



ECMOjo

A free, open-source desktop simulator and trainer for extracorporeal membrane oxygenation (ECMO) used for medical education and practitioner training.

<https://sourceforge.net/projects/ecmojo>

Overview

ECMOjo is an open-source, Java-based software application designed as a simulator and trainer for Extracorporeal Membrane Oxygenation (ECMO) practitioners, including physicians, nurses, and students. Developed by the Telehealth Research Institute at the University of Hawaii's John A. Burns School of Medicine, the program is freely available under the Berkeley Software Distribution License.

The application features a graphical user interface (GUI) that displays an infant patient connected to a simulated ECMO circuit. Users can interact with the system to manage the patient's life support. The simulator allows for the adjustment of critical parameters such as pump flow, sweep gas flow, FiO₂, and heater temperature. It also provides a visual representation of the patient's status, which can worsen (e.g., becoming progressively paler and bluer) to add urgency to the simulation scenarios.

Key Capabilities:

Patient Monitoring: Review real-time lab values, including arterial blood gases (ABGs), hematology, electrolytes, lactate, and ACT values, which change in correlation with pump adjustments.

Diagnostic Review: View simulated Chest X-rays and head ultrasound images, and read cardiac ECHO reports.

Parameter Control: Adjust ventilator settings, regulate pump flow, and control the ECMO circuit's gas exchange and temperature.

Configuration: Supports simulation for both Venoarterial (VA) and Venovenous (VV) ECMO configurations.

Model Integration: Can integrate models made up of Ordinary Differential Equations (ODEs) and supports the CellML 1.0 and 1.1 standards, allowing for the construction of complex physiological models.

ECMOjo is primarily used by educational institutions and healthcare facilities for low-cost, high-fidelity training in critical care scenarios involving ECMO.

Key Features

- Extracorporeal Membrane Oxygenation (ECMO) Simulation
- Graphical User Interface (GUI) for interaction
- Real-time Patient Status Visualization
- ECMO Circuit Parameter Control
- Lab Value Review (ABGs, Lactate, ACT)
- Diagnostic Image Viewing (X-rays, ECHO reports)
- Ventilator Parameter Adjustment
- Venoarterial (VA) and Venovenous (VV) ECMO Support
- CellML Model Integration

Pricing

Model: free

Free, open-source software distributed under the Berkeley Software Distribution License.

Target Company Size: small, medium, enterprise

This document was generated by IntuitionLabs.ai with the assistance of AI. While we strive for accuracy, please verify critical information independently.