EMERGENCY PEDIATRICS

SECOND EDITION

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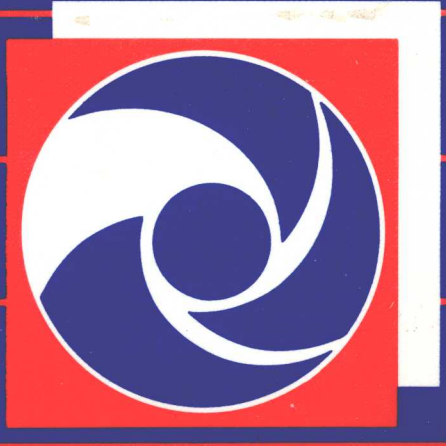

Elizabeth Shepard MD

EMERGENCY PEDIATRICS

A Guide to Ambulatory Care

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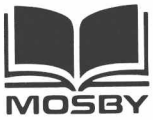

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To C. Henry Kempe
a master clinician, teacher, and scientist; a man of vision, insight, and sensitivity; and a model for those who have cared for children in the past and will treat them in the future

To Suzanne
who provided support, encouragement, and understanding

To Adam and Michael
who have taught me much of what I know about pediatrics, and

To children
who have been our partners in learning and whose needs will, I hope, be better served through the use of this book

R. M. B.

Foreword

Over the past 36 years, a great number of medical students and some residents have told me something like the following: "I am afraid I cannot handle medicine as a career. Last night I worked in the emergency department, and a desperately ill accident victim was brought in for treatment. My only thought was to flee out the back door, and I was in a panic." I have always replied that I was so pleased to hear that because only people devoid of conscience will run toward such acute disasters with joy; to be scared is to be honest as well as intelligent.

The unprepared student soon acquires experience by working alongside senior role models, nurses, paramedics, and other physicians—learning that team care is essential. All emergencies require more than one set of hands. Practitioners must be well trained and intellectually as well as emotionally prepared to deal with anything that comes through the door. I always urge practicing physicians, residents, and students to "play" at situations where a mother rushes her child to the office or to the emergency department or where an urgent call comes from a ward and the immediate needs for survival must be practiced: an airway established, breathing ensured, and the vascular bed brought back to a capacity to carry oxygen to all organs. The entire team must maintain its competency to maximize each patient's chances. The ability to tell a four-star from a one-star emergency is learned with time.

Often the patient's history is obtained while urgent care for life support is given. It isn't easy to do both at the same time, yet both are required. This is no moment for textbooks or lengthy dissertations; ready access to a broad range of diagnostic and therapeutic information is needed. The basics are crucial and must be learned by heart. Where are vital medications? Where is a working laryngoscope? Who will assist the primary members of the team? What are the most important drug dosages, fluids, and electrolytes? Practice, expertise, organization, and cooperation make the components flow smoothly.

Emergency care is always a bit scary, and it should be! It needs the best kind of quick and broadly based diagnostic thought and action. Yet, regardless of where the emergency is treated—even in the best equipped and trained units—some patients will die. This is always a very bad time for all who have worked so hard to pull a youngster through. Recriminations between parents and relatives abound.

Among the members of the health care team, there are similar frustrations, anger, and sorrow, and the temptation to scapegoat somebody must be avoided at all costs. It is best to lock the door, pick up, clean the dead child, and have the last provisional rites of baptism administered to a Catholic child.* Important too is taking a few minutes to calm down before talking to the parents in a quiet place and with plenty of time.

*Note that any person of any faith can administer provisional last rites: "I baptize you in the name of the Father, the Son, and the Holy Spirit. Amen."

The response to "I am sorry we lost your baby" is often disbelief. Properly run emergency departments will already have seen that a supportive relative or a minister is in the waiting room. Relatives usually want to see the child, and they will remember these next moments forever.

Then follows the time of questioning. It is simply bad medicine to blame anyone, tempting though it may be. It is useless to tell a mother that she should have brought in the child 2 hours earlier or that the child's regular doctor should have diagnosed the problem better and sooner, even though that may be true. A devastated family needs compassion and support, wherever it can be found. In my experience, when families have been treated with respect and kindness, permission for diagnostic autopsies is routinely given.

The field of emergency care is continuing to expand rapidly and well. Recent technical advances have made for better survival rates, and greater understanding of physiology has led to new and better medications. Thus emergency medicine has become a new and highly sophisticated specialty. Yet all physicians are expected to perform basic life-support procedures in any setting and, sometimes, without any help or tools.

This book addresses the field of pediatric emergencies in a comprehensive and readily accessible format, focusing on information that is immediately required. It contains these priority items, as well as those many conditions that permit more thought and time. It prepares the conscientious physician, resident, student, and other members of the team to overcome and thus lessen the anxiety that signifies a good conscience while capably performing all that is needed in an outwardly calm manner. In this field, experience allows rapid growth in building the confidence that management will be proficient.

I shall always trust and admire the competent, yet honestly frightened, practitioner.

The late **C. Henry Kempe, M.D.** (1922-1984)

Former Professor of Pediatrics and Microbiology, University of Colorado Health Sciences Center, Denver, Colorado

Preface

The emergently ill child presents the clinician with a necessity for immediate action. Access to a broad range of diagnostic and therapeutic data is needed before making clinical judgments. This book deals with that need and has evolved over many years of practicing pediatrics and emergency medicine. Representing the combined efforts of pediatricians and emergency medicine physicians, it is designed to bring together in an accessible outline format that which is immediately required for the care of the acutely ill child by the health care provider, whether that individual be pediatrician, emergency physician, family practitioner, nurse practitioner, or student of medicine. *Emergency Pediatrics* is a resource for the clinician to consult, analyze, alter, and add to as experience dictates but certainly not to leave on the bookshelf for leisure reading.

Although the basic organization of the book remains unchanged, this second edition incorporates many of the suggestions of readers and reflects the rapid expansion of available pharmacologic agents. Furthermore, the scope of treatment has expanded as emergency departments increasingly become community clinics for children in many settings; the new material accounts for these factors. In updating this book and expanding its coverage, we hope to be even more responsive to those in the "front lines."

The initial sections emphasize both nontraumatic and traumatic conditions that are life threatening, presenting strategies and diagnostic considerations crucial to stabilization. Resuscitation of the newborn and the young child are prominently covered.

To provide a consistent approach to the patient, information throughout this book is structured into diagnostic categories. Alphabetic order is maintained when appropriate. Differentials are encompassed within the mnemonic categories of *i*nfection/*i*nflammation, *n*eoplasms, *d*egenerative/*d*eficiency, *i*ntoxication, *c*ongenital, *a*utoimmune/*a*llergy, *t*rauma, *i*ntrapsychic, *v*ascular, and *e*ndocrine (INDICATIVE). Extensive use of tables throughout the book facilitates access to material. In these tables, commonly encountered conditions are set in boldface type for ease of identification.

The latter part of the book, which focuses on diagnostic entities, is organized as a systems approach to provide a comprehensive resource for diagnostic and management data on the vast majority of children's problems seen at any ambulatory facility. Specific attention is given to parental education to encourage appropriate follow-up, counseling, and preventive medicine. Whenever possible, instructions should be given to the individual responsible for providing ongoing care and observation. For easy access, parental instruction sheets are included both as an Appendix and in the relevant sections of the text. Other Appendixes consist of procedures, reference standards, and a formulary. All are intended to expedite patient care and provide a data base for the "competent, yet honestly frightened, practitioner."

Children present a unique challenge and a rare opportunity to the health care professional. Medical and traumatic illnesses tend to progress rapidly in the pediatric patient, but the vast majority are treatable with appropriate and timely

health care and may be expected to leave the child without sequelae and with a full life ahead.

The child is often frightened, and the history may be obtainable only from parents. Further, the history rarely provides specific data on which to focus a diagnostic and therapeutic plan. Frustrations often are encountered in gaining cooperation during the course of a physical examination or necessary tests and procedures.

The clinician's anxiety is often greater if experience with children is limited, and the threat to life is often viewed as more significant. The purpose of this book is to assist the clinician in synthesizing the many data sources and reaching a good clinical judgment. Perhaps more than in any other area of medicine, when the data base conflicts with the clinical assessment, the clinician must go with judgment and gestalt. For those who lack confidence, it is easy to endow laboratory numbers with infallibility and ignore pertinent clinical findings.

Children's dependency on their familial environment compels the practitioner to be particularly sensitive to the concerns, fears, anxieties, and grief of families whose youngsters are experiencing major illness. Children are constantly looking for support from parents, who simultaneously are seeking small reassurances from a child, such as an infrequent smile or nod. This dependency is exaggerated during illness and must be recognized. It requires careful nurturing and support in moments of stress because, on occasion, these relationships break down.

Emergency Pediatrics is designed to help clinicians who care for children combine experience, reason, and an appropriate data base in making better clinical judgments. This synthesis must form the basis for our care for children.

Roger M. Barkin
Peter Rosen

Acknowledgments

A book such as this is the product of the medical, nursing, and administrative staffs of the many great institutions in which we have had the pleasure to serve in the last two decades. It must necessarily be the synthesis of many individuals' knowledge, experience, concerns, and sensitivities toward patient care in general and the child in particular.

We are grateful to the members of the Departments of Pediatrics and Surgery at the University of Colorado Health Sciences Center and the Department of Emergency Medical Services of the Denver Department of Health and Hospitals for their ongoing support during the development of this book. Beyond the numerous authors who have generously contributed chapters, special thanks go to Drs. Allen Adenoff, John Brooks, Henry Cooper, Alden Harken, Ronald Gotlin, Arnold Silverman, and William Weston. Marjorie Leggitt did the superb illustrations.

Karen Berger, Ellen Baker Geisel, and Sylvia Kluth's unending support and frequent reminders and hints made our effort a pleasure throughout the process of conception to completion.

We would like also to thank our readers, who we hope will take this book with them to the front lines and use it with expertise and confidence in the care of the pediatric patients to whom all our efforts are dedicated.

NOTE: The indications for and dosages of medications recommended conform to practices at the present time. References to specific products are incorporated to serve only as guidelines; they are not meant to exclude a practitioner's choice of other, comparable drugs. Many oral medications may be given with more scheduling flexibility than implied by the specific time intervals noted. Individual drug sensitivity and allergies must be considered in drug selection. Adult doses are provided as a gauge of the maximum dose commonly used.

Every attempt has been made to ensure accuracy and appropriateness. New investigations and broader experience may alter present dosage schedules, and it is recommended that the package insert for each drug be consulted before administration. Often there is limited experience with established drugs for neonates and young children. Furthermore, new drugs may be introduced, and indications for use may change. This rapid evolution is particularly noticeable in the use of antibiotics and cardiopulmonary resuscitation. The clinician is encouraged to maintain expertise concerning appropriate medications for specific conditions.

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