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Building Sustainable ECMO Programs Through Advanced Practice Provider Integration: A Multidisciplinary Framework for Emerging International Centers

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Background: As extracorporeal membrane oxygenation (ECMO) utilization expands worldwide, many centers face challenges in standardizing care while balancing limited physician resources and increasing program complexity. In August 2025, our institution launched a dedicated multidisciplinary ECMO service line within a high-volume academic referral center performing approximately 180 adult ECMO cases annually. Prior to implementation, no centralized ECMO service or standardized institutional protocols existed despite an experienced multidisciplinary team. We describe the integration of dedicated Advanced Practice Providers (APPs) within a physician-led ECMO service line and its impact on program development and care standardization.

Methods: Cardiothoracic intensivists, cardiac surgeons, cardiologists, perfusionists, ECMO specialists, nursing leadership, and APPs collaborated to design and operationalize the service. Using Lean Six Sigma methodology, workflow mapping, process analysis, and multidisciplinary stakeholder engagement, APPs provided operational continuity across clinical operations, procedural assistance, education, quality improvement, and program development while practicing with attending physician oversight. In addition to bedside ECMO management and consultation, APPs coordinated protocol development, simulation training, multidisciplinary education, research initiatives, and implementation of standardized care pathways.

Results: During the first year, the multidisciplinary team developed nearly 20 institutional ECMO protocols currently undergoing review and implementation, established a formal ECMO consultation service, and expanded standardized ECMO expertise throughout the hospital. APPs played a central role in coordinating these initiatives while delivering multiple structured educational programs for APPs, residents, fellows, nurses, and allied health professionals, reaching well over 150 learners. This collaborative model reduced practice variability, improved coordination across specialties, expanded institutional ECMO resources, and created sustainable infrastructure while allowing physician leaders to focus on complex clinical decision-making.

Conclusions: Integrating dedicated APPs into a multidisciplinary ECMO service line extends physician capacity by providing continuity for education, protocol development, quality improvement, and program implementation. Although advanced practice roles vary internationally, many healthcare systems throughout Central and South America employ clinicians with comparable training. Our experience demonstrates that incorporating dedicated APPs within a physician-led multidisciplinary ECMO team provides a practical, scalable framework for developing sustainable, standardized ECMO programs across diverse healthcare systems.

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