Book Reviews

Mathematics and Statistics in Anaesthesia

Steven Cruickshank. Oxford University Press Canada, 1998. 257 pages. \$72.50. ISBN 0-19-262312-5

This unusual book with a somewhat forbidding title is a gem. It is divided into three parts which cover a broad range of topics which are of interest not only to anesthesiologists but also to intensivists and researchers in general. The first part deals with physiologic and pharmacologic models. It starts out gently enough by introducing the reader to a steady state model of alveolar ventilation, CO_2 production and PaCO_2 . The author builds on this foundation to introduce more complex aspects of time dependant modeling leading to a computer simulation of the changes in PaCO_2 following a pulmonary embolus. The book is attractively laid out and makes extensive use of boxes to separate the more overtly complex mathematical formulæ from descriptive text. Icons are used throughout the book to refer back to earlier concepts. In addition it is profusely illustrated with charts, diagrams and small cartoons to lighten the subject matter.

The second section of the book is devoted to explaining the basis of a number of mathematical functions and differential equations which are used elsewhere. It is perhaps this section which will make the hardest reading. Starting with simple equations the author gradually introduces more complex equations always building on the foundation of the previous section.

Statistical methods are covered in the third part. Starting with the basic elements of random processes the author explains how the standard statistical tests are derived. His approach to these frequently misunderstood topics relies heavily on the reader's common sense. As in the first two parts each point is illustrated with examples from the practice of anesthesia.

As both student and teacher in anesthesia I have had to work very hard to understand the concepts which are explained with great simplicity and clarity in this book. Because it deals with fundamentals it has a wide application limited only by the reader's imagination and it will never be out of date. Anyone who is interested in the scientific basis of medicine will be fortunate to have this book as a reference when the need arises.

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Anesthesia Equipment Manual

Mitchel B. Sosis (Ed.). Lippincott-Raven Publishers, 1997. 384 pages. \$97.75 (US). ISBN 0-397-51457-3

This hardcover, 354 page "...handbook has been prepared to clearly explain and illustrate the entire spectrum of anesthesia equipment". The twenty five chapters were written by twenty two authors from the USA who kept duplication of covered topics to a minimum.

Almost the entire first half of the book is devoted to the numerous aspects of the delivery, monitoring and disposal of breathing gases. Equipment for measuring blood pressure (systemic arterial, central venous and pulmonary arterial) invasively is described in two well-written chapters that follow. The remainder of the chapters provides information on various tools of modern anesthesia practice - from conventional laryngoscopes to equipment for monitoring evoked potential and blood coagulation. The second half of the manual shows more variety in authors' styles than does the first half of the book, but both sections will educate and benefit the reader toward competent practice of our specialty.

Despite occasional minor inaccuracies (e.g., availability of descending bellows on modern North American anesthesia machines or recommended tidal volume), this manual succeeds in offering theoretical background and practical knowledge which most clinicians are likely to find useful in their everyday practice.

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Perioperative Transfusion Medicine

Bruce D. Spiess, Richard B. Counts, Steven A. Gould. Williams & Wilkins, 1998. 607 pages. ISBN 0-683-07892-5

At last, a book on Transfusion Medicine dedicated to those who are involved in perioperative transfusions, and with obvious Anesthesiology input. Too often in the past, contributors have been unfamiliar with the special perioperative considerations of transfusion medicine. The section dealing with those who refuse blood products is excellent in that it not only explains the viewpoints of Jehovah's Witnesses, it offers guidelines and flowcharts to satisfy the needs of both patient and

physician. Similarly, Chapter 13 provides the necessary knowledge in dealing with legal issues and informed consent. Autologous blood products, pharmacological options, and red cell substitutes are explained in both physiological and practical terms. This book is unique in that it has a section devoted to transfusion in various surgical/anesthetic sub-specialties including Obstetrics/Gynecology, Orthopedics, Transplantation, Cardiac, and Neurosurgery.

Although recent transfusion controversies with respect to the importance of blood alternatives have arisen as has the concern of prion disease (which is not mentioned), this book is easily the best available for anesthesiologists involved in transfusion medicine.

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