MANUAL of PERIOPERATIVE CARE in ADULT CARDIAC SURGERY

Fifth Edition
To my parents, Leah and Samuel Bojar, who instilled in me a lifelong desire for learning, the importance of sharing knowledge, and a dedication to provide all patients with the best possible care.
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Preface

The future of cardiac surgery faces significant challenges with the widespread application of transcatheter technologies, including coronary stenting, percutaneous valves, endovascular approaches to thoracic aortic disease, and ablation of arrhythmias in the electrophysiology laboratory. Most of these technologies evolved from the concept that a less invasive approach to structural heart disease is preferred by patients to reduce trauma, minimize complications, expedite recovery, and improve the quality of life.

Although these approaches may be applicable to patients at both ends of the clinical spectrum, surgery will still remain the best approach for many patients – especially those with advanced cardiac disease and significant noncardiac issues. Although less invasive surgery is seeing wider applicability, most surgical procedures require use of cardiopulmonary bypass with its inherent morbidity. There is little doubt that surgical patient acuity continues to increase, and excellence in perioperative care will remain essential to optimizing surgical results, no matter which surgical technique is used. This has become especially important with the increasing demand for transparency, with the perception that outcomes are directly related to the quality of care. Thus, it has become essential that surgical programs maintain the highest level of care to remain competitive.

The 5th edition of the Manual has been completely updated to provide current approaches to patient care. The reference lists have also been extensively updated to direct the reader to some of the best resources available on most topics. I am hopeful that this 5th edition will provide a comprehensive up-to-date review that will assist healthcare providers in delivering the best possible care to their cardiac surgical patients.

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Cardiac surgery requires meticulous attention to detail to ensure the best possible surgical result. Decision-making in the perioperative period involves close cooperation and communication among all members of the healthcare team, including cardiac surgeons, anesthesiologists, physician assistants, nurse practitioners, and critical care and floor nurses. Identifying problems and seeking consultations with experts in other fields is important to ensure optimal outcomes. I am greatly appreciative of the efforts of many individuals who set aside valuable time to review sections of the manuscript in their areas of expertise. I would like to acknowledge the assistance of David Liu, MD, Gary Noroian, MD, Timothy Hastings, CRNA, Bettina Alpert, CCP, Kathi O’Leary, CCP, and Wanda Reynolds, CCRT, for their review and comments. I am especially indebted to George Gordon, MD, whose vast knowledge of anesthesiology, echocardiography, pharmacology, and physiology allowed him to provide insight and suggestions on multiple areas of clinical management. Lastly, I am indebted to my Chief Physician Assistant, Theresa Phillips, PA, who helps coordinate the care my patients receive, and who reviewed many sections of the manuscript to ensure their accuracy.
Notice: The indications and dosages of all drugs in this book have been recommended in the medical literature and conform to the practices of the general community. The medications described do not necessarily have specific approval by the Food and Drug Administration for use in the diseases and dosages for which they are recommended. The package insert for each drug should be consulted for use and dosage as approved by the FDA. Because standards for usage change, it is advisable to keep abreast of revised recommendations, particularly those concerning new drugs. Although the author has made every attempt to ensure the accuracy of drug dosages, it is the obligation of the reader to confirm drug dosages prior to prescribing any drug.

Abbreviations used through this book are typeset and easy to read. However, many hospitals have lists of approved abbreviations designed to prevent medication errors, which are often caused by inability to interpret handwriting. It is therefore advisable that all orders be written according to individual hospital regulations to ensure that accurate medication doses and intervals are provided to patients.
CHAPTER 1

Synopsis of Adult Cardiac Surgical Disease

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