



Editorial Cardiac Critical Care

Improving ECMO Quality Using the ELSO Registry

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THE EXTRACORPOREAL LIFE SUPPORT ORGANIZATION (ELSO)

The world's largest: Extracorporeal support organization with a registry of over 19,000 extracorporeal membrane oxygenation (ECMO) runs as of January 2023. Registry of extracorporeal supports patients (over 190,000 ECMO runs). At present, there are over 750 ECMO centers from 66 countries and 1900 individual members around the world, who are actively performing ECMO, for various indications, globally [Figure 1].

QUALITY OF ELSO

The quality of ECMO is defined chiefly by (1). the outcome, (2). the complication rates, (3). the process of carrying out the ECMO, and (4). the availability of ease of access to ECMO and its components and last but not the least by the staffing of the ECMO personnel's handling the entire procedures [Figure 2].



Figure 1: World map showing the 750 ELSO centers bed map, globally distributed. ELSO: Extracorporeal life support organization.

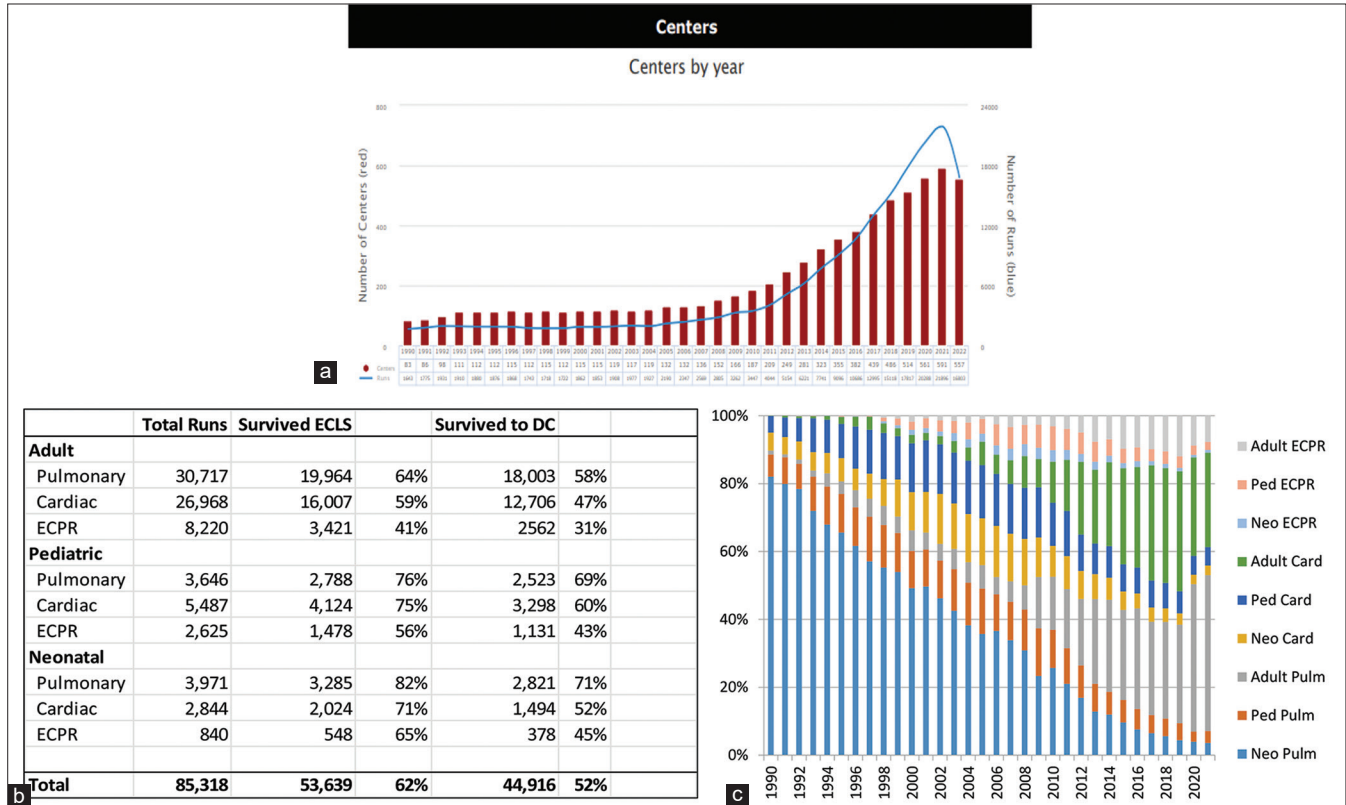


Figure 2: (a) Active ECLS centers in extracorporeal life support organization Registry as of April 2023. (b) Overall outcomes in December 2022. (c) Changing use of extracorporeal membrane oxygenation: Populations changing over a period of time.

Table 1: Measuring quality based on registry data is done by.

- Comparing the ECMO center to others
 - Regionally
 - By volume
 - By specific patient populations and other filters
- Over time
 - New interventions introduced?

Table 2: ECMO registry data source and reporting.

- All member centers report data
- Voluntary
- Local regulatory approval for data reporting
- Online and XML import
- Standardized reporting structure
- Variables definitions and unique registry codes

ECMO: Extracorporeal membrane oxygenation

Measuring quality based on ELSO registry-based data helps us to compare, one’s own ECMO centers data with those of others comparison can be made in three ways – either regionally, or by volume of the no of ECMO cases done in one center or in specific patient populations and by filtering others

[Table 1]. Furthermore, over time a measure should be made, of the newer interventions introduced by the center. These measures aid in ensuring better quality to the ECMO patients.

REGISTRY REPORTING

- Benchmarking report
- Goal: To increase use of ELSO registry data for local quality improvement programs
- Focuses on the past 3 years data
- Allows comparison of your center’s data to a pool of volume stratified centers
- Center specific reports
- International and center specific reports
- Quality reporting dashboard.

Registry reporting requires a benchmarking report with a goal to increase the use of ELSO registry for all of its local quality improvement in all local ECMO programmers [Table 2]. The ELSO data focus primarily on its last year’s data. It allows for comparison of one’s own ECMO centers data with a pool of volume stratified centers. What is interventional and centers specific reports and good quality reporting dashboard?^[1]

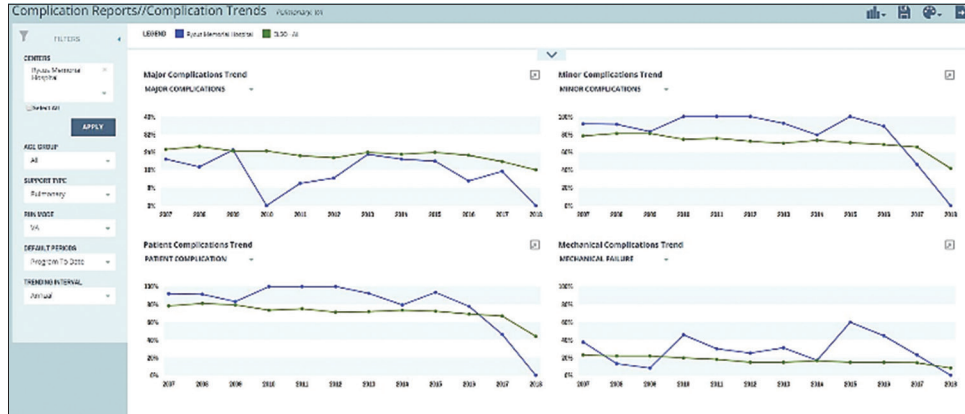


Figure 3: Complications trends as reported by an ELSO center. ELSO: Extracorporeal life support organization.

COMPLICATION DETAILS ON ECMO (EXTRACORPOREAL MEMBRANE OXYGENATION)

It is best to look at complication trends. In complication trends, the ability to look at complications over time is broken down by major, minor, patient, and mechanical complications, as shown in [Figure 3]. Benchmark against all ELSO or specific peer groups is essential to monitor in a new ELSO center. Multiple peer groups can be selected and will be broken out in the legend for all chart types.^[4] You will only be able to select a peer comparison if you are a member of that group and if the group has ten or more centers, under the ELSO banner.

CONCLUSION

For good statistics to be recorded by an ELSO center, there is a need for proper training and education as essential components of the ECMO program.^[2] Thus, it is essential that most ECMO centers should develop a program specific approach to education, maintenance, knowledge dissemination skill acquisition, and competency verification.^[3] Extracorporeal life support (ECLS) coordinator in each ECMO center not only supervises and

trains the team with other ECMO Team members but also uses key performance indicators, outcome measures and ELSO registry participation, which requires statistically coordinated data collection as his/her main responsibility. ELSO, today in 2023, by collating statistical data, is able to have its own robust global ECMO registry.

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