

## Fuhrman and Zimmerman's Pediatric Critical Care, 6th Edition

Edited by Jerry J. Zimmerman, M.D., Ph.D., F.C.C.M., Alexandre T. Rotta, M.D., F.C.C.M., Robert S.B. Clark, M.D., F.C.C.M., Bradley P. Fuhrman, M.D., F.A.A.P., M.C.C.M., Sapna R. Kudchadkar, M.D., Ph.D., F.C.C.M., Monica Relvas, M.D., F.A.A.P., F.C.C.M., M.S.H.A., Joseph D. Tobias, M.D. Philadelphia, Elsevier, 2022. Pages: 1,664. ISBN-13: 978-0323672696. ISBN-10: 0323672698. Price: \$285.99.

Caring for the critically ill child is possibly one of the most stressful jobs in healthcare—from managing the acute instability of the illness to soothing the terrified child and emotionally supporting anxious parents all while projecting a sense of outward calm and professionalism. Although the field of pediatric critical care medicine is still young, our knowledge of genetics, pathophysiology, biochemistry, pharmacology, and clinical management has exploded in recent years with numerous cutting-edge advances and innovations in care through research and quality improvement. This exponential growth in knowledge makes it imperative for the pediatric critical care physician to have a reliable resource to quickly search for information that they can practically employ at the bedside to achieve excellence in clinical care. The textbook of *Fuhrman and Zimmerman's Pediatric Critical Care*, in its sixth edition, admirably fills this need as an authoritative and reliable source of information and continues to establish itself as a leader in the field.

In the era of the COVID-19 pandemic, it is fitting that this sixth edition is truly global in its scope with the variety of topics and the slate of authors that have contributed chapters. This edition is edited by Jerry Zimmerman and Alexandre Rotta along with Robert Clark, Sapna Kudchadkar, Bradley Fuhrman, Monica Relvas, and Joseph Tobias. The book is divided into 15 sections and is organized in a logical and easy-to-follow progression. Although the current edition is longer than its previous edition, it is still comfortable enough to hold and read in an armchair, and attractive enough to adorn the office bookshelf. The paper hardcover book is accompanied by an enhanced e-book version that includes access to expanded content including all text, figures, tables, and references all accessible on a variety of devices.

Continuing with the tradition established by previous editions, the first section provides rich detail on the history of the field written by two eminent leaders. Sadly, Dr. John Downes, who is widely acknowledged as the father of pediatric critical care medicine, recently passed away, and the first chapter serves as a fitting epitaph for the immense contributions from this gentle giant who inspired generations of pediatric intensivists. The history of our field, no doubt, serves to inform and inspire our future work. This

section also covers the importance of teamwork, leadership, organization, communication, and professionalism as well as the contributions of nursing in the pediatric intensive care unit (ICU). The concept of the ICU team as a high-reliability organization is discussed in depth with several best practices highlighted.

The next section discusses a potpourri of essential structures and procedures in pediatric critical care, such as approach to research study design, organization of transport services, obtaining vascular access, and the new and rapidly emerging field of point-of-care ultrasound in the pediatric ICU. The following section covers key concepts of family-centered care in the ICU with excellent chapters that *Fuhrman and Zimmerman's* discuss ethical issues intrinsic to critically ill children with the importance of palliative care services. In recent years, there has been increasing awareness of life beyond the ICU (“survive to thrive”) and this is reflected in the chapters that discuss both short-term and long-term outcomes after critical illness. Undoubtedly, these chapters will likely become full-fledged sections of their own importance in the future. It is gratifying that this section also includes a chapter on burnout and resiliency in healthcare professionals, acknowledging the importance of addressing these issues with more transparency and authenticity.

The subsequent sections cover different organ systems in detail—including genetics, anatomy, physiology, biochemistry, and pharmacology—tying in epidemiology, diagnosis, and management. In the cardiovascular section, the chapters on imaging, cardiopulmonary bypass, and postoperative care are very well written with excellent figures and tables. The pulmonary section covers the unique characteristics of the pediatric airway and provides excellent discussion of several pediatric pulmonary diseases. In addition to invasive mechanical ventilation, which is a mainstay intervention in the ICU, noninvasive ventilation has increasingly emerged as a major intervention in recent years and is discussed very well in different disease states. The chapter on extracorporeal life support is very well illustrated and covers the different modalities including newer developments. The section on neurologic critical illness includes an excellent chapter on neuromonitoring which is increasingly prevalent in many centers. Similarly, the chapter on neuroimaging provides an excellent

discussion for the pediatric intensivist. This section covers all common pediatric neurologic disorders in detail. The section on the kidney, metabolism/endocrinology, hematology/oncology, and gastrointestinal tract/liver are well written and cover key concepts/interventions pertinent to each section but are limited due to practical constraints of space.

The section on immunology and infection highlights the growing importance of the complex interactions between immune disturbances, microbial pathogens, and inflammation during pediatric critical illness and discusses novel diagnostics and therapeutics leading to precision medicine in addition to the more traditional clinical paradigms of care. The chapter on healthcare-acquired infections highlights key concepts in epidemiology and prevention with emphasis on transmission and isolation practices. This section also covers the vital subject area of pediatric sepsis coauthored by the late Dr. Hector Wong—another legend in the field who we lost all too prematurely in 2022.

The section on environmental injuries, trauma (including inflicted child abuse), and toxicologic emergencies reflect the increasing public health burden of these problems that represent a growing threat to the health of children. The pediatric intensivist needs excellent awareness and knowledge of these topics that are very well covered in this section. The section on pharmacology highlights the principles of drug disposition and metabolism as they pertain to critical illness and highlights the importance of working knowledge of adverse drug interactions and drug dosing. No textbook of pediatric critical care would be complete without a section highlighting the key role of anesthesiology in the perioperative period, and this edition does not disappoint. This section on anesthesia principles covers key principles and operating room anesthesia regimens that every pediatric intensivist should know well.

Fuhrman and Zimmerman's In summary, the sixth edition of the textbook of *Fuhrman and Zimmerman's Pediatric Critical Care* continues to build on the tradition of excellence and high standards set by the previous editions and establishes itself as one of the leading textbooks for pediatric critical care trainees and physicians alike. The artwork and use of color stand out in this edition. The textbook has a few shortcomings. First, the ICU team, in addition to physicians and nurses, consists of many other team members, such as clinical pharmacists, registered dietitians, social workers, case managers and child life specialists to name a few—these disciplines/individuals have not been given their due consideration. Second, newer disciplines such as bioinformatics, health economics, and genomics/metabolomics/transcriptomics are emerging as increasingly relevant to critical illness and have not been covered in adequate detail in this edition. Third, vital topics such as diversity, equity and inclusiveness, and precision medicine in the ICU have not been explored in this textbook. I hope that future editions will address these important considerations in addition to the excellent coverage of all things pediatric critical care to comprehensively guide the reader in the art and science of caring for critically ill children.

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