

ELSO Registry Quality Reporting Platform

User Guide
December 2024



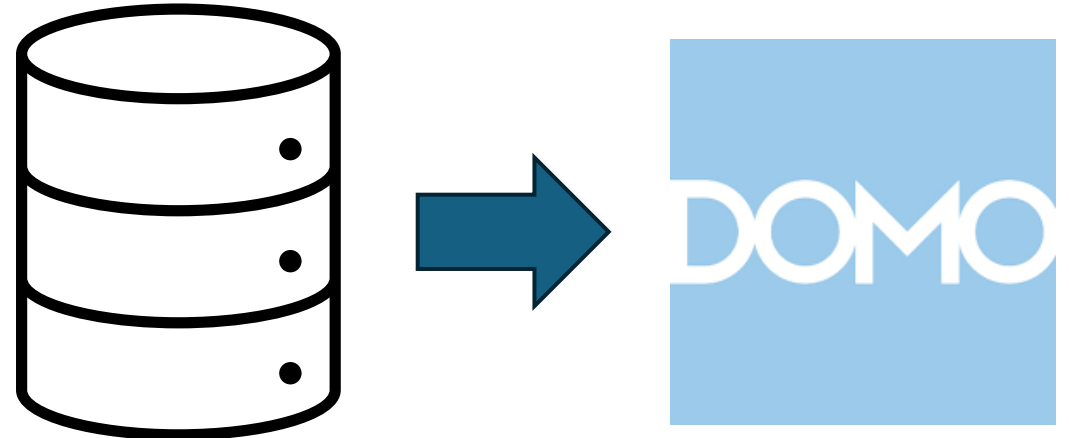
Purpose

- ***Purpose of the Registry Quality Reporting Platform***
 - Summarize and Analyze ELSO Registry Data
 - Track Performance Over Time
 - Compare Results to Peer Centers
 - *Help Centers Deliver Safe & Quality ECMO Care*
- ***Intended Audience***
 - The app is intended for active ECLS practitioners at ELSO member centers.



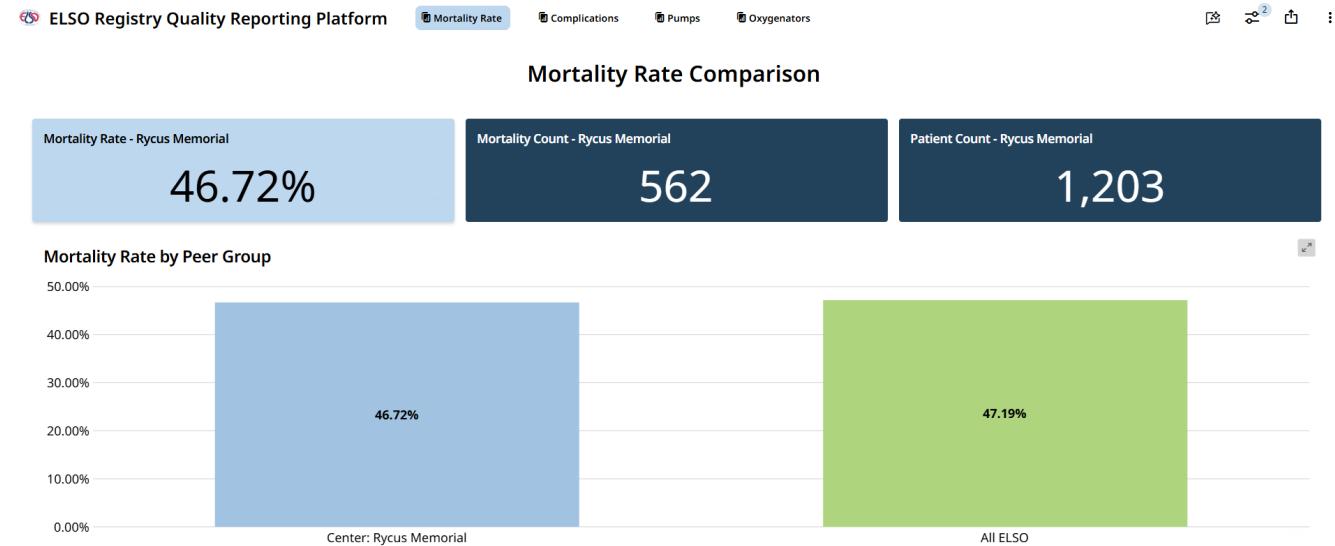
Data Sources

- ***How Often is Data Updated?***
 - Daily between 1-5 AM US Eastern Time
- ***Data Behind the Scenes***
 - ELSO's Quality Reporting Platform converts raw data into usable insights
 - The platform is powered by Domo, an industry-leading data software.



What is Domo?

- ***Data Analysis & Visualization Tool***
- ***Customizable***
- ***Powerful Data Analysis – Computes in Seconds***
- ***Accessible Globally – Single Sign On via ELSO.Org***
- ***Intuitive & Interactive Design – Filter Data With A Single Click***



What is Domo?

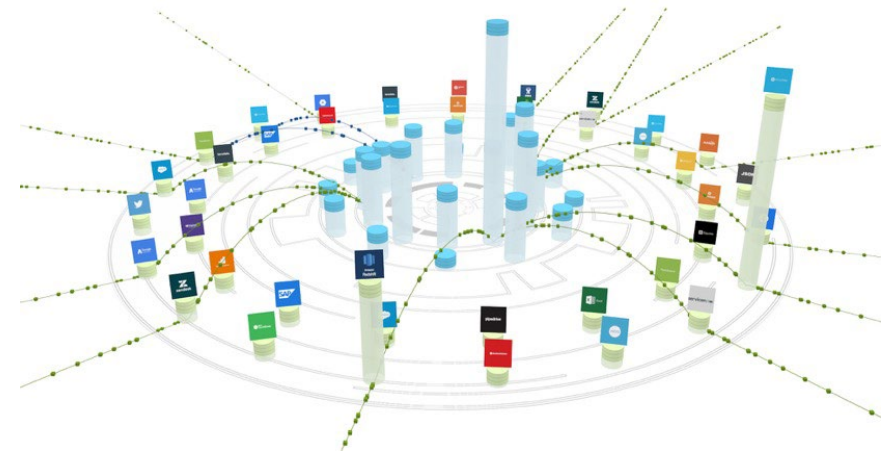
Connect Your
Data

Transform &
Augment Your
Data

Visualize &
Analyze

Digitize, Alert
& Automate

Embed to
Extend



Domo is Trusted

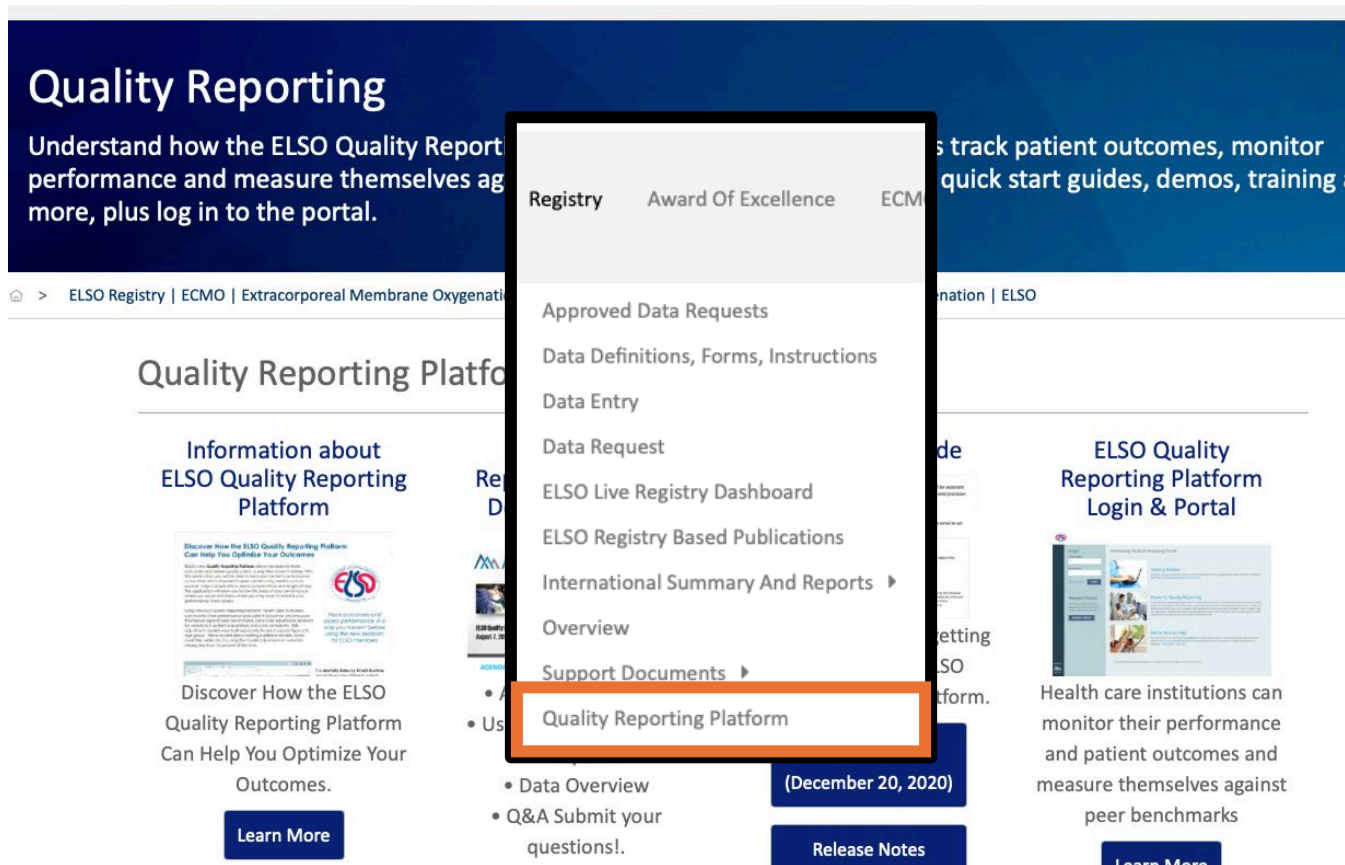


The New York Times



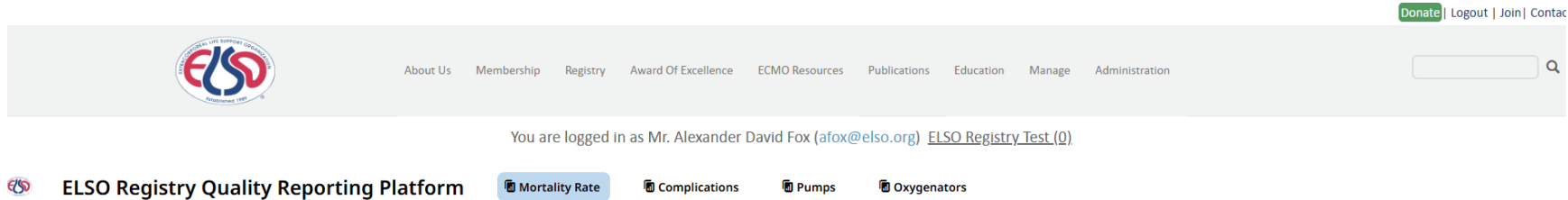
APRIA HEALTHCARE®

Gaining Access to the ELSO Registry Quality Reporting Platform



- The Quality Reporting Platform is available to all who have Data User access to their ELSO Center account. Center Administrators can assign roles to their users as desired.
- Navigate to the Quality Reporting Platform by logging in to ELSO.org and selecting the Registry tab
- ***SINGLE SIGN-ON: Users will log in to the Platform via their ELSO.org account – no more secondary accounts!***

Using the Quality Reporting Platform



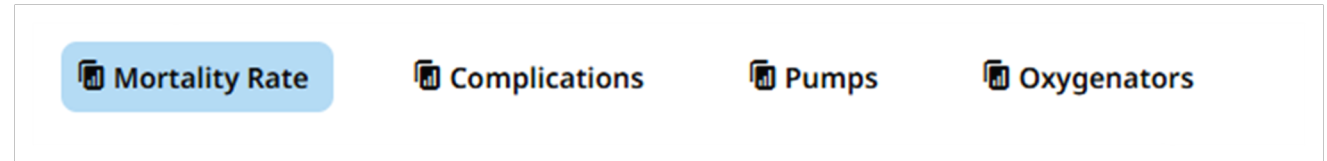
Reporting Tab Navigation

- **Mortality Rate Tab** - Mortality Rates over Time by Center with Peer Group Performance Comparisons
- **Complications Tab** - Complication Incidence Rates over Time by Center with Peer Group Performance Comparisons
- **Pumps Tab** - Pump Type Comparisons over Time By Center with Peer Group Comparisons
- **Oxygenators Tab** - Oxygenator Material Comparisons over Time By Center with Peer Group Comparisons

Common Dashboard Controls

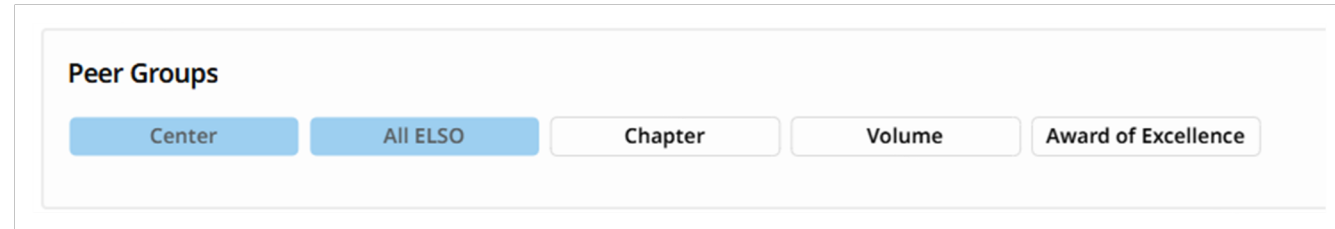
Page Tab Selector

- This breaks up the dashboard by Subject Area. The active selection is highlighted.



Peer Groups Control

- Used for Performance Comparisons. Selected Values are Highlighted. Select/Deselect to add or remove peer groups from charts

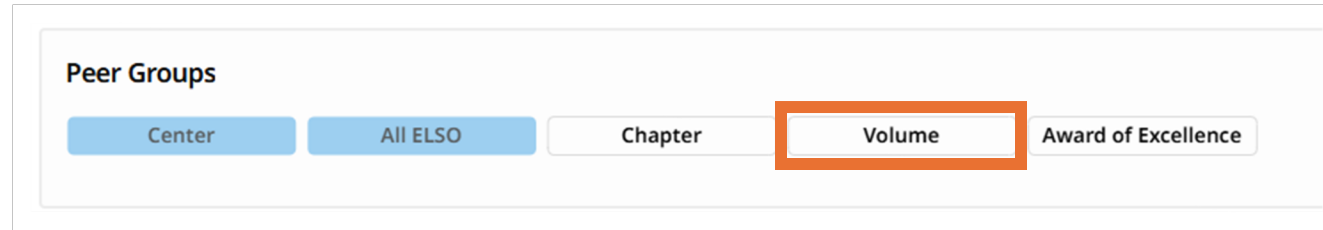


Center Name Selector

- Displays the Center Name; only one center is displayed at a time. Navigate back to the top to change centers.



A Note on Volume Cohorts



- **The Volume cohort is computed by a rolling 2-year cumulative average, with a three-month lag.** *Example: If today's date is July 8, 2024, the run dates included are May 1, 2022 through April 30, 2024.*
- **Currently, volume is not dependent on patient population.** Future updates may adjust for these variances. All patient runs (regardless of patient population) are included in Volume cohorts.
- **High Volume:** 45+ runs per year
- **Medium Volume:** 17 runs per year
- **Low Volume:** <17 runs per year

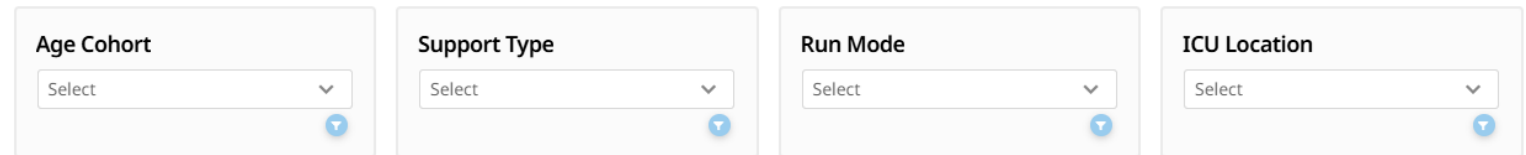
Common Dashboard Controls - Filters

Age Cohort – Multi-Select Filter By:

- Adult – 18+ years
- Pediatric – 28 days to 18 years
- Neonate – 0-28 days

Support Type - Multi-Select Filter By:

- Cardiac
- ECPR
- Pulmonary



The image shows four multi-select filter controls arranged horizontally. Each control consists of a label, a text input field with a dropdown arrow, and a blue circular icon with a white downward arrow. The controls are: 1. Age Cohort: Label 'Age Cohort', input field 'Select', icon. 2. Support Type: Label 'Support Type', input field 'Select', icon. 3. Run Mode: Label 'Run Mode', input field 'Select', icon. 4. ICU Location: Label 'ICU Location', input field 'Select', icon.

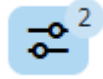
Run Mode - Multi-Select Filter

- Conversion, VA, VP, VV, VVA

ICU Location - Multi-Select Filter

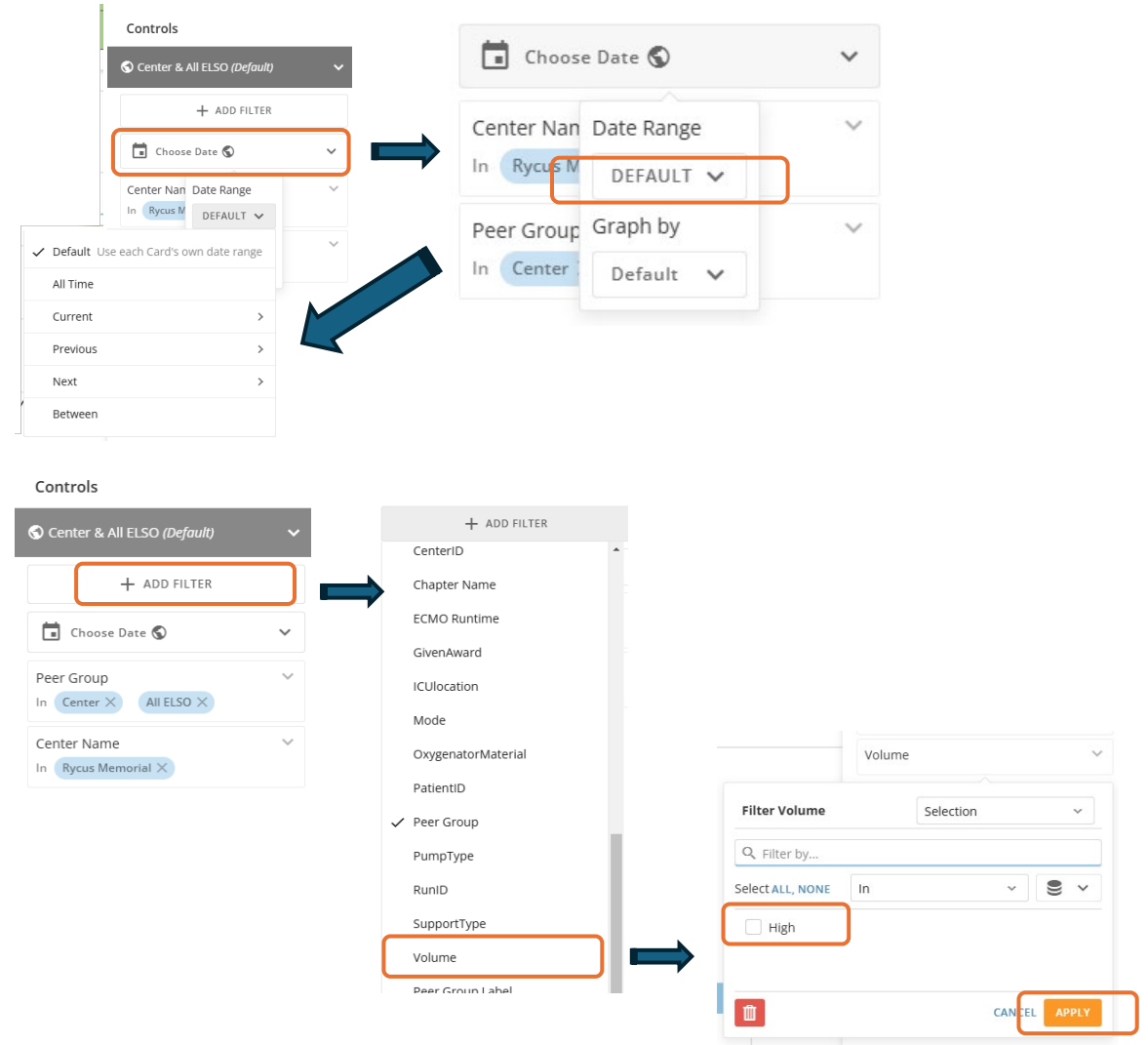
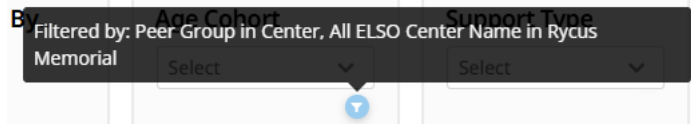
Common Dashboard Controls - Filters

Controls Menu



- Used to Add/Remove Filters
- Change Date Range
- Numeric Indicator counts filters applied

Hover Over the Filter Icon to view filters applied



Common Dashboard Controls - Filters

- Each page has an “Applied Filters Export” button to review and export the data
 - Press the Applied Filters Export Button
 - Review the Data
 - Click the ellipsis icon “...”
 - Choose the Export Option
 - Then in the pop-up window choose your export method

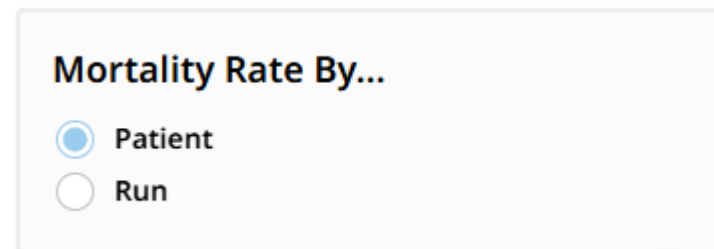
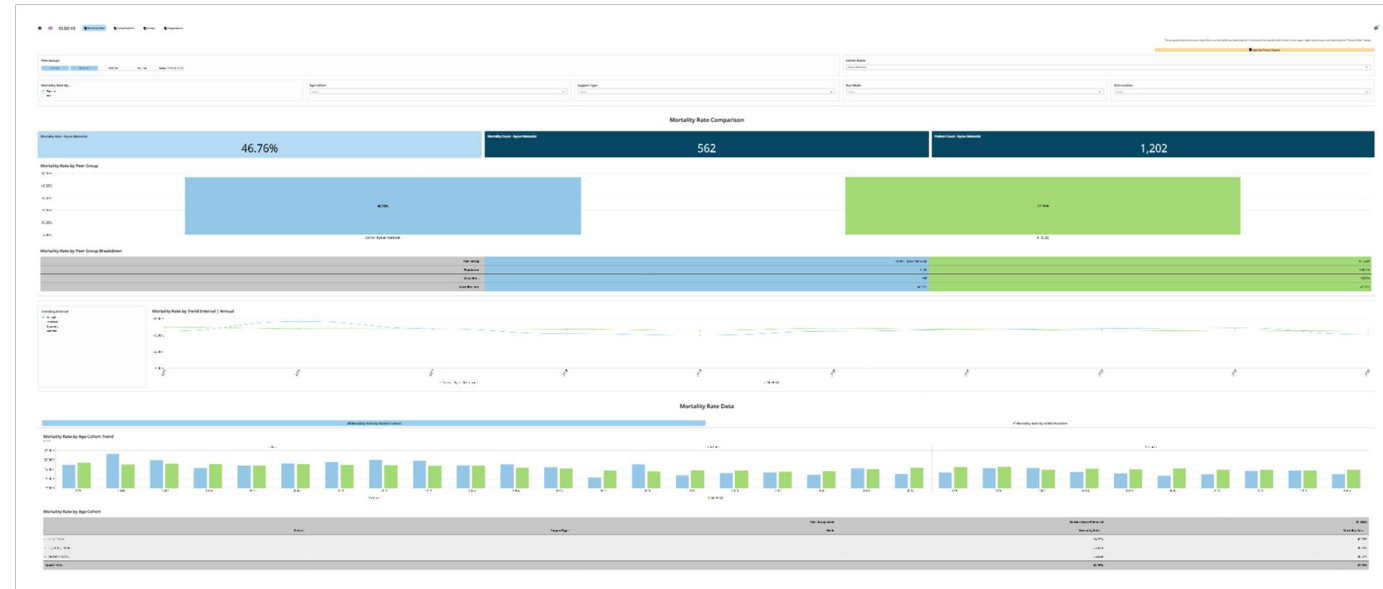
The image shows a screenshot of the 'Mortality Rate Export Card' interface. At the top, there is a yellow button labeled 'Applied Filters Export'. Below it, a table displays data for various hospitals. A blue arrow points from the 'Applied Filters Export' button to the table. Another blue arrow points from the ellipsis icon in the top right corner of the table to a pop-up window titled 'Send / Export: Mortality Rate Export Card'. This window contains five options: Email, Print, Excel (highlighted with an orange box), CSV, and PowerPoint.

Center Name	Age Category	SupportType	ICUlocation	PumpType	Oxygen	Share
Allegheny General Hospital	Pediatric	Cardiac	Pediatric ICU	Centrifugal		Export
HonorHealth John C. Lincoln Medical Center	Adult	Pulmonary	Mixed ICU	Centrifugal	PMP	Go to Card Details
OISHEI CHILDREN'S HOSPITAL OF BUFFALO NEW YORK	Adult	Pulmonary	Mixed ICU	Centrifugal	PMP	Open with Analyzer
CHI Memorial Hospital Chattanooga	Adult	Pulmonary	Mixed ICU	Centrifugal	PMP	Go to DataSet
Princess Alexandra Hospital	Adult	Pulmonary	Mixed ICU	Centrifugal	PMP	
NewYork-Presbyterian Weill Cornell Medicine	Adult	Pulmonary	Mixed ICU	Centrifugal	PMP	
St. Joseph's Hospital and Medical Center	Adult	Pulmonary	Mixed ICU	Centrifugal	PMP	
Bern University Hospital	Adult	Pulmonary	Mixed ICU	Centrifugal	PMP	
Nebraska Medical Center	Adult	Pulmonary	Mixed ICU	Centrifugal	PMP	

Common Dashboard Controls – Mortality Rate

The Mortality Rate Control enables the user to dynamically change the Mortality Rate population denominator from a count of Patients to a count of ECMO Runs:

- **By Patient** = Mortalities / Patient Population Count
- **By Run** = Mortalities / ECMO Run Count
- Mortalities:
 - Discharged Alive = No and Final Run Indicator = True



Common Dashboard Controls – Mortality Rate

Mortality Rate Comparison

Mortality Rate - Rycus Memorial

46.76%

Mortality Rate

- For the given Center, Mortalities over Population
- Where Population is controlled by the “Mortality Rate By...” filter

Mortality Count - Rycus Memorial

562

Mortality Count

- For the given Center, Count of Mortalities
 - Mortalities are instances where the patient was not discharged alive on their final run on ECMO

Patient Count - Rycus Memorial

1,202

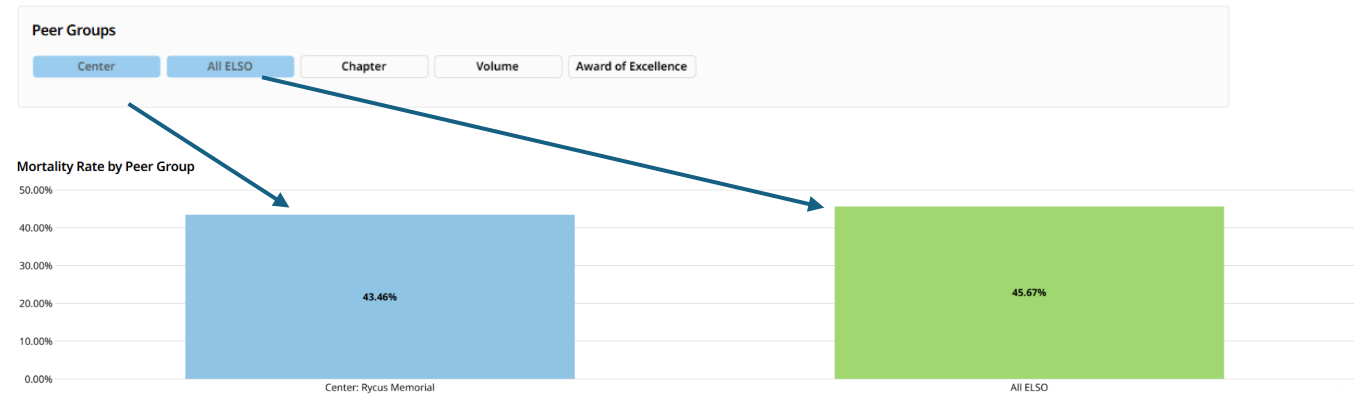
Patient/Run Count

- For the given Center, Count of Patients or ECMO Runs
- Controlled by the “Mortality Rate By...” filter

Common Dashboard Controls – Mortality Rate

Mortality Rate By Peer Group Card

- Compares the Mortality Rate for the given Center to their Peer Groups
- Peer Groups display is controlled by the Peer Groups Control



Common Dashboard Controls – Mortality Rate

Mortality Rate by Peer Group Breakdown Card

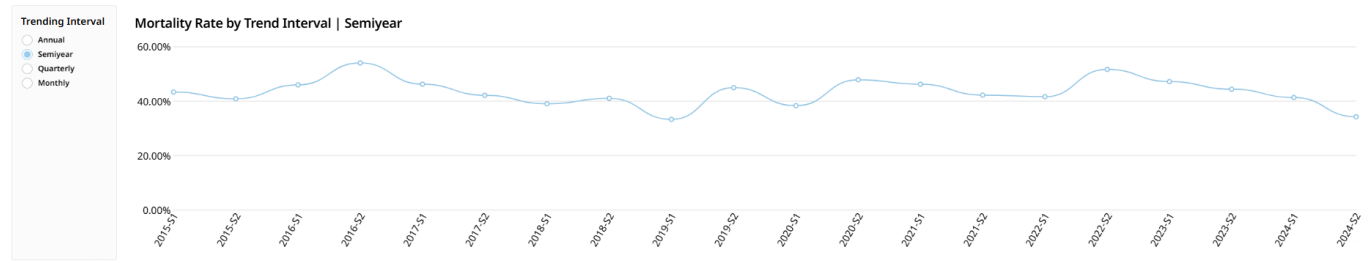
- Provides a detail view for the Center

Mortality Rate by Peer Group Breakdown

Peer Group	Center: Rycus Memorial
Population	1,293
Mortalities	562
Mortality Rate	43.46%

Mortality Rate by Trend Interval Card

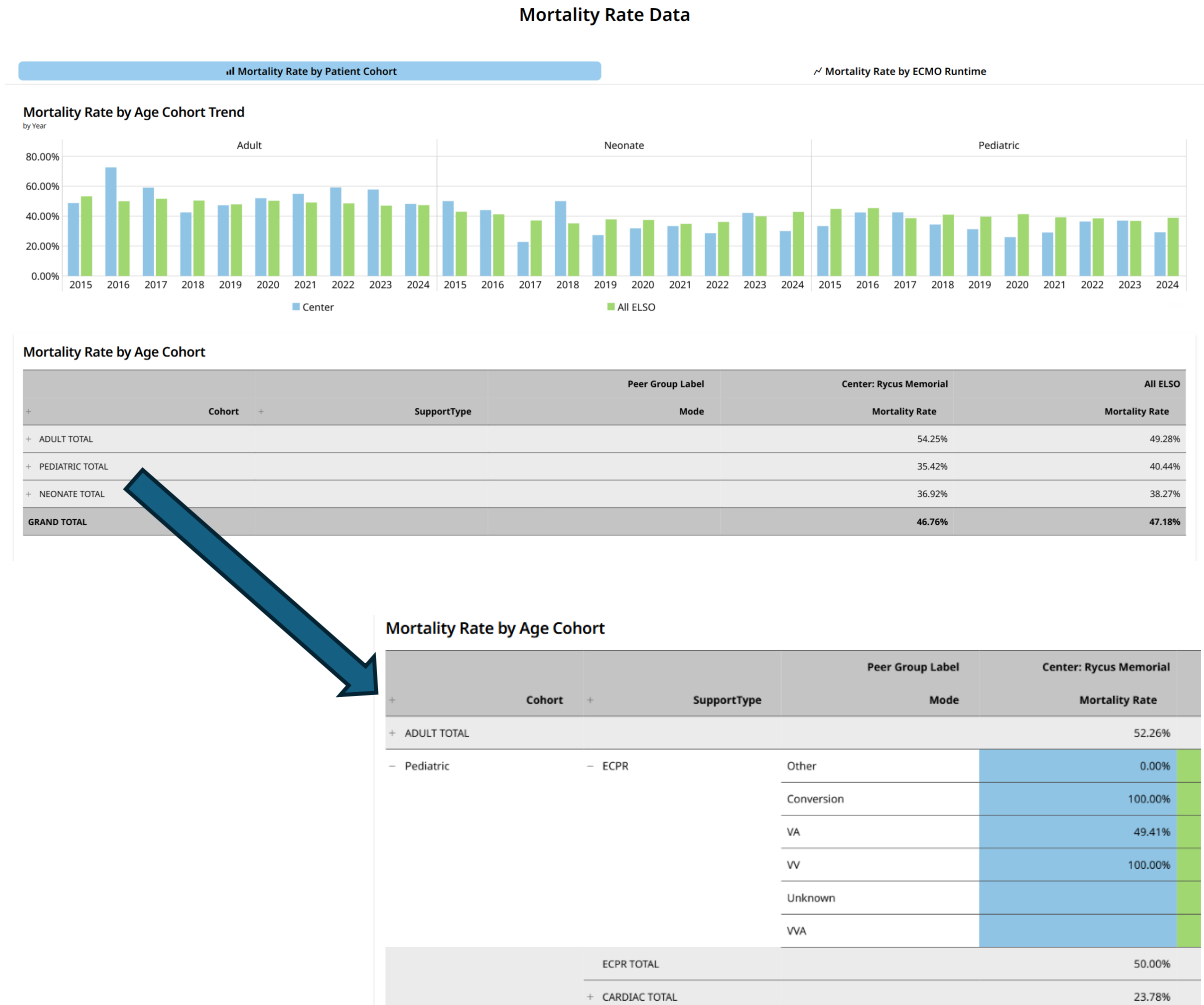
- Trended Peer Group Comparisons Over Time



Common Dashboard Controls – Mortality Rate

Mortality Rate by Patient Cohort Sub-Tab

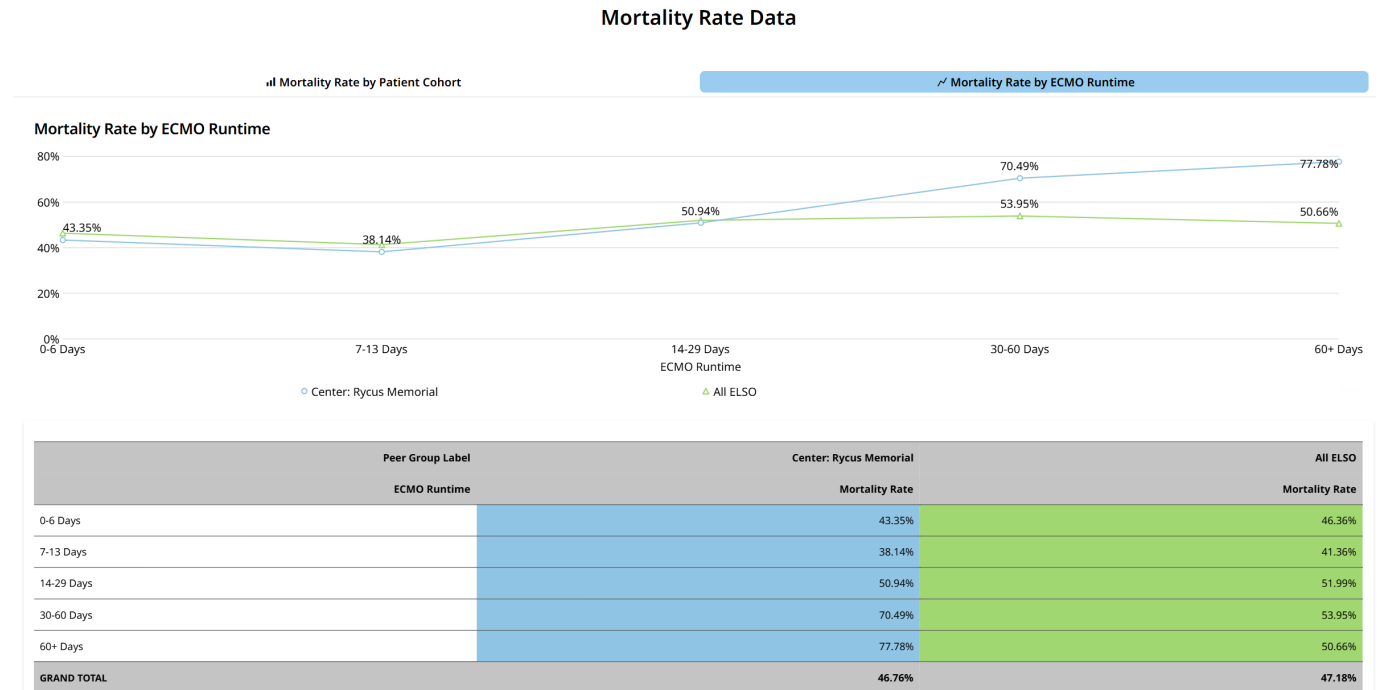
- *Mortality Rate by Age Cohort Trend Card*
 - Peer Group Comparisons Over Time Broken Down By Age Cohort
- *Mortality Rate by Age Cohort Table*
 - Expandable Table Card Providing Mortality Rates By Peer and Age Cohort
 - Click the Plus “+” sign to expand



Common Dashboard Controls – Mortality Rate

Mortality Rate by ECMO Runtime Sub-Tab

- *Mortality Rate by ECMO Runtime Card*
 - Cumulative Mortality Rate by ECMO Runtime with Peer Group Comparisons
- *Mortality Rate by ECMO Runtime Table*
 - Tabular View of Cumulative Mortality Rate by ECMO Runtime with Peer Group Comparisons



Complications Tab

Pre-programmed and custom date filters can be added by selecting the 2 horizontal line symbol with circles in the upper right-hand corner and selecting the "Choose Date" option.

Applied Filters Export

Peer Groups

Center | All ELSO | Chapter | Volume | Award of Excellence

Complications Incidence Rate By...

Patient Run

Age Cohort | **Support Type** | **Run Mode** | **ICU Location**

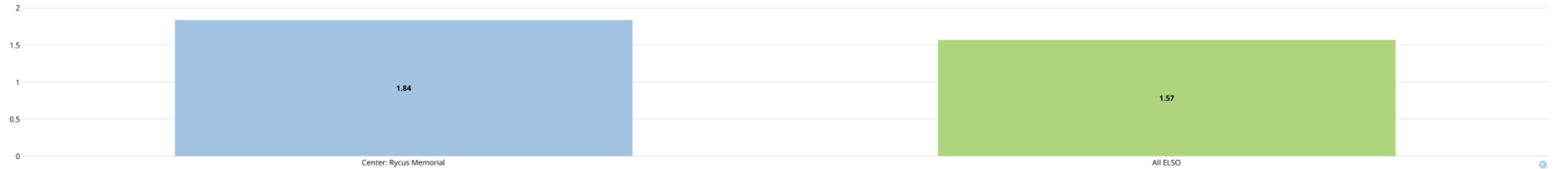
Center | Rycus Memorial

Complication Type | **Complication**

Complication Rate Comparison



Complications Incidence Rate per Patient by Peer Group



Complications Incidence Rate per Patient by Peer Group Breakdown

	Peer Group	Center: Rycus Memorial	All ELSO
Population		1,256	162,116
Complications		2,308	254,510
Complication Rate		1.84	1.57



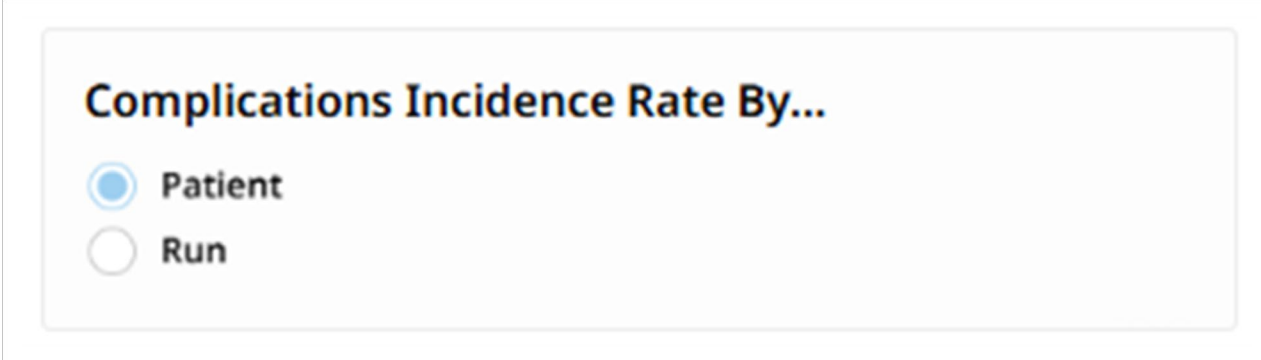
Complications Tab

- **Complication Type Filter**– Multi-Select Filter By Category:
 - Cardiovascular
 - Hemorrhagic
 - Limb
 - Mechanical
 - Metabolic
 - Neurologic
 - Pulmonary
 - Renal
- **Complication Filter**- Multi-Select Filter By Complication

The image shows two side-by-side dropdown menus. The left one is titled 'Complication Type' and the right one is titled 'Complication'. Both menus have a white background and a light gray border. Each menu contains a text input field with the word 'Select' and a small downward-pointing chevron icon on the right side. Below the input field of each menu is a small blue circular icon containing a white letter 'T'.

Complications Tab

- The **Complication Rate By...** filter enables the user to dynamically change the Complication Rate population denominator from a count of Patients to a count of ECMO Runs:
 - **By Patient** = Complications / Patient Population Count
 - **By Run** = Complications / ECMO Run Count



The screenshot shows a user interface element titled "Complications Incidence Rate By...". Below the title are two radio button options: "Patient" (which is selected, indicated by a blue dot) and "Run" (which is unselected, indicated by a white dot).

Complications Tab

Complication Rate Comparison

Complications Incidence Rate (Patient Count) - Rycus Memorial

1.84

Complication Count - Rycus Memorial

2,308

Patient Count - Rycus Memorial

1,255

Complication Rate

- For the given Center, the Complications over Population
- Where Population is controlled by the “Complication Rate By...” filter

Complication Count

- For the given Center, the Count of Complications

Patient/Run Count

- For the given Center, the Count of Patients or ECMO Runs
- Controlled by the “Complication Rate By...” filter

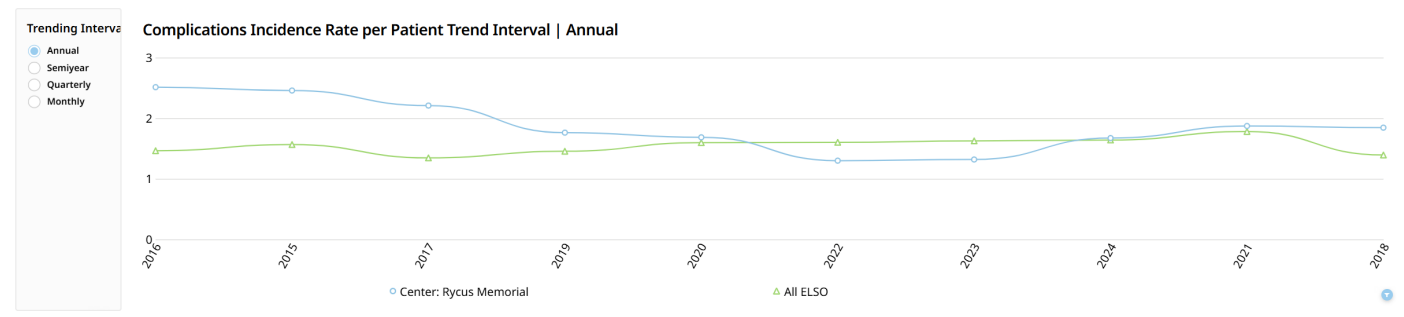
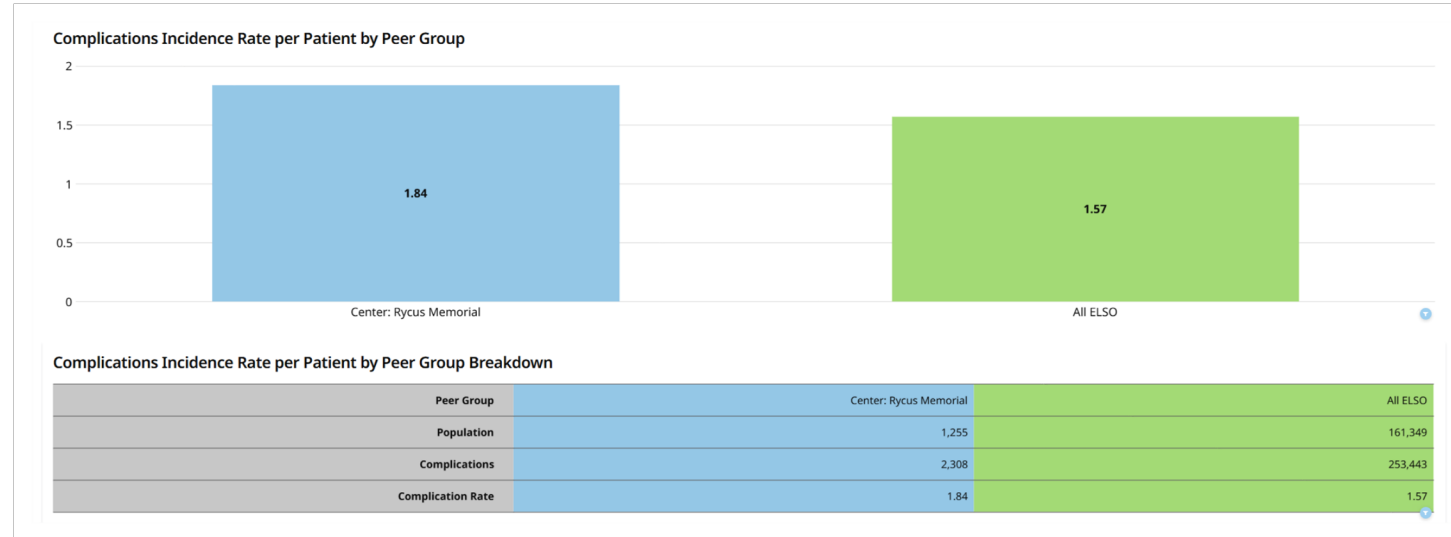
Complications Tab

Complication Incidence Rate By Peer Group Card

- Compares the Complication Rate for the given Center to their Peer Groups
- Peer Groups display is controlled by the Peer Groups Control

Complication Incidence Rate by Peer Group Breakdown Card

- Provides a detail view for the Center



Complications Tab

All Complications Sub-Tab

All Complications Table

- Expandable Table Card Providing Complication Incidence Rates by Complication Type and Complication
- Click the Plus “+” sign to expand

Complications Data

All Complications Mechanical/Patient Complications Avg Time to Complication

Complication Type	Complication Description	Population Count	Complications Count	Complications Incidence Rate
+ Cardiovascular TOTAL		978	246	0.25
+ Hemorrhagic TOTAL		1,158	279	0.24
+ Limb TOTAL		244	25	0.10
+ Mechanical TOTAL		1,171	702	0.60
+ Metabolic TOTAL		701	134	0.19
+ Neurologic TOTAL		956	197	0.21
+ Pulmonary TOTAL		583	92	0.16
+ Renal TOTAL		1,236	633	0.51
GRAND TOTAL		1,255	2,308	1.84



All Complications

Complication Type	Complication Description
- Cardiovascular	Cardiovascular: Cardiac arrhythmia
	Cardiovascular: CPR/Chemical Code Required
	Cardiovascular: Tamponade (blood)
	Cardiovascular: Tamponade (not blood)
Cardiovascular TOTAL	
+ Hemorrhagic TOTAL	

Complications Tab

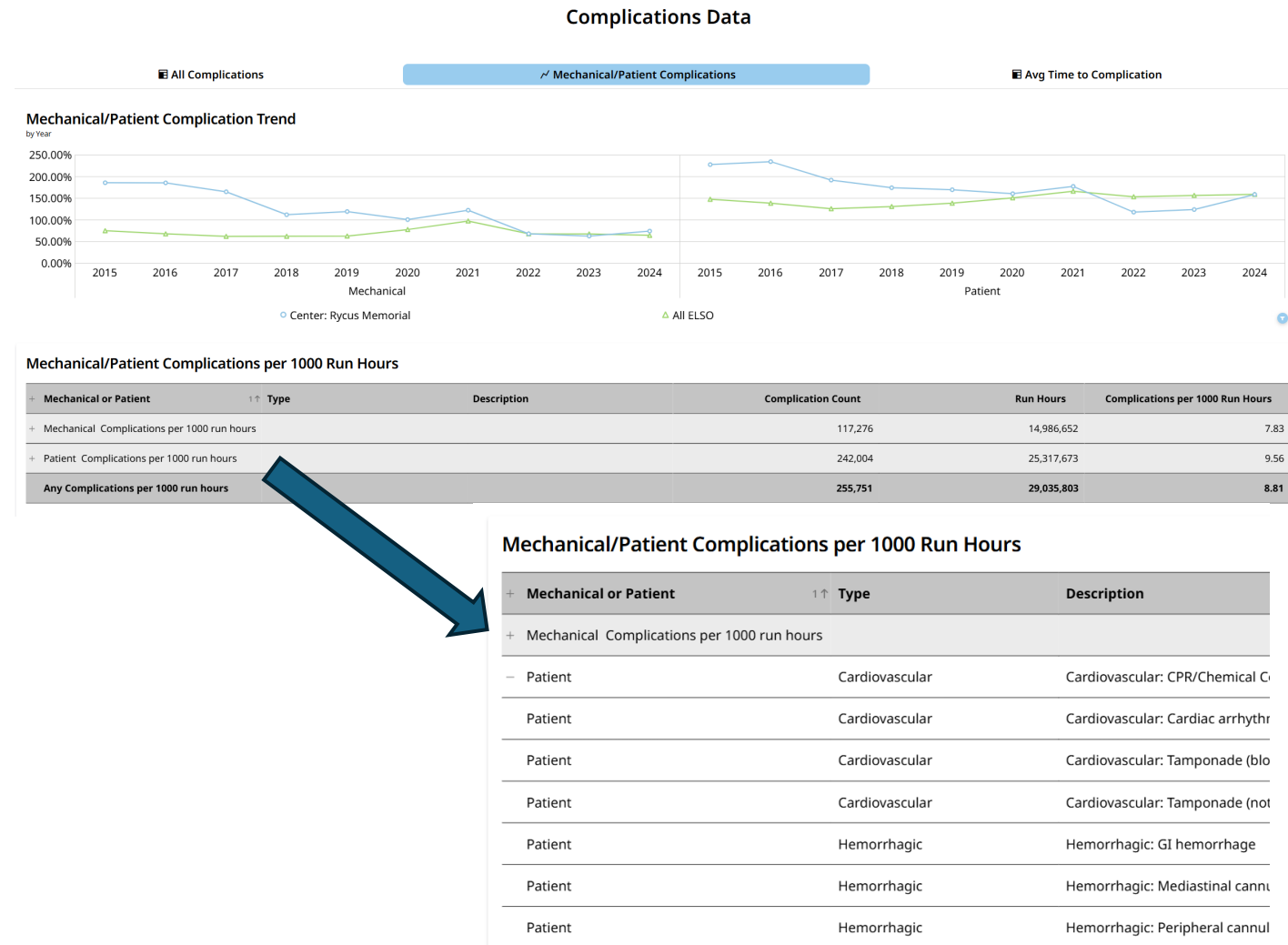
Mechanical/Patient Complications Sub-Tab

Mechanical/Patient Complication Trend Card

- Peer Group Comparisons Over Time By Complication Classification
 - Mechanical
 - Patient

Mechanical/Patient Complications per 1000 Run Hours Table


- Expandable Table Card Providing Complication Per 1,000 Runs Hours
- Click the Plus “+” sign to expand



Complications Tab

Avg Time to Complication Sub-Tab

Avg Time To Nth Complication Table

- Peer Group Comparisons of Avg Time to 1st Complication
- Expand the card to access a slider to change the N number
- Expand Icon: 

Complications Data

All Complications Mechanical/Patient Complications Avg Time to Complication

Avg Time to Nth Complication (Complication Number ≤ 1)

Complication Description	Peer Group Label Center: Rycus Memorial		All ELSO	
	Complications	Avg Complication Time on Hours by Run	Complications	Avg Complication Time on Hours by Run
Hemorrhagic: Peripheral cannulation site bleeding	18	23.44	3,901	55.58
Hemorrhagic: Surgical site bleeding	94	34.52	9,369	39.61
Limb: Amputation	2	202.50	135	111.60
Limb: Compartment Syndrome	2	5.00	418	39.14
Limb: Fasciotomy	2	31.50	776	28.44
Limb: Ischemia	2	19.00	2,142	22.76
Mechanical: Air in circuit	23	24.10	1,175	63.10
Mechanical: Cannula problems	92	16.16	5,071	50.81
Mechanical: Circuit change	23	143.43	2,591	188.19
Mechanical: Clots; hemofilter	1		577	71.87
Mechanical: Oxygenator failure	24	148.52	4,438	236.77
Mechanical: Pump Failure	4	0.00	536	102.85

Avg Time to Nth Complication (Complication Number ≤ 1)

Complication Description	Peer Group Label Center: Rycus Memorial		All ELSO	
	Complications	Avg Complication Time on Hours by Run	Complications	Avg Complication Time on Hours by Run
Cardiovascular: CPB/Chemical Code Required	25	26.05	3,033	52.02
Cardiovascular: Cardiac arrhythmia	85	-87.18	8,358	37.82
Cardiovascular: Tamponade (blood)	10	8.86	1,697	33.81
Hemorrhagic: GI hemorrhage	10	48.22	2,716	105.17
Hemorrhagic: Mediastinal cannulation site bleeding	19	17.37	2,100	23.40
Hemorrhagic: Peripheral cannulation site bleeding	18	23.44	3,907	55.50
Hemorrhagic: Surgical site bleeding	94	34.52	9,372	39.60

Complication Number
 is less than or equal to...
 1
 89

Pumps Tab

Pre-programmed and custom date filters can be added by selecting the 2 horizontal line symbol with circles in the upper right-hand corner and selecting the "Choose Date" option.

Applied Filters Export

Peer Groups
Center | All ELSO | Chapter | Volume | Award of Excellence

Center Name
Rycus Memorial

Population By...
 Patient
 Run

Age Cohort
Select

Support Type
Select

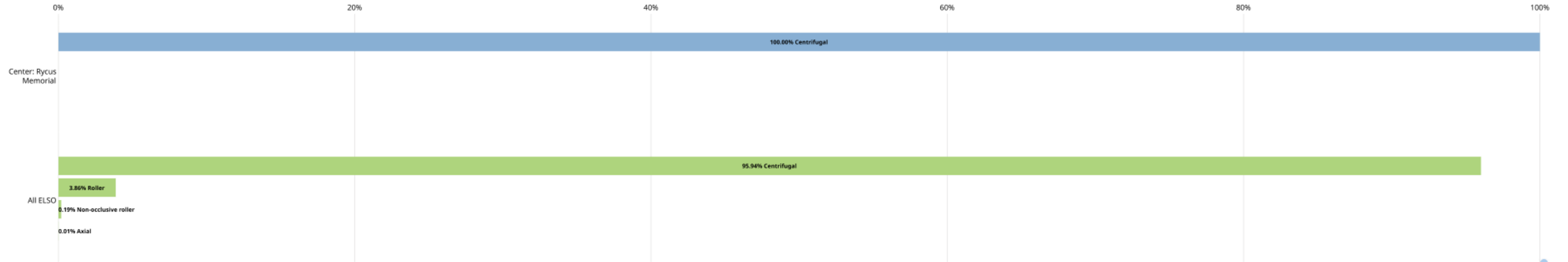
Run Mode
Select

ICU Location
Select

Pump Type
Select

Pump Type Comparison

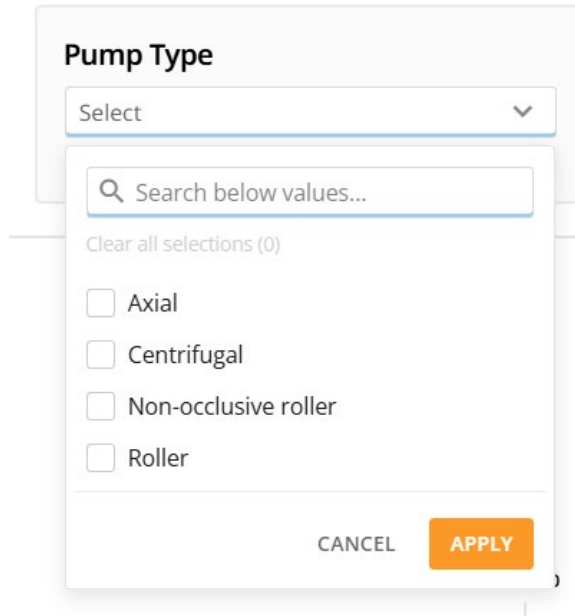
Pump Type by Peer Group



Pumps Tab

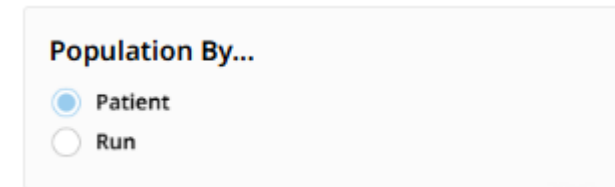
Pump Type Filter – Multi-Select Filter By Pump Type

- Axial
- Centrifugal
- Non-occlusive roller
- Roller



The screenshot shows a dialog box titled "Pump Type". At the top, there is a dropdown menu with the text "Select" and a downward arrow. Below the dropdown is a search bar with a magnifying glass icon and the placeholder text "Search below values...". Underneath the search bar, there is a link that says "Clear all selections (0)". Below this link are four checkboxes, each followed by a pump type: "Axial", "Centrifugal", "Non-occlusive roller", and "Roller". At the bottom of the dialog box, there are two buttons: "CANCEL" and "APPLY".

The “**Population By...**” filter enables the user to dynamically change the population from a count of Patients to a count of ECMO Runs.

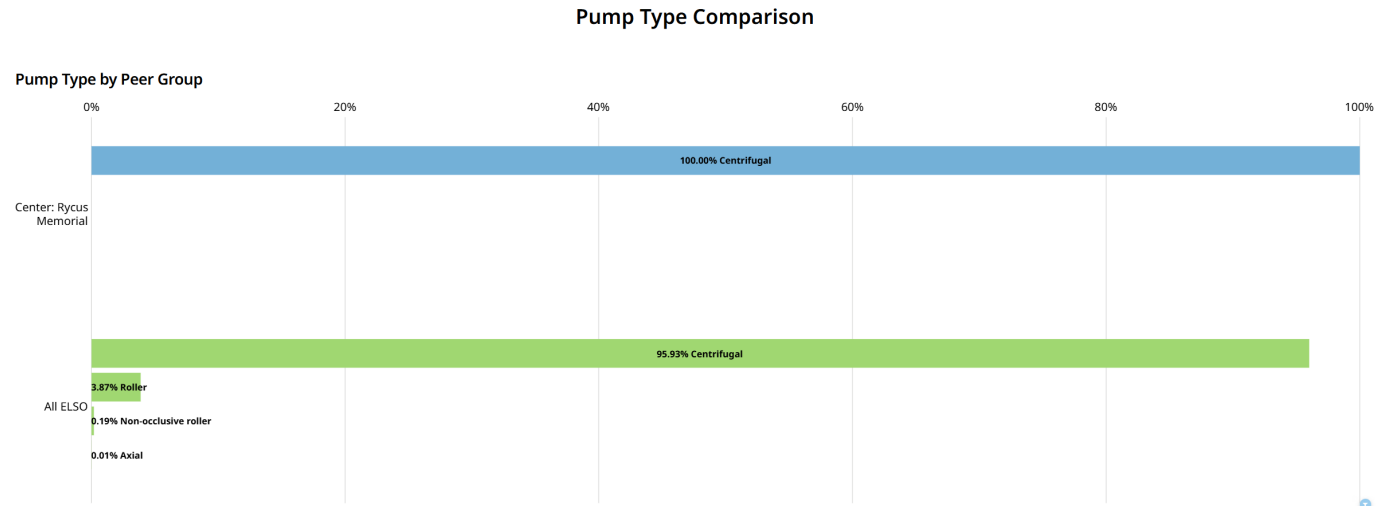


The screenshot shows a filter box titled "Population By...". It contains two radio button options: "Patient" (which is selected, indicated by a blue dot) and "Run" (which is unselected, indicated by a white dot).

Pumps Tab

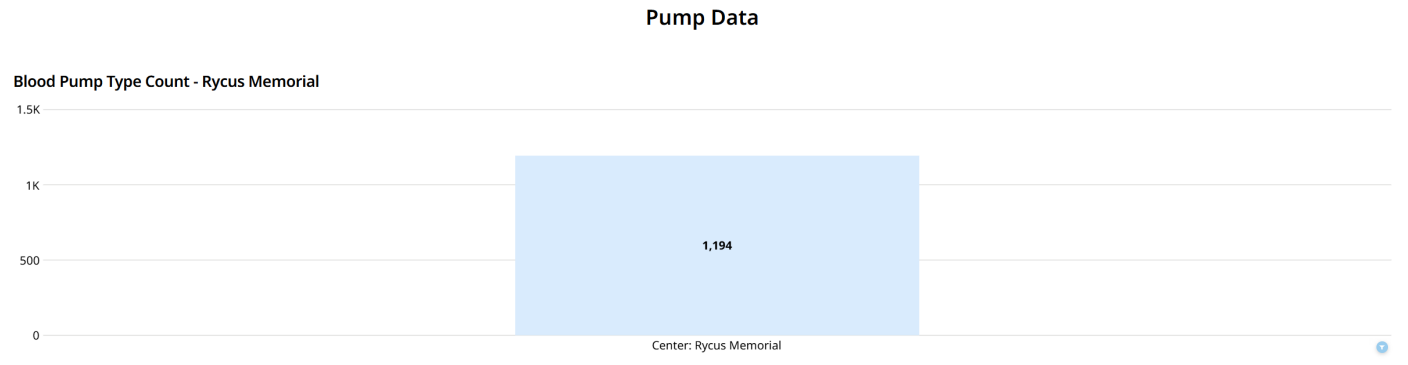
Pump Type Comparison Card

- Peer Group Comparison of Pump Type Usage By Type



Blood Pump Type Count Card

- By Pump Type Usage Counts for the Center



Pumps Tab

Blood Pump Type Count Table

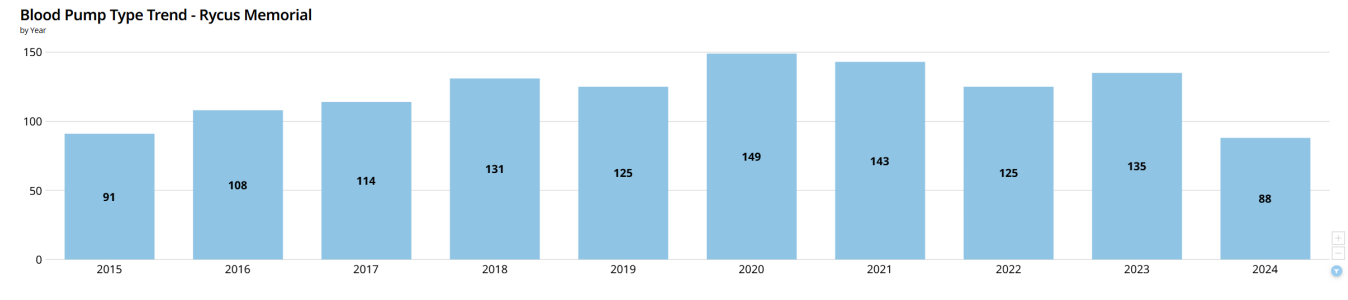
- Tabular View By Pump Type Usage Counts for the Center
- Click the Plus “+” sign to expand

Blood Pump Type Count

Peer Group Label	PumpType	Population
Center: Rycus Memorial	Centrifugal	1,194
Center: Rycus Memorial TOTAL		1,194

Blood Pump Type Trend Card

- Trended View By Pump Type Usage Counts for the Center



Oxygenators Tab

Pre-programmed and custom date filters can be added by selecting the 2 horizontal line symbol with circles in the upper right-hand corner and selecting the "Choose Date" option.

Applied Filters Export

Peer Groups

Center Name: Rycus Memorial

Population By...: Patient Run

Age Cohort: Select

Support Type: Select

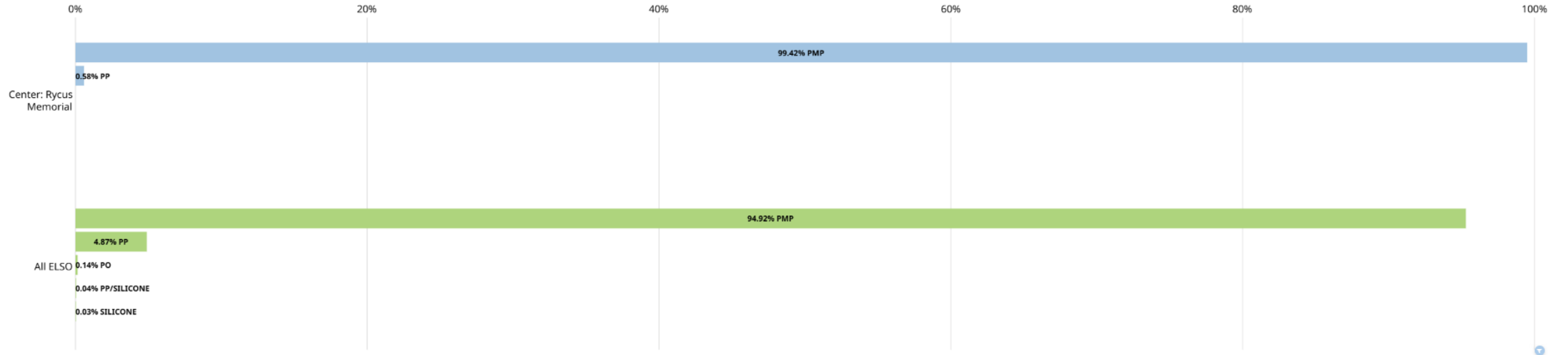
Run Mode: Select

ICU Location: Select

Oxygenator Material: Select

Oxygenator Material Comparison

Oxygenator Material by Peer Group

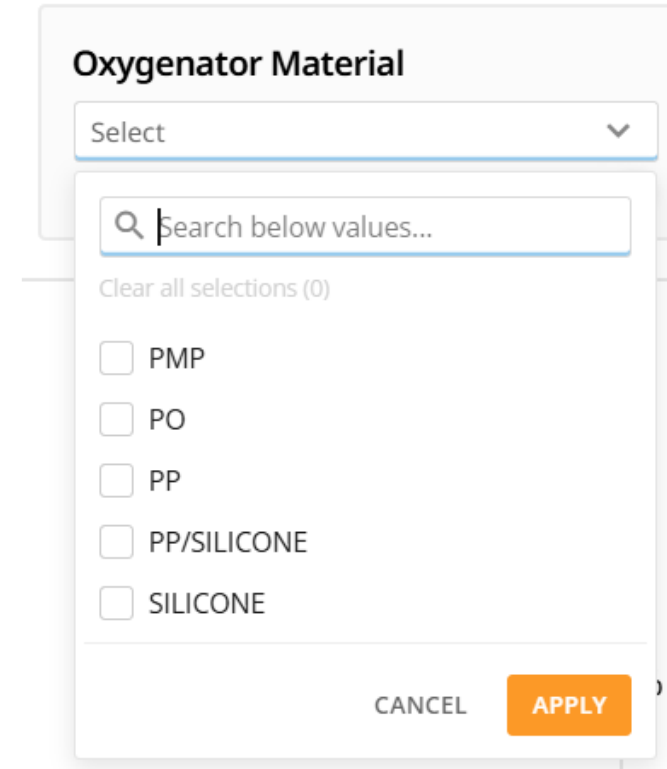


Oxygenators Tab

Oxygenator Material Filter

Multi-Select Filter By Oxygenator Material:

- PMP
- PO
- PP
- PP/Silicone
- Silicone

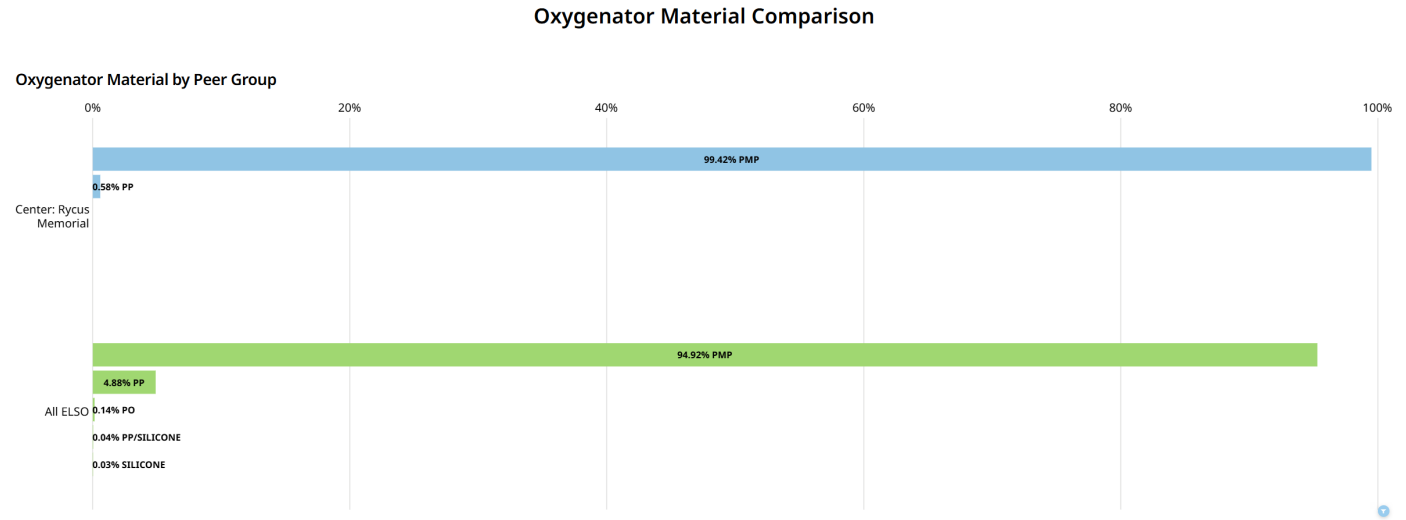


The screenshot shows a dialog box titled "Oxygenator Material". At the top, there is a dropdown menu with the text "Select" and a downward arrow. Below this is a search bar with a magnifying glass icon and the placeholder text "Search below values...". Under the search bar, it says "Clear all selections (0)". There are five checkboxes, each followed by a material name: PMP, PO, PP, PP/SILICONE, and SILICONE. At the bottom right of the dialog, there are two buttons: "CANCEL" and "APPLY".

Pumps Tab

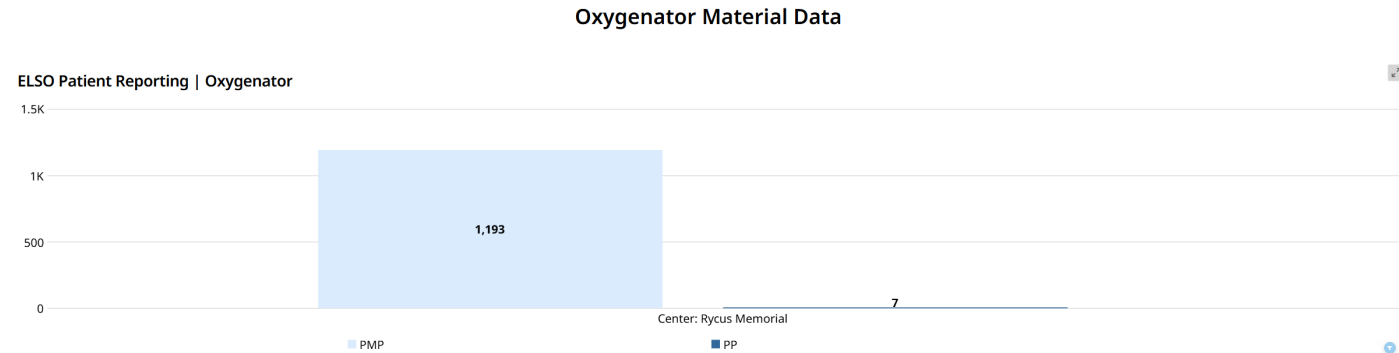
Oxygenator Material Comparison Card

- Tabular View By Oxygenator Material Usage Counts for the Center
- Click the Plus “+” sign to expand



Oxygenator Material Count Card

- By Material Usage Counts At The Selected Center



Pumps Tab

Oxygenator Material Population Count Table

- Tabular View By Oxygenator Material Usage Counts for the Center
- Click the Plus “+” sign to expand

ELSO Patient Reporting | Oxygenator

Peer Group Label	OxygenatorMaterial	Population
Center: Rycus Memorial	PMP	1,193
	PP	7
Center: Rycus Memorial TOTAL		1,199

Oxygenator Material Trend Card

- Trended View By Material Type Usage Counts for the Center

