Department of Surgery
2026 Research Day
6th May 2026 (Wednesday) | 7 am – Noon | MART Auditorium

Title:
Measuring the effectiveness of pre-operative selection guidelines, and compliance with such, on VA-ECMO outcomes

Author(s) and Affiliations:
Jacob N. Bamberger[1], Daniel H. Wolbrom[1], Frank C. Seifert[1,2], Allison J. McLarty[1,2]
1. Department of Surgery, Stony Brook Medicine
2. Division of Cardiothoracic Surgery, Department of Surgery, Stony Brook Medicine

Faculty Mentor(s):
Dr. Frank C. Seifert, Dr. Allison J. McLarty

Background:
VA-ECMO is a resource intensive treatment of last resort for refractory cardiogenic shock. As such, institutions establish selection guidelines to maximize results and minimize unnecessary resource utilization. The objective of this study is to investigate our institution's compliance with patient selection guidelines and how compliance effects outcomes.

Methods:
A retrospective review was conducted for all patients who received VA-ECMO between 01/01/2011 and 12/31/2025. Patients were stratified into three groups based on the diagnostic indication for VA-ECMO: shock of intrinsic cardiac origin (CS), post cardiac surgery failure (PC), and rescue categories (RS). Patients who had zero contraindications for treatment were deemed compliant (C), and those with $\geq$1 contraindication were considered non-compliant (NC). The primary outcome was in-patient mortality. Additional analysis was conducted to investigate the association between individual contraindication and mortality.

Results (or Preliminary Results):
Two-hundred-thirty-five patients were included in the study: 145 in the CS group, 50 in the PC group, and 40 in the RS group. Overall compliance was 25.5% and mortality was 67.7%. Mortality was significantly associated with compliance (C 51.7% vs. NC 73.1%, p=0.002). Compliance was significantly associated with mortality in the PC patients (C 42.9% vs. NC 94.4%, p<0.001), and RS patients (C 40% vs. NC 88.6%, p=0.008), however was not significant in the CS group (C 56.1% vs. NC 60.6%, p=0.621). Of the eleven contra-indications that comprise patient selection criteria, only CPR time >30 min (mortality 75.6%, p=0.049), and blood transfusion >10units/day in PC patients (mortality 100.0%, p<0.001) were significant.

Conclusions (or Preliminary Conclusions):
Overall, compliance with VA-ECMO patient selection criteria was low (25.5%) and mortality was high (67.7%). When compliant, our mortality was roughly equivalent to the national average (~50%) suggesting the criteria are effective. Compliance was not significantly associated with mortality in the CS group, suggesting the role of unmeasured diagnostic factors and the possible greater flexibility in patient selection within this cohort. Prolonged CPR time and excessive blood loss in PC patients was associated with significant mortality and perhaps

should be weighted more heavily when selecting patients.