

## 4th Annual ELSO-SWAC Conference Proceedings

# The role of the ECMO specialist nurse

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<http://dx.doi.org/10.5339/qmj.2017.swacelso.54>

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**Cite this article as: Daly KJR. The role of the ECMO specialist nurse, Qatar Medical Journal, 4th Annual ELSO-SWAC Conference Proceedings 2017:54 <http://dx.doi.org/10.5339/qmj.2017.swacelso.54>**

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Extracorporeal membrane oxygenation (ECMO) is a highly complex, resource-intensive intervention. The use of veno-venous ECMO for the management of patients with acute, reversible lung failure has increased significantly over the past 10 years.<sup>1</sup>

Advances in ECMO technology have resulted in the development of simpler, safer circuits, which are associated with fewer complications. Concomitantly with the clinical and technological changes in ECMO, the role of the ECMO specialist has evolved to manage patient – circuit interaction and the clinical needs of the patient, and to ensure safety of the ECMO circuit through continuous surveillance, assessment and troubleshooting, as well as preventing and managing circuit emergencies.

The Extracorporeal Life Support Organization (ELSO) defines the specialist as "the technical specialist trained to manage the ECMO system and clinical needs of the patient on ECMO under direction and supervision of an ECMO trained physician".<sup>2</sup> Internationally, specialists come from a range of professional backgrounds including perfusion, nursing, physiotherapy and medicine. Each ECMO center, depending on the local needs and the availability of resources, in terms of both manpower and finances, has developed its own local specialist role, training program and staffing arrangements. A recent international survey confirmed that despite variation in funding and practice, the staffing arrangement implemented by most centers responding to the survey was the ECMO specialist nurse providing 24/7 ECMO care supported by perfusionist backup for the technical aspects of circuit management.<sup>3</sup> Most centers responding to the survey reported a "two carers" approach to nurse staffing with the ECMO specialist nurse working collaboratively with the bedside nurse to ensure the safe co-ordination and management of a critically ill patient with a wide range of complex needs, including multi-organ system

support and complex haematological, fluid and sedation management. In addition to meeting the complex needs of the patient, the ECMO specialist nurse is responsible for ensuring the safe management of the ECMO circuit, which includes the titration of blood flow and sweep gas flow to achieve oxygen and carbon dioxide targets, titrations of blood flows and sweep gas flows to facilitate exercise and the management of emergency situations should they arise. Understanding the management of both patient and circuit and the potential patient–circuit interaction is an essential component of the ECMO specialist nurse role. While other professionals have the educational background and technical skills to function in the role of the ECMO specialist, the advantage of the ECMO specialist with a nursing background is their ability to provide 24-hour care managing all aspects of patients' needs, including administration of medication, and to have the

technical skills and knowledge to safely manage the ECMO circuit with perfusion backup for the more complicated aspects of circuit management.

Keywords: adult respiratory ECMO, ECMO specialist nurse, interprofessional collaboration, ECMO complications

### CONFLICT OF INTEREST

There are no personal or financial conflicts of interest.

### FUNDING

Educational and research support was provided by ALung Incorporated, Corpac Medical Systems, Drager, Maquet Gettinge Group, and Mitsubishi Pharmaceuticals.

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