

## Book Reviews

### Case Reports I: Clinical Studies in Extracorporeal Circulation

Edited by Trudi B. Stafford, MS, CCP, John M. Toomasian, MS, CCP and Mark Kurusz, CCP

Surgimedics/TMP Inc.  
(800) 347-7225

Price: \$50  
250 Pages; 33 Chapters in 8 Sections

If it is true that experience is the best teacher, then *Case Reports I: Clinical Studies in Extracorporeal Circulation* should prove to be of benefit to many clinical perfusionists. This book is a collection of "how-to-do-its" and "this is what happened to me" scenarios presented at two different perfusion meetings in 1992 and 1993. The text was taken directly from audio recordings and includes the question-and-answer discussions that followed each presentation. The reader should be advised that the material has not been through the peer-review process.

The 33 presentations are divided into eight different groupings: Patient Pathophysiology, Mechanical Problems, ECMO, Ventricular Assist, Non-Routine Applications, Cardiopulmonary Support, and Legal Aspects of Perfusion. Because of the format, the reader is able to conveniently pick and choose according to topic of interest. This reviewer felt compelled to first read the four topics in the Mechanical Problems section, followed by some of the ECMO stories and Non-Routine Applications scenarios. This format makes it simple to read a few short pages and put the book down, only to come back to read another interesting account at your convenience.

There are a few occasions where the reader is left wondering how a situation got out of hand or progressed to a certain point; however, there is merit in reading these accounts if prevention of future incidents remains the focus. And, in fact, the question-and-answer sections of some chapters are revealing due to the "I can top that story" mentality. I do commend some of these contributors for their frankness and honesty in reporting their experiences and allowing others to learn from their mistakes and/or unexpected circumstances.

In general, this book would make an excellent addition to any perfusion library. It contains very practical information with regard to non-standard procedures and techniques. It also motivates the reader to assess his own clinical practices in terms of

safety and efficacy. The student perfusionist as well as the seasoned professional can no doubt benefit from reading this book.

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### Surgery for Congenital Heart Defects

Edited by J. Stark and M. de Laval  
The Hospital for Sick Children, London, United Kingdom

W.B. Saunders Company  
(800) 633-4434

Price: \$245  
712 pages; 28 contributing authors

Evidence of individuals afflicted with congenital heart disease dates back to antiquity, with the unfortunate bearers often being shunned by a society which believed that such maladies had origins based in mysticism. Over the last four centuries physiologists and anatomists have studied the cardiovascular system and identified functional aspects of both normal and abnormal development. Equipped with an understanding of the pathoanatomical conditions caused by congenital heart defects, cardiologists and surgeons devised palliative procedures that relieved associated symptoms, which both improved and extended the lives of numerous young patients. During the early 1950s, decades of research by brave and talented operative teams reached a medical landmark with the correction of intracardiac lesions, heralding the advent of modern day cardiac surgery. For the past forty years tens of thousands of patients born with congenital heart defects have undergone surgical treatment, and the field of pediatric cardiac surgery has grown tremendously as a medical specialization. In the second edition of *Surgery for Congenital Heart Defects*, the editors, Drs. Jaroslav Stark and Marc De Laval, have organized a series of remarkable contributors who have reported on practice of pediatric cardiac surgery in an all encompassing treatise.

The first quarter of this monograph is devoted to the embryological and anatomical classification of congenital heart lesions and their diagnosis. The chapter on surgical anatomy by Drs. Anderson and Becker is superbly written, and the figures

denoting the pathological specimens are remarkably clear, depicting fine anatomical detail. The chapter on fetal echocardiography by Dr. Allan, a world expert in this field, emphasizes the significant contribution of this developing science in the diagnosis of cardiac lesions. It is remarkable that this technology has progressed so that identification of serious cardiac defects within the first 16 weeks of gestation is now possible, and that parents and clinicians are provided with information that could influence interventional and treatment strategies.

A chapter on Perfusion Techniques was authored by Dr. Martin Elliot of The Hospital for Sick Children, and contains useful information for both new and experienced perfusionists. It is written from a surgeon's perspective, and not surprisingly, is deficient on specific information concerning extracorporeal devices for pediatric perfusion. However, the sections on various perfusion flow techniques (Control of Shunts, Circulatory Arrest, and Low-Flow and Full-Flow Cardiopulmonary Bypass), coupled with excellent summarizations on cooling and warming strategies, are extremely useful. The author concludes with a description of the blood conservation technique of ultrafiltration and modified ultrafiltration, which he has so eloquently championed for use in the immediate post-cardiopulmonary bypass period. Dr. Elliot has shown that the aggressive removal of plasma water has resulted in an impressive reduction in postoperative morbidity and improved patient outcome. Perfusionists will find this chapter both stimulating and enlightening, and it is rich with anecdotal information that reflects the author's vast experience in pediatric cardiac surgery and interest in cardiopulmonary bypass.

The chapter on interventional cardiology highlights the significant advances that have taken place in the treatment of congenital heart disease and will undoubtedly continue to expand into areas yet unrealized. This reviewer especially enjoyed the expansive chapter on postoperative care by Drs. Sumner and Stark. This area of management is often taken for granted by those of us involved primarily in the operating room, and the authors have succinctly chronicled the postoperative care of patients with both simple and complex lesions.

The remainder of the monograph is devoted to the surgical correction of congenital heart lesions and is noteworthy for its inclusiveness. The author list reads as a who's who in modern pediatric surgery, and the majority of chapters are well referenced with current listings. Of special note are the excellent figures contained within each chapter. There is nothing more frustrating than trying to follow a surgeon's description of a technically challenging procedure only to be lost in the vernacular used to describe the complexity of the repair.

When deciding the value of any publication, as either a resource or as a reference, one must consider three major conditions: is the information contained within useful and current? Is the information presented in a concise, logical format? And will the potential benefit outweigh the economic constraints inherent in acquisition? The second edition of *Surgery for Congenital Heart Defects* easily meets, and surpasses, these requirements

and will undoubtedly be well received by those challenged by pediatric cardiac surgery.

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### Neonatal ECMO Specialist Training Manual

Published by the Extracorporeal Life Support Organization  
(313) 998-6600

Price: \$50 for non-ELSO members;  
\$25 for ELSO members (add \$10 for binder)  
162 Pages (loose-leaf format); 12 Chapters

The *Neonatal ECMO Specialist Training Manual* is published by the Extracorporeal Life Support Organization (ELSO) Logistics and Education Committee. The manual also includes the "ELSO Guidelines for Training and Continuing Medical Education of Neonatal ECMO Specialists."

The Guidelines section documents what is needed in the development and maintenance of a good ECMO specialist training program. It differentiates between an experienced and a fledgling ECMO program, as well as offers instructions for certification and continuing education of ECMO specialists.

The first chapter of the training manual provides a history of ECMO along with current trends, risk-versus-benefits, and the status of current and future research trends in the field of extracorporeal membrane oxygenation. While none of the topics are covered in great detail, an extensive bibliography is included, making further reference easy.

The next three chapters provide a very good foundation of basic physiology and relevant pathophysiology. Fetal versus neonatal physiology and the pathophysiology of respiratory diseases of the newborn are well covered in Chapter 2. The physiology of gas exchange and the cardiac changes induced by ECMO are covered in Chapters 3 and 4. Overall, these chapters present their information in a logical format with some very helpful diagrams as well as provide an overview of the disease processes involved in neonates with respiratory distress.

Chapter 5 offers a comparison of venoarterial and venovenous ECMO. Included are patient selection, cannula and cannulation techniques, and the advantages and disadvantages of these two methods.

Equipment considerations are contained in Chapter 6. This chapter presents a fairly simplified, but thorough, overview of those devices used in the long-term conduct of extracorporeal support. However, some of the information is presented so that if the reader did not have previous knowledge of the devices, it would be difficult to comprehend. A bibliography was refer-

enced several times, but not included in our copy of the manual.\*

Coagulation, hemostasis, and blood surface interactions are presented in Chapter 7, while anticoagulation and blood replacement therapy are found in Chapter 8. The information necessary to understand and manage patients on extracorporeal support is well presented in these two chapters. It is the opinion of these reviewers that nearly all the information in Chapter 7 is reiterated in Chapter 8.

Chapter 9 deals with patient selection, exclusion criteria, and management of these critically ill patients. Some of the issues briefly discussed in Chapter 1 are revisited in detail in this chapter. General guidelines for system-by-system regulation, as well as pre- and post-ECMO management are offered.

Patient management, specific to the ECMO specialist and nursing care providers, is the topic of Chapter 10. This material is presented in a manner that reflects the uniqueness of these patients and their special needs. The reader is cautioned, however, that the many institutional differences in this regard will become quite apparent in this chapter.

Chapter 11 details ECMO complications, stressing medical and mechanical obstacles in depth. A number of very informative tables will aid the reader in identifying and quantitating these complications. Lastly, Chapter 12 discusses the follow-up of patients after extracorporeal support, identifying reasons and areas of emphasis.

A large number of typographical errors occur throughout this manual, the most obvious of which is that the same objectives are listed for the first three chapters. Additionally, a few of the referenced figures and articles were not found by these reviewers.\*

Overall, we think this manual would be very beneficial to those centers just starting a neonatal ECMO program. Existing centers will find the information useful as a handy reference guide for general ECMO procedures, and in the training and continuing education of their ECMO specialists. However, many experienced ECMO centers may find a large number of procedural aspects in which their methods differ from those related in this manual, as is stated in the continuing education guidelines.

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\* The Logistics and Education Committee of the Extracorporeal Life Support Organization would like to thank the AmSECT reviewers for their thorough look at the Neonatal ECMO Specialist Training Manual. All problem areas noted by the reviewers will be addressed in the next version of the manual. — ELSO