

## **Interhospital ECMO transport of patients experiencing ARDs and/or Cardiogenic shock and their survival outcomes**

### **Abstract:**

#### **Introduction:**

Extracorporeal membrane oxygenation (ECMO) has grown considerably in the past decade among patients experiencing cardiogenic shock and/or acute respiratory distress syndrome (ARDS). ECMO is not yet utilized in all hospitals because of limited access to resources, staff, or technology needed to support these complex patients. The University of Kentucky (UK) is currently considered an ECMO center of excellence, meaning they partner with regional hospitals to help support and treat complex patients on ECMO. Regional hospitals often transfer these patients to UK for further management of care.

**Objective:** To investigate differences in survival outcomes among patients transferred to UK on Venous-arterial (VA) vs Venous-venous (VV) ECMO and those started on ECMO at UK.

**Methods:** With IRB approval, data was retrospectively gathered and analyzed from electronic medical records of 95 adult patients transferred to the University of Kentucky (UK) on ECMO or placed on ECMO upon arrival. The average distance traveled was 113.31 miles and the average time was 113.80 minutes. The data that was extracted included sex, BMI, age, procedure prior to ECMO cannulation, type of ECMO (Venous-arterial or Venous-venous), time of ECMO placement (before transportation to UK or at UK), and patient outcome (expired or survived to hospital discharge).

**Results:** Between August 2015 and December 2019, 95 patients were placed on ECMO and transported to UK for further management of care or transferred to UK to be placed on ECMO. 53 patients were placed on Venous-arterial ECMO, while 35 patients, were placed on Venous-venous ECMO, and 2 patients were placed on both throughout their care. Patients placed on VV ECMO had higher survival to discharge, 54.5%, compared to VA ECMO, 37%. VV ECMO patients were on ECMO for an average longer amount of time, 10.21 days, compared to VA ECMO, 4.35 days. VV ECMO also had shorter average travel time, 102.24 minutes, and average travel distance, 109.76 miles, compared to VA ECMO which had an average travel time of 125.28 minutes, and an average travel distance of 119.79 miles.

**Conclusions:** Interfacility VA or VV ECMO transport can be done safely with an experienced team. UK continues to be a leading center of excellence in regional ECMO patient care, meaning many patients are transferred here. Patients experiencing cardiogenic shock or acute respiratory distress syndrome can have improved chances of survival following transfer to UK.