



## The Pediatric Cardiac Anesthesia Handbook

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*The Pediatric Cardiac Anesthesia Handbook* (first edition), by Drs. V.G. Nasr and J.A. DiNardo, is a comprehensive handbook that provides a concise overview of perioperative management of pediatric patients undergoing cardiac surgery. Published by two renowned experts in pediatric cardiac anesthesia from Boston Children's Hospital (Boston, Massachusetts), this handbook fills an important gap in the medical literature as a complement to the comprehensive textbook specifically dedicated to pediatric cardiac anesthesia.<sup>1</sup> The involvement of just two authors contributes to a uniform style, smooth flow, and minimal repetition that is not often seen in multi-authored texts.

This handbook reviews the pathophysiology and management strategies of the most common congenital heart diseases (CHDs) and provides the readers with expert advice for addressing challenging clinical situations. Its portable format makes it a convenient reference source that can be brought into the operating room. Throughout the book, readers are provided with informative tables and figures illustrating key points.

It includes 33 chapters, with part I (seven chapters, 66 pages) reviewing the basics of CHD and pediatric cardiac anesthesia and part II (25 chapters, 176 pages) discussing the perioperative management of the most common cardiac lesions. Chapter 1 briefly reviews embryology and cardiovascular development, and Chapter 2 summarizes the pathophysiology of congenital heart disease, intra- and

extra-cardiac shunts, and the physiology of pulmonary vascular resistance and its potential for manipulation. Comprehensive schematic representations are included in this chapter that clearly show the pathophysiology of CHD. Chapter 3 briefly reviews the preoperative evaluation of the patient and the medications commonly used in children with CHD. In Chapters 4 and 5, the authors discuss intraoperative monitoring and the indications for it, as well as interpretation of cardiac catheterization data. Chapters 6 and 7 briefly review the use of cardiopulmonary bypass and other mechanical support devices. Important information is provided here regarding management of extracorporeal support devices, considerations for anticoagulation, and potential complications.

The following chapters (8–33) are dedicated to perioperative management of specific cardiac lesions, including patent ductus arteriosus, aortopulmonary window, coarctation of the aorta, atrial septal defect, ventricular septal defect, atrioventricular canal defects, double-outlet right ventricle, truncus arteriosus, total anomalous pulmonary venous return, left ventricular outflow tract obstruction, mitral valve disease, pulmonary atresia with intact ventricular septum, tetralogy of Fallot, tetralogy of Fallot with pulmonary atresia, tetralogy of Fallot with absent pulmonary valve, transposition of the great arteries, single-ventricle lesions, hypoplastic left heart syndrome, interrupted aortic arch, vascular rings, tricuspid atresia, heart transplantation, heart–lung and lung transplantation, anomalous origin of the left coronary artery from the pulmonary artery, heterotaxy, and the Ebstein anomaly. Each of these chapters includes a brief introduction, followed by a description of the anatomy and physiology of each cardiac lesion with accompanying informative illustrations and tables. The authors then

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review surgical options and catheterization laboratory diagnoses and interventions. They also provide a concise, straightforward paragraph discussing anesthesia management, including goals, premedication, induction and maintenance, and post-cardiopulmonary bypass management. Some chapters also include a brief review of the perioperative management for non-cardiac surgery.

A limitation of this book is the inclusion of only a relatively brief review of complex clinical situations, a drawback common to many handbooks. In addition, although seven chapters are dedicated to the basic principles of CHD, the reader may require more in-depth knowledge to fully understand the issues at hand. We therefore suggest, for the next edition, providing one or two relevant references per chapter and web-based support to help the reader find more detailed information if needed. Finally, in some instances the clinical management strategies may reflect a single institution's approach, so alternative options might be provided, as relevant, in a future endeavor.

In summary, *The Pediatric Cardiac Anesthesia Handbook* (first edition) is a relatively, comprehensive, concise, portable handbook that summarizes useful information for the anesthesiologist providing anesthesia care to pediatric patients with congenital heart disease. We highly recommend this textbook to anyone providing anesthesia care to this unique patient population. It would be particularly useful as part of a reference library accessible to trainees.

**Conflicts of interest** None declared.

**Editorial responsibility** This submission was handled by Dr. Steven Backman, Associate Editor, *Canadian Journal of Anesthesia*.

## Reference

1. Andropoulos DB, Stayer S, Mossad EB, Miller-Hance WC. Anesthesia for Congenital Heart Disease. 3rd ed. Hoboken, NJ: John Wiley & Sons; 2015.