Essentials of Pediatric Anesthesiology

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CAMBRIDGE UNIVERSITY PRESS

Shaftesbury Road, Cambridge CB2 8EA, United Kingdom

One Liberty Plaza, 20th Floor, New York, NY 10006, USA

477 Williamstown Road, Port Melbourne, VIC 3207, Australia

314–321, 3rd Floor, Plot 3, Splendor Forum, Jasola District Centre, New Delhi – 110025, India

103 Penang Road, #05–06/07, Visioncrest Commercial, Singapore 238467

Cambridge University Press is part of Cambridge University Press & Assessment, a department of the University of Cambridge.

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www.cambridge.org
Information on this title: www.cambridge.org/9781107698680

First published 2015

A catalogue record for this publication is available from the British Library

Library of Congress Cataloging-in-Publication data
Essentials of pediatric anesthesiology / edited by Alan David Kaye, Charles James Fox, James H. Diaz.
p. ; cm.
Includes bibliographical references and index.
ISBN 978-1-107-69868-0 (Paperback)
I. Kaye, Alan David, editor. II. Fox, Charles J., III (Charles James), 1961– editor. III. Diaz, James H., editor. [DNLM: 1. Anesthesia. 2. Child. 3. Infant. WO 440]
RD139
617.906083–dc23 2014006200

ISBN 978-1-107-69868-0 Paperback

Additional resources for this publication at www.cambridge.org/9781107698680

To my wife Dr. Kim Kaye and my children, Aaron and Rachel Kaye, for all their love and kindness.

To my mother Florence Feldman and my father Joel Kaye, the former Joseph Krakower, for providing me with thousands of enlightening lessons in life and for helping to shape me into the man I am today.

To my step parents the late Gideon Feldman and Andrea Bennett-Kaye, who helped raise me, providing love, support, and wisdom over the last 30-plus years.

To my brother Dr. Adam Kaye and my sister Sheree Kaye Garcia for always loving and supporting me.

To my lifelong friends, Barry Lustig, Brian Finerman, Jamie Johnson, Walter Eichinger, the late Steve Corty, Joe Walsh, Troy Cotter, and Torsten Andresen, I am grateful for each of you and the many lessons you taught me in life, especially when things did not go my way and when my future was uncertain.

Alan David Kaye, M.D., Ph.D.

To my parents, Charles James (Jimmy) Fox Jr. and Sandra Marie Blanchard Fox, for their hard work and dedication to our family; you have created a foundation on which generations will build.

Charles James Fox, M.D.

To Robert H. (Rob) Friesen, M.D., of the Denver Children's Hospital: mentor, colleague, friend; epitome of the clinician-researcher.

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Preface

My first experiences with pediatric anesthesia were as a four-year-old inpatient undergoing a tonsillectomy. I recall the following events very clearly – a premedication shot, likely morphine and atropine or scopolamine; the smell of ether; postoperative vomiting; and going home from the hospital the next day with a sore throat. Although intramuscular premedication injections and ether anesthesia have now been replaced by gentler selections for premediation and nonflammable halogenated agents for general anesthesia, nausea and vomiting still remain unwelcomed postoperative events for pediatric patients and anesthesiologists.

Years later, I joined the staff of that same hospital as a pediatric anesthesiologist and intensivist in a modern, new facility for multispecialty group practice. I had frequent access to my medical records over the years including the original anesthesia record for my tonsillectomy, which included the names of the anesthesiologist and surgeon, the anesthetic agents administered, and a few heart rate measurements. The anesthetic was conducted under mask ether without an endotracheal tube, precordial stethoscope, or an intravenous line for fluid therapy. No blood pressures and no temperatures were recorded. The equipment for transcutaneous oxygen saturation and end tidal carbon dioxide measurements had not been invented yet.

When I served as a pediatric anesthesiology fellow, the Jackson Rees modification of the Mapleson F circuit was used for endotracheal halothane in oxygen and nitrous oxide anesthesia during spontaneous assisted ventilation and the Bain modification of the Mapleson D circuit was used for controlled mechanical ventilation. Fentanyl had recently been introduced as an intravenous anesthetic adjunct, and pediatric surgeons infiltrated surgical wounds prior to closing with local anesthetics. There was only one textbook of pediatric anesthesia, Smith's *Anesthesia for Infants and Children*, which was updated in subsequent editions to include the anesthetic management of new procedures in cardiac surgery and neonatal surgery.[1] I had to supplement my pediatric anesthesia library with classic British texts, now out of print, including *Paediatric Anaesthesia* by Drs. G. Jackson Rees and Cecil T. Gray, and *Neonatal Anaesthesia and Perioperative Care* by Drs. David Hatch and Edward Sumner.[2,3] Later, I was invited to serve a summer fellowship with Drs. Hatch and Sumner at the Hospital for Sick Children on Great Ormond Street in London, where I learned how to incorporate regional blocks into general anesthetics, especially caudal injections, and to conduct cyclopropane inductions in the sickest neonates with congenital heart disease.

Although the modern operating room has eliminated the use of flammable anesthetics, such as ether and cyclopropane, caudal and lumbar epidural-administered local anesthetics and opioids are in increasingly frequent use today and provide excellent postoperative pain relief in children. Today, pediatric anesthesia techniques, anesthesia breathing systems, and cardiopulmonary function monitors have improved dramatically and continue to evolve rapidly. Endotracheal or laryngeal mask-administered anesthesia, the use of multiple intravenous and local anesthetic agents to control hemodynamics and provide perioperative analgesia, and the continuous monitoring of oxygen saturation, end tidal carbon dioxide, inspired anesthetic fraction, and body temperature are now regarded as national standards for the safe anesthesia care of infants and children. Newly installed electronic anesthetic records can capture all of the patient's physiologic measurements, and the anesthesiologist simply indicates the agents used and tubes inserted with a keystroke, completely eliminating the old paper anesthetic record. Pediatric anesthesiology is now its own multispecialty practice that includes fetal and neonatal anesthesia, anesthesia for complex congenital heart and craniofacial defects, pediatric organ transplant anesthesia, and many other specialized indications and techniques.

Although the United States (US) may have lagged behind the British and Canadians in earlier advancements in pediatric anesthesia equipment and techniques, US-trained pediatric anesthesiologists are at the forefront of the very latest advances today. *Essentials of Pediatric Anesthesiology* will allow anesthesiologists to prepare rapidly for the most complex cases, such as *in utero* fetal surgery, abdominal organ transplants, or separation of conjoined twins. Concise chapters are illustrated with diagrams and images and feature clear tables to organize information for quick recall. Single-answer pretest and post-test questions accompany each chapter to identify pre-existing knowledge and confirm newly acquired knowledge respectively.

With more approved anesthesiology residency programs and pediatric anesthesiology fellowship programs and a new American Board of Anesthesiology (ABA)-administered subspecialty board certification examination in pediatric anesthesiology, a new multi-authored textbook in pediatric anesthesiology is needed now. *Essentials of Pediatric Anesthesiology* is that text. *Essentials of Pediatric Anesthesiology* will effectively supplement the current multivolume treatises in the field and appeal to a broad audience of residents, fellows, attending anesthesiologists, pediatric intensivists, and other practitioners caring for pediatric patients in the perioperative period, especially those seeking rapid reviews before taking oral board and subspecialty board certification examinations. *Essentials of Pediatric Anesthesiology* will definitely be a valuable addition to any perioperative physician's library.

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