# AACP 2019 Paper Presentation
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UTILIZING NEW TECHNOLOGIES BY INCORPORATING PREDICTIVE ANALYTICS FOR EXTRACORPOREAL MEMBRANE OXYGENATOR CHANGE-OUT

Christine Chan; New York Presbyterian Hospital, Columbia University Medical Center, New York, NY

The use of extracorporeal membrane oxygenation (ECMO) has been increasing over the years. While ECMO has become a life-saving tool for patients with reversible pulmonary and cardiac dysfunction, there are also adverse events associated with the use of ECMO, and one such adverse event being oxygenator failure. According to the 2016 ELSO Registry, 9.1% of adult ECMO patients experienced oxygenator failure.

The purpose of this study was to identify patterns of oxygenator change-out to incorporate predictive analytics to improve patient care. A retrospective review of ECMOs from 2013 to 2018 was carried out. A total of 55 ECMO oxygenator change-outs were done, with some patients having multiple oxygenator change-outs. There are two types of oxygenator failure that require oxygenator change-out: acutely increasing delta-pressure and gradually declining gas-exchange ability. Once the delta-pressure increases above 60 mmHg, the oxygenator often will acutely clot off, as shown by rapidly climbing delta-pressure over short amount of time. This situation requires emergent oxygenator change-out. Gas exchange of the membrane oxygenator may decline over time, as shown by gradually declining post-oxygenator ABG and oxygenation transfer, which may also require oxygenator change-out.

By utilizing the new and innovative technology of predictive analytics, we may be able to identify the trends of ECMO oxygenator failure that requires oxygenator change-out before catastrophic adverse events happen, thereby improving patients' quality of care.