasets screen, you may see either “Not Generated” or a date and time under “Date Last Generated.”
On the “Generate Datasets” screen, click the ‘Generate New’ button.

Once clicked, you will be asked to confirm that existing datasets will be overwritten. Click ‘OK’.
While datasets are generating, you’ll see a blue progress bar advance as the process continues.

You may leave this screen or even leave NHSN while this process is taking place.
Once the dataset generation process is complete, the “Date Last Generated” will be updated.

You are now ready to analyze data!
ANALYSIS OUTPUT OPTIONS
Analysis Output Options

- After datasets are generated, you are ready to analyze your data in NHSN
- Reports are referred to as “Output Options”
- Output options are organized in a “tree view” that will guide you toward the data you wish to analyze
To access the output options tree view, navigate to Analysis > Output Options.

The output options are organized into folders, first by module (e.g., Device-associated Module)
As you click on the folder for each module, the folder will expand to show you the event-level options within that folder.
Then, each of the event-level folders can be expanded to show the various output options available for your use.

Click “Run” next to any output option to obtain your data in a CDC-Defined output (report).
Analysis Output Options

- **Line Lists**
  - Allows for record-level review of data
  - Helpful in pinpointing issues in data validity/quality
  - Can help inform rates or identify trends
  - Most customizable type of output from NHSN

<table>
<thead>
<tr>
<th>Event ID</th>
<th>Date of Birth</th>
<th>Gender</th>
<th>Fac Admission Date</th>
<th>Event Date</th>
<th>Event Type</th>
<th>Specific Event</th>
<th>Location</th>
<th>Days: Admit to Event</th>
<th>Ago on Event Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>234600</td>
<td>03/13/1984</td>
<td>F</td>
<td>02/09/2011</td>
<td>02/11/2011</td>
<td>BSI</td>
<td>LCBI</td>
<td>MICU</td>
<td>3</td>
<td>66</td>
</tr>
<tr>
<td>23471</td>
<td>06/15/1985</td>
<td>F</td>
<td>03/20/2011</td>
<td>03/23/2011</td>
<td>BSI</td>
<td>LCBI</td>
<td>711CU</td>
<td>3</td>
<td>54</td>
</tr>
<tr>
<td>234601</td>
<td>07/22/1975</td>
<td>M</td>
<td>02/02/2011</td>
<td>02/05/2011</td>
<td>BSI</td>
<td>LCBI</td>
<td>MICU</td>
<td>4</td>
<td>54</td>
</tr>
<tr>
<td>234747</td>
<td>05/13/1963</td>
<td>F</td>
<td>01/31/2011</td>
<td>02/03/2011</td>
<td>BSI</td>
<td>LCBI</td>
<td>MICU</td>
<td>4</td>
<td>57</td>
</tr>
<tr>
<td>234618</td>
<td>09/21/1973</td>
<td>F</td>
<td>01/09/2011</td>
<td>01/12/2011</td>
<td>BSI</td>
<td>LCBI</td>
<td>MICU</td>
<td>4</td>
<td>37</td>
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<tr>
<td>153640</td>
<td>09/12/1942</td>
<td>F</td>
<td>06/10/2011</td>
<td>06/13/2011</td>
<td>BSI</td>
<td>LCBI</td>
<td>MICU</td>
<td>4</td>
<td>68</td>
</tr>
<tr>
<td>23462</td>
<td>01/21/2000</td>
<td>F</td>
<td>01/05/2011</td>
<td>01/08/2011</td>
<td>BSI</td>
<td>LCBI</td>
<td>MICU</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>234749</td>
<td>09/21/1974</td>
<td>M</td>
<td>03/16/2011</td>
<td>03/21/2011</td>
<td>BSI</td>
<td>LCBI</td>
<td>711CU</td>
<td>4</td>
<td>36</td>
</tr>
</tbody>
</table>
Analysis Output Options

- **Frequency Tables**
  - Allows you to obtain counts of records meeting certain criteria
  - Example: How many CAUTIs were reported as ABUTI?
  - Example: What is the distribution of ASA Score for each of our colon surgery procedures?
  - Can also perform chi-square analyses for statistical comparisons
Analysis Output Options

- **Bar Charts & Pie Charts**
  - Graphical report of counts of records meeting certain criteria (think of these as a graphical representation of the frequency table)
  - Example: How many CLABSI events occurred in each ICU?
  - NOTE: These options do not graphically present rates or standardized infection ratios.
Analysis Output Options

- Rate Tables
  - Display your facility’s calculated rates and device-utilization ratios (where appropriate)
  - If available, provide NHSN published pooled means and the comparison of your facility’s rates and ratios to the pooled means
  - Descriptions of rates can be found in the event-specific chapters of the NHSN Manual

### National Healthcare Safety Network
**Rate Table for Central Line-Associated BSI Data for ICU-Other**

As of January 17, 2012 at 11:10 AM
Date Range: CLAB_RATE010 summaryYr 2011 to 2011

Org ID=10018 CDC Location=IN:ACUTE:CC:CT

<table>
<thead>
<tr>
<th>Location</th>
<th>Summary Yr/Qtr</th>
<th>months</th>
<th>CLAB Count</th>
<th>CLAB Days</th>
<th>CLABRate</th>
<th>NHSN CLAB Pooled Mean</th>
<th>Incidence Density p-value</th>
<th>Incidence Density Percentile</th>
<th>Patient Days</th>
<th>CL Util Ratio</th>
<th>NHSN Line DU Pooled Mean</th>
<th>Proportion p-value</th>
<th>Proportion Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>71ICU</td>
<td>2011Q1</td>
<td>3</td>
<td>6</td>
<td>730</td>
<td>8.219</td>
<td>1.2</td>
<td>0.0003</td>
<td>100</td>
<td>1300</td>
<td>0.662</td>
<td>0.71</td>
<td>0.0000</td>
<td>30</td>
</tr>
<tr>
<td>71ICU</td>
<td>2011Q2</td>
<td>2</td>
<td>2</td>
<td>420</td>
<td>4.762</td>
<td>1.2</td>
<td>0.0000</td>
<td>99</td>
<td>1025</td>
<td>0.410</td>
<td>0.71</td>
<td>0.0000</td>
<td>9</td>
</tr>
</tbody>
</table>

Data contained in this report were last generated on November 23, 2011 at 10:59 AM.
Analysis Output Options

- Run Charts
  - Allow you to graph rates and device-utilization ratios over time
  - Can include NHSN pooled mean and/or other defined reference line
Analysis Output Options

- **Standardized Infection Ratios (SIRs)**
  - Risk-adjusted summary measure
  - Available for CAUTI, CLABSI, and SSI data
  - Details can be found in the SIR Newsletter, available at: [http://www.cdc.gov/nhsn/PDFs/Newsletters/NHSN_NL_OCT_2010SE_final.pdf](http://www.cdc.gov/nhsn/PDFs/Newsletters/NHSN_NL_OCT_2010SE_final.pdf)

### National Healthcare Safety Network

**SIR for All Central Line-Associated BSI Data - By OrgID**

As of: January 17, 2012 at 2:03 PM
Date Range: CLAB_RATESALL summaryYr 2011 to 2011

<table>
<thead>
<tr>
<th>orgid</th>
<th>summaryYH</th>
<th>infCount</th>
<th>numExp</th>
<th>numCLDays</th>
<th>SIR</th>
<th>SIR_pval</th>
<th>SIR95CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>10018</td>
<td>2011H1</td>
<td>17</td>
<td>3.755</td>
<td>2232</td>
<td>4.527</td>
<td>0.0000</td>
<td>2.636, 7.249</td>
</tr>
</tbody>
</table>

If infCount in this table is less than you reported, aggregate data are not available to calculate numExp. Lower bound of 95% Confidence Interval only calculated if infCount > 0. SIR values only calculated if numExp >= 1. SIR excludes those months and locations where device days are missing or 0 device days were reported.

Data contained in this report were last generated on November 23, 2011 at 10:56 AM.
MODIFYING YOUR OUTPUT
Modify Output

- All output options can be modified/customized to meet your needs
- Modifications can be saved as “templates” (referred to as Custom Output Options)
  - Custom output options allow you to run the same modifications on updated datasets
  - RECOMMENDED!!
- You can modify output options by changing the output format, changing the title, and filtering your data by multiple criteria
The design modification screen can be described in three main sections...
Design Modification Screen

- The top section is the same for all output options and allows you to modify output characteristics, such as output name, title, and format.
- **TIP:** The default output format is HTML. Make sure that your browser allows pop-ups from *.cdc.gov!
Design Modification Screen

- The middle section is the same for all output options and allows you to specify which data will be considered for the output.
- You can filter by time period, as well as location, specific event type, etc.

Select a time period or Leave Blank for Cumulative Time Period:

- Date Variable
- Beginning
- Ending
- Clear Time Period

Enter Date variable/Time period at the time you click the Run button.

Specify Other Selection Criteria:
- Show Criteria
- Column +
- Row +
- Clear Criteria

[Table with dropdown menus]
The bottom section allows you to specify how the data in the output will be displayed and organized. These options vary by output type.

- **Line Lists**
  - Modify Variables To Display By Clicking: Modify List
  - Specify Sort Variables By Clicking: Modify List
  - Select Page by variable: 

- **Frequency Table**
  - Other Options:
  - Selected Variables to include in output:
    - Row: location
    - Column: spcEvent
    - Page by: 
  - Frequency Table Options:
    - Table percent - Display cell frequency divided by table total
    - Missing - Include observations with missing values
    - Print the table in list form
  - Two-Way Table Options:
    - Row Percent - Display cell frequency divided by row total
    - Column Percent - Display cell frequency divided by column total
    - Expected - Expected cell frequencies
    - Chi-square - Test for independence
REAL WORLD EXAMPLE

Modifying Output
Device-associated Infection Line List

- Let’s say you would like a list of all of the device-associated (DA) infections that your facility has reported to NHSN for the time period January – June 2011. You would like one table per ICU location and you need the list sorted by event date. Additionally, you would like to include the specific event type reported for each infection.

- You also suspect that you will need this line list on more than one occasion, for different time periods, and would like to save this as a custom report.
DA Line List

- On the Analysis Output Options screen, open the following folders: Device-associated Module > All Device-associated Events > CDC Defined Output.
- Click “Modify” next to the ‘Line Listing – All Device-associated Events’.
DA Line List

- In the top section of the design modification screen, you would like to change the output name and title.

- **WHY?**
  - The output name will help distinguish this as a custom output option.
  - The output title will help describe the data contained in the output and will appear in the header section.
DA Line List

- For this example, both the output name and the output title have been changed to: “Line Listing – All ICU Device-Associated Events”
Still in the top section, you can change the output format. The default format is HTML, indicating that the output will open in a second browser window.

- Additional output formats will be discussed later!

You may also wish to use Variable Labels, as we have done here *(RECOMMENDED!)* This option will provide more descriptive column headings to your output. Example: patID (the variable name) will appear as Patient ID (the variable label).
Next, you can select a time period for your output. Note that there are multiple date variables available, depending on the output option type.

- For example, on an event line list, you can filter your time period on the date the event occurred (event date), admission date, or discharge date (if reported).
Each date variable has multiple options with which to specify your time period.

For example, if you wanted to filter on event date for the calendar year 2011, the following options are available:

<table>
<thead>
<tr>
<th>Date Variable</th>
<th>Description</th>
<th>Example Format: Beginning</th>
<th>Example Format: Ending</th>
</tr>
</thead>
<tbody>
<tr>
<td>eventDate</td>
<td>Exact date</td>
<td>01/01/2011</td>
<td>12/31/2011</td>
</tr>
<tr>
<td>evntDateYH*</td>
<td>Half-year (6-months)</td>
<td>2011H1</td>
<td>2011H2</td>
</tr>
<tr>
<td>evntDateYQ*</td>
<td>Quarter</td>
<td>2011Q1</td>
<td>2011Q4</td>
</tr>
<tr>
<td>evntDateYM</td>
<td>Month</td>
<td>01/2011</td>
<td>12/2011</td>
</tr>
<tr>
<td>evntDateYr*</td>
<td>Year</td>
<td>2011</td>
<td>2011</td>
</tr>
</tbody>
</table>

*NOTE: YH, YQ, and Yr date variables refer to calendar years. Use exact date or YM date variables if a fiscal year time period is needed.
DA Line List

- For this example, you are interested in events occurring in January – June 2011.
- While we have specified evntDateYM, we could have also used: evntDate, evntDateYH, or evntDateYQ.
DA Line List

- Remember, you are also interested in running this same line list in the future, but for different time periods.
- **TIMESAVER TIP:** Check the box next to “Enter Date variable/time period at the time you click the Run button”.
- **WHY?**
  - When these changes are saved as a custom output option, you will be able specify a new time period **without** going to the design modification screen!
After specifying a time period for your output, you can choose to filter on other criteria.

The “Specify Other Selection Criteria” grid allows you to filter on all other variables within the analysis dataset (e.g., location, specific event type).

- From this point forward, we’ll refer to this as the “criteria grid”
For this example, you need only those DA events identified in your ICUs.

In the first drop-down box in the criteria grid, you can select the variable `locationType`. This variable will allow you to easily include all ICUs.
Once a variable is selected, click in the cell directly below the drop-down box.

You’ll be shown a gray pop-up window, where you can specify an operator and a value or group of values.
The operator allows you to define the range of values that should be included. All of the operators are defined in the table below:

<table>
<thead>
<tr>
<th>Operator</th>
<th>Description</th>
<th>Operator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>=</td>
<td>Equal to</td>
<td>~=</td>
<td>Not equal to</td>
</tr>
<tr>
<td>&gt;</td>
<td>Greater than</td>
<td>&gt;=</td>
<td>Greater than or equal to</td>
</tr>
<tr>
<td>&lt;</td>
<td>Less than</td>
<td>&lt;=</td>
<td>Less than or equal to</td>
</tr>
<tr>
<td>In</td>
<td>In a set of defined values</td>
<td>~in</td>
<td>Not in a set of defined values</td>
</tr>
<tr>
<td>Between</td>
<td>Within a range of a values</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
For this example, “CC-CC” was selected as the value, as it will include all critical care/ICU designated locations.

Once the value has been selected, be sure to click “Save”.

DA Line List

- Once the criteria are saved, they appear in the criteria grid.

<table>
<thead>
<tr>
<th>Specify Other Selection Criteria:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Show Criteria</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>locationType</th>
</tr>
</thead>
<tbody>
<tr>
<td>= CC</td>
</tr>
</tbody>
</table>

- **BUT…what if you need to specify multiple criteria?**
  - EXAMPLE: All DA Events in ICU locations that were identified within 7 days of admission.
DA Line List

- EXAMPLE: All DA Events in ICU locations that were identified within 7 days of admission.

- Each row in the criteria grid is treated as a single statement/formula.

- In this “What If?” example, you can specify the second criteria in the second column, on the first row.
DA Line List

- **TIP!** You can always check your criteria by using the “Show Criteria” link above the criteria grid.

- In this example, your data will include only those DA events where the location type is a CC AND the number of days between admission and event is 7 days.
DA Line List

- Back to our original example...
- Once the criteria have been selected, you can specify other options for the display of your output.
DA Line List

- The first option allows you to specify which variables will appear in the line list.
- Click “Modify List” to add or remove variables on your line list.

Other Options:

Modify Variables To Display By Clicking: Modify List

Specify Sort Variables By Clicking: Modify List

Select Page by variable: 

The gray pop-up window that appears will have two columns:

- “Available Variables” is a list of all of the variables in the analysis dataset.
- “Selected Variables” is a list of variables that will appear in your line list.

Variables can be moved from one column to the other by selecting a variable in the column and clicking one of the buttons between the two columns.
In this example, you need to make sure that the specific event type (spcEvent) and location are in the “Selected Variables” list.

Other variables could be added, depending on your needs. For example:
- Days from admission to event (admToEvntDays)
- If NICU data, patient’s birthweight (birthWt)

Once changes are made, remember to click “Save”!
DA Line List

- The second option allows you to specify which variable(s) will be used to sort the line list.
- Click “Modify List” to specify “Sort” variables for your line list.

Other Options:

Modify Variables To Display By Clicking: Modify List

Specify Sort Variables By Clicking: Modify List

Select Page by variable:  

[Select Menu]
Again, the gray pop-up window that appears will have two columns:

- “Available Variables” is a list of all of the variables in the analysis dataset.
- “Selected Variables” is a list of variables that will be used to sort your line list.

Variables can be moved from one column to the other by selecting a variable in the column and clicking one of the buttons between the two columns.
In this example, the line list needs to be sorted on event date.

You can sort on more than one variable, depending on your needs.

If sorting, remember to include the sort variable(s) in the line list (previous step).

Once changes are made, remember to click “Save”!
DA Line List

- The third option allows you to specify which variable to use as a “Page By” variable.
  - “Page By” means that there will be one table per value of that variable.
- For this example, there should be one line list per ICU, so the variable `location` has been selected as our “Page By” variable.

![Screenshot of DA Line List interface](image)
To obtain your modified line list, click “Run” at the bottom of the screen.
Here are the partial results. Notice that the output heading section contains the time period included in this report (evntDateYM 2011M01 to 2011M06)

<table>
<thead>
<tr>
<th>Patient ID</th>
<th>Date of Birth</th>
<th>Gender</th>
<th>Fac Admission Date</th>
<th>Event ID</th>
<th>Event Date</th>
<th>Event Type</th>
<th>Specific Event</th>
<th>Location</th>
<th>Central Line?</th>
<th>Tunneled Central Line</th>
<th>Nontunneled Central Line</th>
<th>Umbilical Catheter?</th>
<th>Urinary Catheter</th>
<th>Ventilator?</th>
</tr>
</thead>
<tbody>
<tr>
<td>12120380</td>
<td>08/01/2010</td>
<td>F</td>
<td>01/05/2011</td>
<td>234794</td>
<td>01/08/2011</td>
<td>UTI</td>
<td>SUTI</td>
<td>71ICU</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9762078</td>
<td>08/17/1902</td>
<td>F</td>
<td>01/14/2011</td>
<td>234783</td>
<td>01/17/2011</td>
<td>PNEU</td>
<td>PNU1</td>
<td>71ICU</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PKM7182547</td>
<td>08/12/1942</td>
<td>F</td>
<td>12/27/2010</td>
<td>234711</td>
<td>01/28/2011</td>
<td>UTI</td>
<td>SUTI</td>
<td>71ICU</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>02320380</td>
<td>02/18/1987</td>
<td>F</td>
<td>01/28/2011</td>
<td>234795</td>
<td>01/29/2011</td>
<td>UTI</td>
<td>SUTI</td>
<td>71ICU</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>023840830</td>
<td>05/13/1953</td>
<td>F</td>
<td>01/31/2011</td>
<td>234747</td>
<td>02/03/2011</td>
<td>UTI</td>
<td>SUTI</td>
<td>71ICU</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>120837</td>
<td>06/17/1976</td>
<td>M</td>
<td>02/09/2011</td>
<td>234793</td>
<td>02/11/2011</td>
<td>UTI</td>
<td>SUTI</td>
<td>71ICU</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>128102301</td>
<td>06/19/1958</td>
<td>M</td>
<td>02/20/2011</td>
<td>234778</td>
<td>02/25/2011</td>
<td>PNEU</td>
<td>PNU2</td>
<td>71ICU</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0137070</td>
<td>06/13/1925</td>
<td>F</td>
<td>03/05/2011</td>
<td>234791</td>
<td>03/08/2011</td>
<td>PNEU</td>
<td>PNU3</td>
<td>71ICU</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>07089H66476</td>
<td>08/18/1925</td>
<td>F</td>
<td>03/06/2011</td>
<td>234757</td>
<td>03/10/2011</td>
<td>BSI</td>
<td>LCBI</td>
<td>71ICU</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2810829</td>
<td>06/27/1959</td>
<td>F</td>
<td>03/15/2011</td>
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<td>03/20/2011</td>
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**DA Line List RESULTS**

- The location is also listed above the table (in this example, location = 71ICU). This is the result of using the “Page By” option.

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<th>Event Date</th>
<th>Event Type</th>
<th>Specific Event</th>
<th>Location</th>
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<th>Tunneled Central Line</th>
<th>Nontunneled Central Line</th>
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</table>
In addition, the column headings in this line list are descriptive (e.g., Date of Birth). This is the result of specifying the use of variable labels.
DA Line List

- If you like the modifications that were made, you can choose to Save the modifications for later use.
  - By clicking “Save As” at the bottom of the modification screen, you can save your modifications as a template, known as “Custom Output”.
  - This will allow you to run the same report, but on updated datasets.
  - NOTE: This step is optional, but recommended.
Once saved, this same template can be accessed from two places on the Analysis Output Options page:

- Within the “My Custom Output” folder
- Within the “Custom Output” folder in the original folder from which this output was created
By clicking “Run” next to the custom output option, you may be asked to specify a time period.

This is the result of choosing to “Enter Date variable/time period at the time you click the Run button”.

NOTE: If a date variable and time period aren’t specified, all data in the output dataset will be included in the line list.
Exporting Data

- At times, you may wish to export your data for further manipulation or formatting outside of NHSN.

- There are 3 methods for exporting your data...
Exporting Data

Export Analysis Dataset

- An analysis data set consists of data of a particular type created for a user to produce output.

- Exporting the analysis data set will include all data within the output option chosen, without any modifications.
Exporting Data

Export Analysis Dataset (continued)

- This option appears at the top of the design modification screen.
- NOTE: When exporting analysis data sets for rates or SIRs, the NHSN aggregate data and comparative statistics will not be included. To export this information, you should export the output data set.
Exporting Data

- **Export Output Dataset**
  - Exporting the output data set will include all data within the output option chosen, including any modifications.
  - This option appears at the bottom of the design modification screen.
Exporting Data

- Exporting the analysis or output data set allows you to select the file type for your export via the Export Output Options screen.
Exporting Data

- Change the Output Format
  - The default output format for all output options is HTML.
  - For all non-graphical output, the output format can be changed to:
    - PDF
    - CSV (will export to Excel)
    - RTF (will export to Word)
Summary

- Analyzing your data in NHSN gives you the power to OWN your data and tell a story
- Dataset generation should be performed regularly prior to running analyses
- There are various output options that can be modified to meet your needs and the needs of your facility
- All datasets can be exported for further analysis or manipulation outside of NHSN
Additional Resources

- **SIR Newsletter:**

- **NHSN Annual Reports:**