

## Book Review

### ECMO, Extracorporeal Cardiopulmonary Support in Critical Care

**Extracorporeal Life Support Organization**  
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**Price: \$60.00**  
**716 pages, 39 chapters, 5 appendices**  
**2 editors, 66 contributing authors**

ECMO, Extracorporeal Cardiopulmonary Support in Critical Care is the followup publication to Extracorporeal Life Support (Arensman, Bartlett, Cornish, eds.) published by Blackwell Scientific in 1993. The book is divided into eight sections covering the history, physiology, clinical applications, neonatal extracorporeal life support, pediatric and adult extracorporeal life support, cardiac support, special situations, and related issues of extracorporeal life support.

The seven chapters on extracorporeal life support physiology encompass the many aspects of veno-arterial bypass, veno-venous bypass, hemodynamics, anticoagulation management, the brain, renal management, electrolytes and the immune system. Not only can the perfusionist apply the information from these chapters to extended bypass, but they can apply the physiologic principles to daily application of extracorporeal circulation as well.

There are five chapters devoted to clinical applications. These chapters include descriptions of the ECMO circuit, the hospital and intensive care unit requirements for ECMO, patient transport, cannulation, circuit emergencies, and troubleshooting and data collection. The perfusionist can gather and implement the differences in establishing extracorporeal life support outside of the operating room and the complex logistics it takes to successfully initiate the technique. In addition, the Registry of the Extracorporeal Life Support Organization is described and summarized.

Neonatal extracorporeal life support is described in five chapters. The section fully describes selection criteria, circulatory management of routine and complex patients and diagnoses, premature infants, follow-up exams, and outcome of neonates on extracorporeal life support. Neonatal support has been the foundation for the technique. These chapters provide the perfusionist the basics that have been widely and successfully used in life support and are the basics for extracorporeal life support.

Pediatric and adult extracorporeal life support is described in six chapters. Chapters are devoted to acute respiratory dis-

tress syndrome, pediatric respiratory diseases, selection criteria, patient management, outcome, and follow-up. The perfusionist can ascertain the differences in treatment of more difficult patients that often require weeks of support. The subtle differences in circuit design, equipment selection, and patient management are described.

One of the more interesting parts of extracorporeal life support that pertains to the perfusionist are the three chapters on cardiac support. Although many perfusionists have some experience with cardiac support, the indications, advantages, complications, and outcome predictors, of those who utilize the technique on a routine basis are described. Of particular interest, the differences between the devices used, results, team management, and anticoagulation techniques from standard versus extended cardiopulmonary bypass are defined.

The six chapters on special situations offer the perfusionist a glimpse of a unique side of the procedure. Aspects related to human studies, referrals, transport, economics, and legal and ethical situations as well as regulatory issues are developed. Aside from the knowledge required to conduct the procedure, this section offers the perfusionist a unique insight into topics that are essential in developing any new medical treatment modality.

The final section contains five chapters on the continuing evolution of treatments related to extracorporeal life support. Newer therapies such as nitric oxide, liquid ventilation, artificial surfactant, intracorporeal gas exchange, artificial organs, and transplantation are developed. The opportunities for perfusionists are vast in getting involved with these newer techniques.

There are six appendices that describe common issues related to extracorporeal life support. These include: patient entry criteria, guidelines for ECMO centers including patient staffing and facilities, followup recommendations, continuing education for ECMO specialists, training regimens including didactic education and topics, and ELSO publications.

Although the book has some content overlap and reference

citings that are not listed in a similar format, this is the definitive textbook in the field of extracorporeal life support. The contributors to this text comprise the "Who's Who" of extracorporeal life support. This book will serve as the principal text for this topic for the next several years. Perfusionists have the opportunity to utilize the experience of these experts in developing or expanding extended circulatory support. This book should be in the library of any institution that conducts extracorporeal life support or even contemplates extended circulatory or ECMO support.

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