Certainly, Heraclitus’ philosophy is apparent to those who care for children: we watch them grow and change continually, and yet each child does so at different rates and in different ways. Medical imaging has grown exponentially in the last three decades with the development of many promising and often non-invasive diagnostic studies and therapeutic modalities. The corresponding medical literature has also exploded in volume, leading to information overload for health care providers. In addition, the literature varies in scientific rigor and clinical applicability, and publications on the same topic may contradict each other. The purpose of this book is to employ stringent evidence-based medical criteria in order to systematically review the evidence defining the appropriate use of medical imaging in infants and children and to present to the reader a concise summary of the best medical imaging choices for the care of infants and children.

The 41 chapters cover the most prevalent conditions and diseases that affect children in developed countries. Most of the chapters have been written by pediatric radiologists in close collaboration with pediatric clinical physicians and surgeons in order to provide a balanced analysis of the different medical topics and the role of imaging. We cannot answer all the questions we face in the clinical care of children today—medical imaging is a delicate balance of science and art, often without data for guidance—but we can empower the reader with the current evidence behind medical imaging.

To make the book user friendly and to enable fast access to pertinent information, we have organized all of the chapters in the same format. The chapters are framed around important and provocative clinical questions relevant to the daily physician’s practice. A short listing of issues at the beginning of each chapter helps three different tiers of users: (1) the busy physician searching for a quick guidance, (2) the meticulous physician seeking deeper understanding, and (3) the medical-imaging researcher requiring a comprehensive resource. Key points and summarized answers to the important clinical issues are at the beginnings of the chapters, so the busy clinician can understand the most important evidence-based imaging data in seconds. This fast bottom-line information is also available in an electronic fully searchable format so that an expeditious search can be done using a handheld device on the run or a computer at the medical office, hospital, or at home. Each important question and summary is followed by a detailed discussion of the supporting evidence so that the meticulous physician can have a clear understanding of the science behind the evidence.
In each chapter, the evidence discussed in the chapter is presented in Take Home Tables and Figures, which provide an easy review in the form of summary tables and flow charts. The Imaging Case Studies highlight the strengths and limitations of the different imaging studies with vivid examples. Toward the ends of the chapters, the best imaging protocols are described to assure that the imaging studies are well standardized and done with the highest available quality. The final sections of the chapters are called Future Research; here, provocative questions are raised for physicians and non-physicians interested in advancing medical imaging.

Not all research and not all evidences are created equal. Accordingly, throughout the book, we use a four-level classification detailing the strength of the evidence and based on the Oxford Criteria: Level I (strong evidence), Level II (moderate evidence), Level III (limited evidence), and Level IV (insufficient evidence). The strength of the evidence is presented in parenthesis throughout the chapters so the reader gets immediate feedback on the weight of the evidence behind each topic.

Finally, we had the privilege of working with a group of outstanding contributors from major medical centers and universities in North America and Europe. We believe that the authors’ expertise, breadth of knowledge, and thoroughness in writing different chapters provide a valuable source of information and can guide decision making for physicians and patients. In addition to guiding practice, the evidence summarized in the chapters may have policy-making and public health implications. Finally, we hope that the book highlights key points and generates discussion, promoting new ideas for future research.

L. Santiago Medina, MD, MPH
Kimberly E. Applegate, MD, MS
C. Craig Blackmore, MD, MPH
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