Vermont Oxford Network – Nightingale Documentation

2022 Nightingale Users Guide

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VON Vermont Oxford NETWORK

2022 Nightingale Users Guide

Contents

Nightingale Internet Reporting System User Guide

Nightingale is a web-based data reporting tool provided by Vermont Oxford Network for its members. It is available to users in our password-protected Member Portal.

Authorized users can view collected and calculated measures and create reports derived from these measures. Reports can be dynamically created to show the measures and time periods your team would like to study. Center data can be compared to the Network, NICU type, or group if applicable. Users can download reports and tables in PDF or Excel formats or save charts for future use.

Center-specific data are generally available on Nightingale approximately 30 minutes after record submission. Center data for the current birth year and the three previous birth years may change when a center submits a new or updated record. Comparison group data may also change, but less frequently.
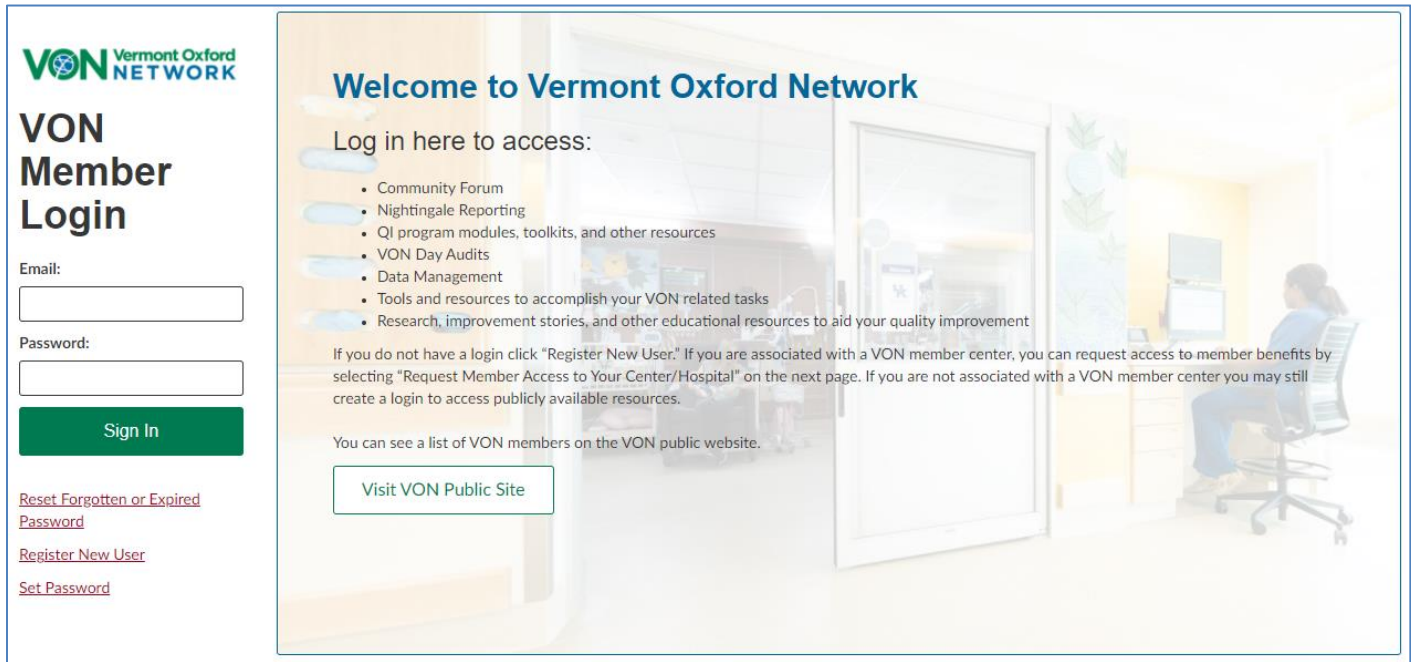
Information obtained from Nightingale is subject to the Vermont Oxford Network Data Use Policy, accessible at www.vtoxford.org/datause.

Getting Help

Support for Nightingale is available online. To contact the Vermont Oxford Network technical support team, please email support@vtoxford.org or call us at 802.865.4814 ext. 240.

Login to Nightingale

Access to Nightingale is granted by your VON Services Administrator, a person at your center who can create or modify accounts for accessing VON's online services. Nightingale can be found through the navigation menus in the Member Portal of the Vermont Oxford Network website, or at https://nightingale.vtoxford.org. Enter the email address for your account and your password, then click "Sign In" to access Nightingale.

Figure 1 - Member Portal Login

If you have forgotten your password or if you do not have an account, click the "Reset Forgotten or Expired Password" or "Register New User" links for assistance.
After clicking the "Sign In" button, a welcome page will display while Nightingale loads.

Center/Group Selector

This control is in the upper right corner of the Nightingale page and will only display for users that have access to more than one center or group. For users that have access to only a single center, this space will display the center as text, not a control. Clicking on the Center/Group selector will show a list of all centers or groups that the user can access.

Navigation Menu Overview

Across the top of Nightingale is the navigation menu. This menu is different from the navigation menu in any other section in the Member Portal.
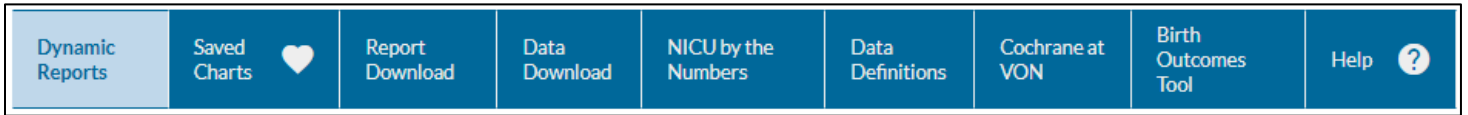
Dynamic Reports	Saved Charts ♥	Report Download	Data Download	NICU by the Numbers	Data Definitions	Cochrane at VON	Birth Outcomes Tool	Help ?

Figure 2 - Nightingale Navigation Menu

Dynamic Reports: Create charts using the measures of your choice.

Saved Charts: Favorite charts created in **Dynamic Reports** can be saved and then previewed and restored from **Saved Charts**. These charts will automatically update when new center data is submitted, and when a different center or group is selected.

Report Download: Download PDF reports created by Vermont Oxford Network, such as Quarterly and Annual Reports.

Data Download: Download a copy of your center's raw data in CSV or XML format.

NICU by the Numbers: See your center's data in relation to featured QI topics.

Data Definitions: View definitions of individual data items and calculated measures, applicable populations, and starting years for each data item.

Cochrane at VON: Search and view full articles from Cochrane Neonatal, which produces and disseminates systematic reviews of healthcare interventions and promotes the search for evidence in the form of clinical trials and other studies of interventions.

Birth Outcomes Tool: This tool calculates probability of survival for infants born extremely preterm. The probabilities are based on data from infants born at Vermont Oxford Network hospitals in the five most recent close-out years, based on work with the *Eunice Kennedy Shriver* National Institute for Child Health and Development Neonatal Research Network. The tool describes outcomes for groups of infants with similar characteristics. It does not predict the outcome for any individual infant.

Help: Find links to useful Nightingale resources, including data definitions, support articles, and this guide.

Dynamic Reports Tabs

Figure 3 - Dynamic Reports Tabs

After selecting Dynamic Reports, these tabs will appear at the top of the page. Clicking on a tab navigates to the named report type. Each report includes a chart or map, a table of the displayed data, and an option to view a list of the included infants if applicable.

Comparison Data: View your center's data alone or with comparison groups.

Time Series: Track your measures over time. All centers can view data by birth year. Centers participating in PHI data submission have several options for intervals by discharge date.

Risk Adjusted: View measures to compare your center's observed outcomes to expected outcome rates based on your patient population.

Transfer Map: View your transfer activity in map form and see a list of hospitals in your transfer network.

Note: Each tabbed report type under Dynamic Reports will retain its own measures and filter settings, independent of the other report tabs. Choices made for measures or filters will not carry over from tab to tab.

Measure Selection

This set of controls on the **Comparison Data**, **Time Series**, and **Risk Adjusted** tabs allows selection of one or more measures for your report.
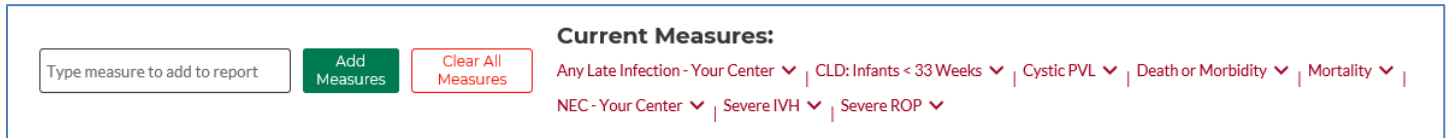

Figure 4 - Measure Selection

Adding Measures
Typing into the text box will display a list of available measures to select. Use the down arrow key or your mouse to scroll and click to select items directly from the list, then click **Add Measures** to add them to the chart. Some measures may show as grayed out on the list with the note "Incompatible with other chosen measures" appended.
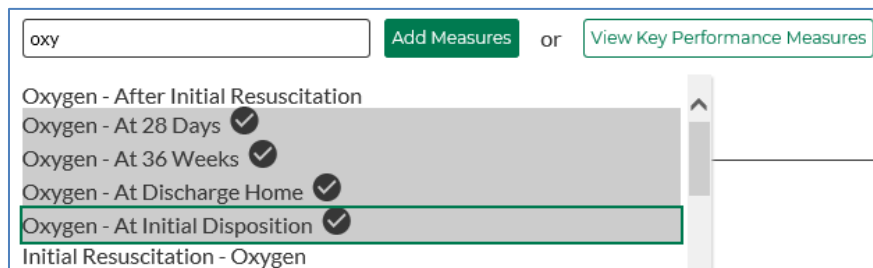
Figure 5 - Searching for Measures Using the Text Box

Removing Measures
Click on a measure name under **Current Measures** to remove the measure.
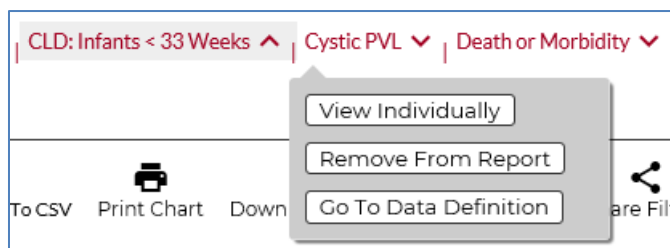
Figure 6 - Menu after clicking on a measure

Clicking **Clear All Measures** will remove all measures and no chart will display until another measure is added**.**

Key Performance Measures
When all measures have been cleared from a chart, click the **View Key Performance Measures** button to add this preselected set of measures.

Note: If you select only measures that were not available in the selected year(s), Nightingale will return a message explaining that the measures are not valid.

Filters

On the right side of the page beneath the Comparison Groups are a set of filters which include the following:

Population: Filter based on eligibility criteria (All VLBW, 501-1500 grams, 22-29 weeks, Expanded).

Location: Filter by birth location (Inborn, Outborn Admit 1-3 Days, Outborn Admit >3 Days, All Outborn, Not Previously Discharged Home, Previously Discharged Home, and All Infants).

Start Year/End Year: Select a range of years for the chart. When viewing your center's data alone, you can combine multiple years of data using the **Start Year** and **End Year** selectors.

Show Survivors Only: Checking **Show Survivors Only** will restrict the chart's data set to infants alive at final disposition.

View Options (Summary/Infant List): Toggle between the chart and table view (Summary) and a list of the infant records used to create the chart (Infant List). Note that in list view, it is possible to click on a single infant row on the list to see a detailed infant record.

Chart Tools

At the top of each chart generated are different tools you can select.
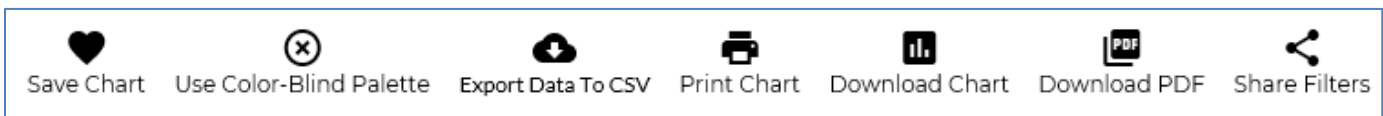
Figure 7 - Chart Tools

The following tools are available:

Save Chart: Clicking this icon will add your current chart and options to the **Saved Charts** page, accessible on the blue navigation bar. The chart is saved within your Nightingale account and will update to display current data from the center or group you select when viewing it.

Use color-blind palette: Click this to toggle between two different sets of colors in the charts. If there is an "x" in the circle, the chart will use a standard set of colors. However, if the icon is a circle with a check mark, the color-blind palette is enabled.

Export Data to CSV: Clicking this option will export the displayed data table into a CSV file. If the **Infant List** option is selected, the button will export the list of infants with the selected measure data.

Print Chart: Clicking this icon will open a print dialog with your default printer selected.

Download Chart: Use this tool to convert the current chart to PNG image format. This feature is not compatible with Microsoft Browsers (Internet Explorer or Edge). Please use the PDF download if you do not have access to an alternative browser such as Chrome or Firefox.

Download PDF: Use this tool to convert the current chart to PDF format. The report will download automatically.

Share Filters: Clicking this option will create an encrypted link including the chart filters and options that can be shared with anyone who has access to Nightingale data. Clicking the link may prompt another user to log in, and then will recreate the chart with data from the logged in user's selected center or group. Note the link produced will be long but can be copied quickly with the available **Copy Link to Clipboard** button.

Comparison Data

The **Comparison Data** chart type displays multiple measures of your center's data, alone or compared to the Network, NICU types, or state or other groups (if applicable). The chart display depends on the type of measures selected as well as the **Comparison Group** and **Group By** selections. If you have logged into Nightingale using group credentials, this chart type is the only type accessible.
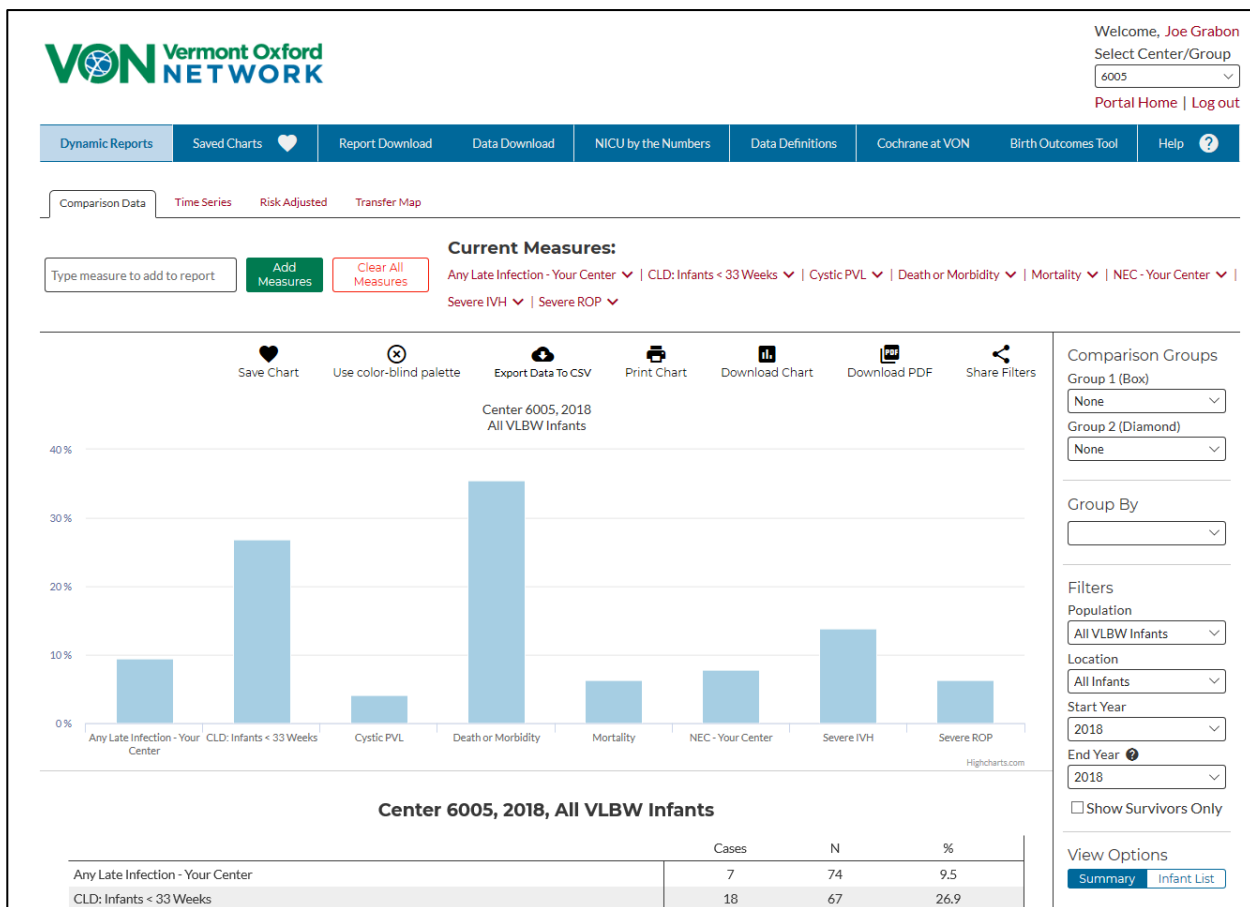

Figure 8 - Comparison Data

Measure Types: Any binary measures may be selected together and will display as a bar chart of center rates as percentages. Numeric and length of stay measures may be selected with other measures that use the same units. For example, any weight variables (recorded in grams) may be selected together, but not with other types of measures. Numeric measures will display as points with whiskers representing your center mean and standard deviation (SD). All length of stay measures may be selected together and will display as points with whiskers representing your center median and interquartile range (IQR). For more details on measure types, see the FAQs.

Group By: Stratify infant data by birth weight, gestational age, birth location, or race/ethnicity on the Comparison Data tab. When a **Group By** category is selected, multiple measures will display as different colors with a legend below the chart. To remove the **Group By** stratification, select the blank option in the *Group By* control.

Comparison Groups: On the **Comparison Data** tab, you may select up to two groups to compare with your center's data. All centers may view the full network dataset as a comparison group, as well as NICU types A, B, and C (with your center's NICU type marked by an asterisk). All centers/groups in the U.S. have access to the "All US" comparison group. Depending on your center or group, you may have the option of comparing to any regional groups established with the Vermont Oxford Network. The two comparison group controls vary in how they display on the chart.

Comparison Group 1 (Box): Comparison Group 1 will appear on the chart as a box plot, displaying the group Q1, median, and Q3, for each measure. These values are the rates at the 25th, 50th, and 75th percentile for hospitals within the selected group. The central 50% of hospitals in the group have rates between the top and bottom edges of the box. Your center's values are plotted as points in relation to these quartiles.

The table also includes: the N for infants, which is the number of eligible infants in the comparison group for each measure; the proportion of infants meeting the definition (%); the N of centers contributing data to the measure; the Median hospital rate in the comparison group; and the hospital rates at the Q1 and Q3 for the group.

Comparison Group 2 (Diamond): Comparison Group 2 will appear on the chart as diamonds, displaying the group medians for each measure. These values are the rates at the 50th percentile for hospitals within the selected group. Your center's values are plotted as points in relation to the group medians.

In general, comparison groups should be selected in order of largest set to smallest subset. For example, if you want to compare your center to both the 'Network' and 'NICU Type A' in a single chart, you should select Network as Comparison Group 1 and NICU Type A as Comparison Group 2. Because both your center and NICU Type A are subsets of the Network as a whole, the chart has a more logical presentation with the Network shown as quartile boxes.

Time Series

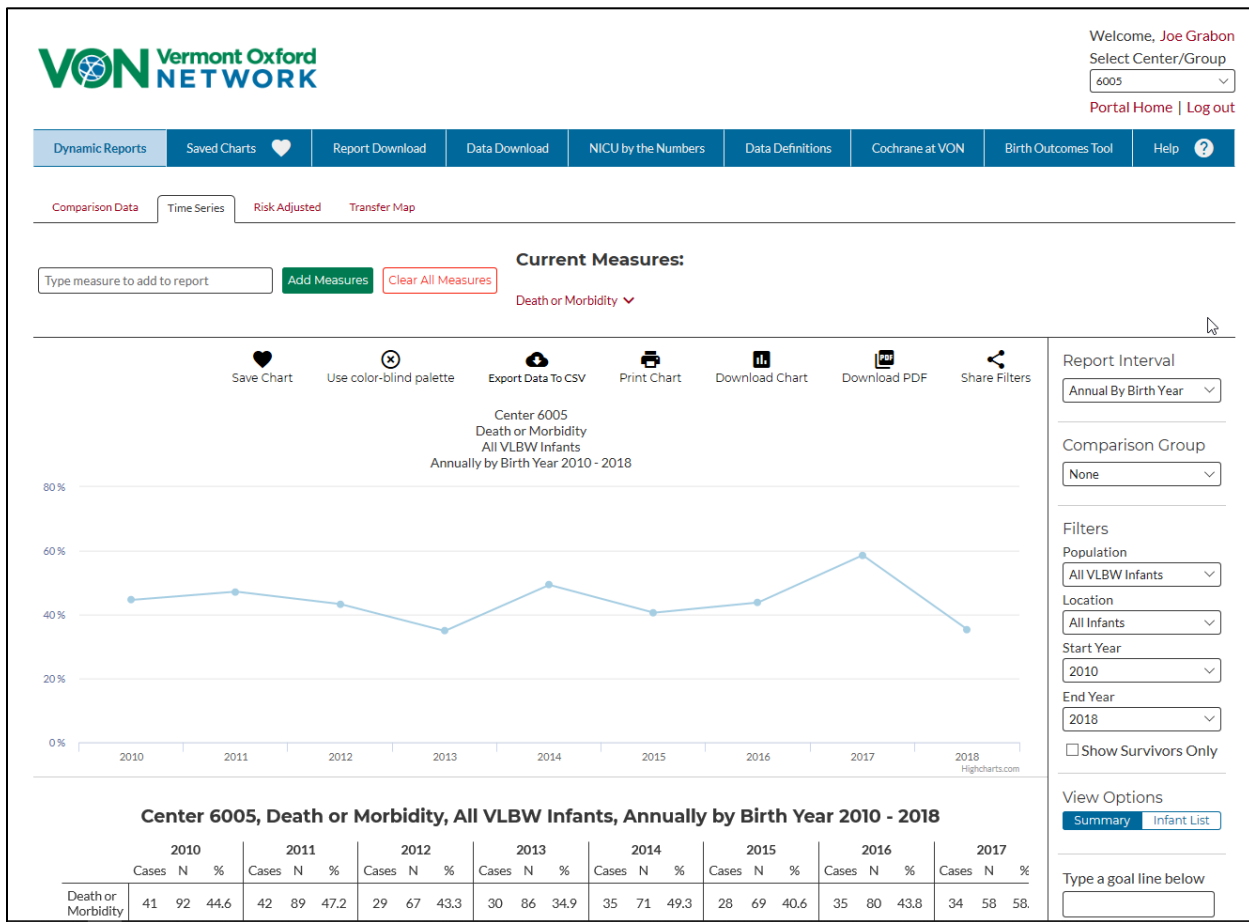The Time Series chart type allows data display over time.

Figure 9 - Time Series

Report Interval: All centers can view data over multiple years using birth year intervals. The *Annual by Birth Year* interval is based on the infant's year of birth.

Centers that submit Protected Health Information (PHI) have more granular interval options available by discharge date (Month, Quarter, Semi-Annual, Annual, and Annual by Birth Year). The *Annual* measure is based on the year of the infant's discharge. You will be able to access the full range of interval options only for years that you have submitted PHI data to VON. For all other years, your interval will be limited to *Annual by Birth Year*. When you import PHI, you will see the current birth year and the three previous years.

Goal Line: When a single measure is selected, Time Series allows you to add a solid horizontal line to your chart to compare your center's rates over time to a chosen goal rate. This value must be between 0 and the chart maximum in order to be displayed.

Median: When a single measure is selected, Time Series gives you the option to add a dashed horizontal line representing your center's median rate over the selected intervals.

Comparison Group: A Comparison Group can be selected on a Times Series chart provided both of the following conditions are true:

- Only a single Measure is selected
- Annual By Birth Year Report Interval is selected

If a user changes either of the two conditions above, the Comparison Group will be removed from the chart, as will the option to select a new Comparison Group. When a Comparison Group is selected, the data will show as the interquartile range (IQR) overlaying the standard Time Series line value. The table also includes: the N of infants, which is the number of eligible infants in the comparison group for each measure; the proportion of infants meeting the definition (%); the Median hospital rate in the comparison group; and the hospital rates at the Q1 and Q3 for the group.

Risk Adjusted

Risk adjustment is applied to a selected set of outcome measures after finalization each year. Centers will only have risk adjusted data for years in which they finalized data. The measures are adjusted for infant characteristics at birth including gestational age, sex, multiple gestation, mode of delivery, congenital anomaly, small for gestational age, birth location, 1-minute Apgar score, and center elevation (for chronic lung disease only). If you have logged into Nightingale using group credentials, this chart type is not available.
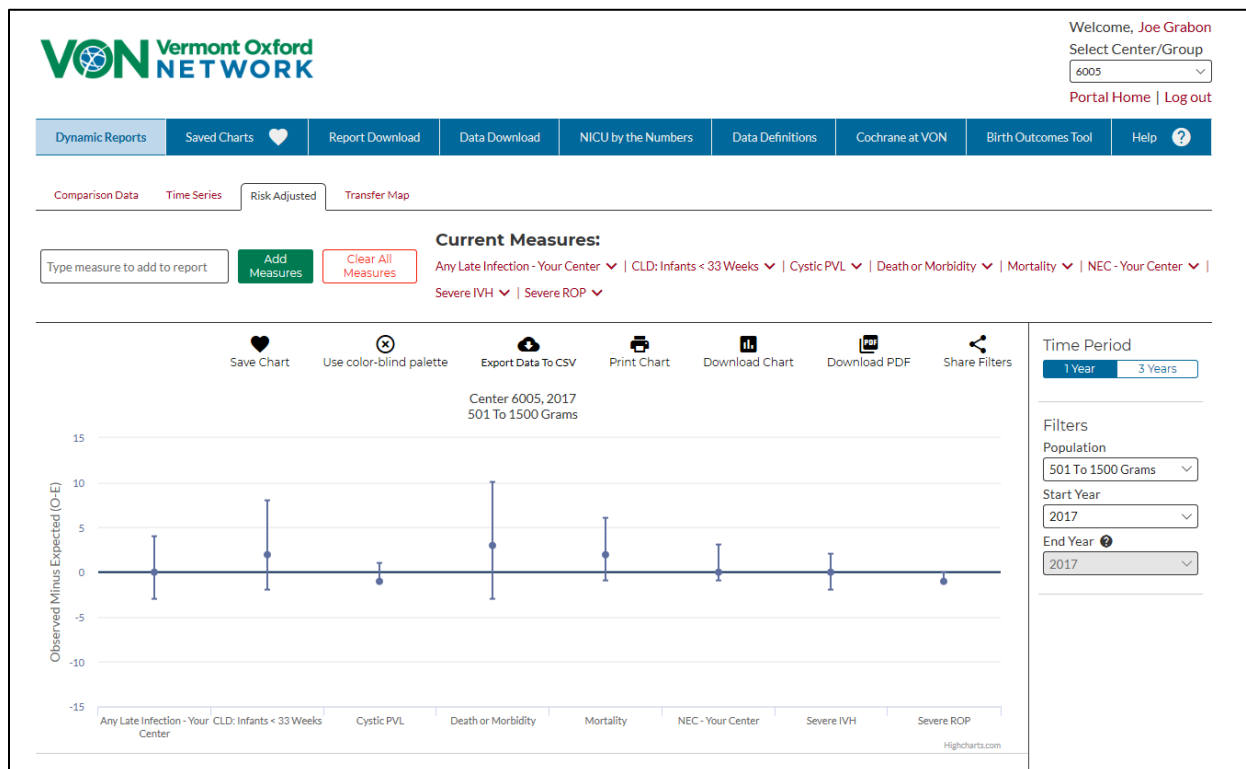

Figure 10 - Risk Adjusted

OME: The chart shows **Observed Minus Expected (O-E)**, the difference between number of observed cases in your center (O) and number of expected cases based on your center's case mix (E), shrunken to minimize the random variability due to small sample sizes. A positive value for a measure on this chart represents more cases of the outcome measure than would be expected for your center's infant population. A negative value for a measure represents fewer cases than expected. The whiskers show the 95% confidence bounds for these estimates.

SMRs: In addition to O-E, the table shows the values for the **Shrunken Standardized Morbidity Ratio (SMR)**, which is O divided by E, also shrunken to minimize random variability. A positive value represents more cases of the outcome measure than would be expected for your center's infant population. A negative value represents fewer cases than expected. The 95% confidence bounds for SMRs are also included in the table.

Population: The two population options are 501-1500 grams and Expanded Infants.

Time Period: On the Risk Adjusted tab, you may select between 1-year and 3-year periods of risk adjusted data. For 3-year periods, the **Year** selector represents the last year of the time period.

Start Year/End Year: You can select a range of years if only one measure has been selected. If you add a second measure the chart will be reset with a single year filter control. Also, when you have 3 Years selected for the **Time Period**, you can select a **Report Start Year** and **Report End Year**. The data displayed is a 3-year rolling OME, starting 2 years prior to the selected year(s).

Transfer Map

The Transfer Map allows geographic display of your center's transfer activity. Using this tool, you can view inbound and outbound transfer activity for your center in a map. You can also view a list of hospitals in your transfer network, including the number of inbound and outbound transfers. Transfer Maps are not available for groups.

Exporting transfer data: The table of transfer hospitals and infant list can be exported to a CSV file. Due to use of external resources, copying and printing of maps is not available on this feature. VON advises using a screen-capture utility to harvest map images created with this tool. This tool only displays transfer activity at center level. It does not display transfer activity for groups.

Note: Data on transfers to and from non-VON centers are only available starting in 2015. Before 2015, all non-members are listed as "Other hospital in [state or country]". On the maps, these "other hospital" categories are represented at the geographical center of the state or country, which may not be near the actual location of the unknown hospital.

Saved Charts

Charts that you have saved using the **Save Chart** control can be viewed, shared and restored from the **Saved Charts** page.

Only the parameters to create the chart are stored, allowing charts to be recreated with current data. Saved charts will always show the latest available data, even if your data has been updated since the time the chart was originally saved.

Charts appear as previews, slightly smaller than they do under Dynamic Reports. Each preview has a set of controls attached to the top allowing the following actions to be performed:

- **View in Dynamic Reports Tab:** Open the interactive chart under the appropriate tab in **Dynamic Reports**.

- **Remove from Saved Charts:** Remove the chart from your saved collection.

- **Share Filters:** Clicking this control will open the **Share Filters** dialogue. This dialogue provides a link that you can copy quickly to the clipboard using the **Copy Link to Clipboard** button.

FAQs

Nightingale Login and Data Access

Q: I'm able to login to the Member Portal. Why can I not access Nightingale?
A: Please contact your VON Services Administrator, who can give you access to Nightingale. The name of your VON Services Administrator is under Contacts in **Member Portal**.

Q: I'm a VON Services Administrator and I'm not sure how to give a user access to Nightingale. What do I do?
A: Please see the VON Services Administrator Guide for information about how to manage user accounts. It can be downloaded here: https://vtoxford.zendesk.com/hc/en-us/sections/204120687. Access to Nightingale is granted to users with **Data Viewer** permission. Download of infant data from Nightingale requires **Advanced Data User** permission.

Q: What if I don't see a center or group that I am supposed to be able to access?
A: The **Center/Group** selector will show all centers and groups that you are able to access. If you don't see an expected center or group on the list, please contact your **VON Services Administrator** for assistance.

Q: I can see a center or group on the list, but it is grayed out and I cannot select it.
A: A center or group will appear grayed out on the selector if the user has **Basic Member** permission but not Nightingale access. Please check with your **VON Services Administrator** for assistance. It could also be due to IP restrictions that center has in place. Hovering your mouse over the grayed-out center will show the reason you are unable to select it.

Q: I am unable to access Data Download on Nightingale. How can I get access to this feature?
A: Data download is a restricted feature. You will need **Advanced Data User** permission in order to download data. Please contact your **VON Services Administrator** for assistance.

Error Messages

Q: I selected a different center or group and now I see a message that 'the chart contains no data.' Why?
A: After you have selected a different center or group, the current chart will update. If the current chart is incompatible with the new center or group, it will reset to a blank chart with an error message.

PHI

Q: Does the data downloaded contain Protected Health Information (PHI)?
A: No, the downloaded data sets currently available do not contain PHI but it should still be handled according to any applicable policies at your organization.

Measure Types

Q: What are the differences between measure types?
A: Most data items are binary measures. A binary measure is a yes/no answer for a given infant. In reports, binary measures may be summarized as the number of cases, total number of eligible infants (N), and rate as a percentage. Numeric measures are numbers, such as head circumference, Apgar score or temperature. In reports, numeric measures are typically summarized as a mean and standard deviation (SD), or a median with interquartile range (IQR) for skewed distributions, such as length of stay.

Q: Can I put binary and numeric measures on the same chart?
A: Nightingale can chart two different types of measures, but these different Measure Types are not compatible within the same chart. It is possible to create charts that include multiple numeric measures if they share the same units. When a measure is incompatible with other already selected measures, there will be a message appended to the greyed-out measure name on the dropdown list.