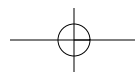
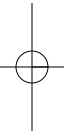
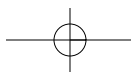
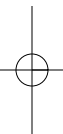
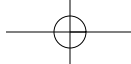


Safe and Effective Medication Use in the Emergency Department





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Dedication

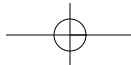
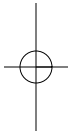
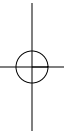
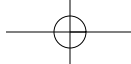
To my wife, Samantha, who has provided me with insurmountable love, support, and confidence to complete this work.

To my father Jacobo, mother Esther and sister Diane, who have always encouraged me.

To my brother Henry, a mentor and role model, who proved to me that I can overcome all barriers.

To Grandpa Max, who in his dying days still asked, "Did you finish the book yet?"

To pharmacists, emergency medicine physicians, nurses, patient care technicians, and all other emergency department staff who work as a team to sacrifice their lives to save others without daily acknowledgements, you are all blessed.



viii Contents

| | | | |
|--|------------|---|-----|
| PART V Appendices | 211 | | |
| Appendix A: Policies and Procedures | 213 | | |
| Policy and Procedure for Monitoring Medications and Supplies for Emergency Response | 213 | | |
| Policy and Procedure for Code Team and PharmD Role | 214 | | |
| Policy and Procedure for Acute Stroke | 216 | | |
| Policy and Procedure for the Treatment of Thrombolytic for Acute Myocardial Infarction (AMI) | 218 | | |
| Appendix B: Dosing Guides and Tables | 221 | | |
| Adult ED Acute Area Medication Floor Stock Par Level List | 222 | | |
| Acute Care Area Medication Floor Stock List for Refrigerated Medications | 223 | | |
| Acute Care Area Controlled Drug Floor Stock List | 224 | | |
| Resuscitation Care Area Medication Floor Stock List | 224 | | |
| Resuscitation Care Area Controlled Drug Floor Stock List | 226 | | |
| | | Pediatric ED Controlled Drug Floor Stock List | 227 |
| | | Clinical Steps for Safe Antidote Ordering and Delivery Process in the ED | 228 |
| | | Bioterrorism Monthly Inventory List | 233 |
| | | Antidotes for Chemical Agents | 234 |
| | | Radiologic and Nuclear Antidotes Monthly Inventory List | 235 |
| | | Pandemic Influenza Preparedness | 237 |
| | | Chronic Care Medications for Natural Disasters | 239 |
| | | Appendix C: Educational Outcomes, Goals, and Objectives for Emergency Medicine | 246 |
| | | Educational Outcomes, Goals, and Objectives for Postgraduate Year Two (PGY2) Pharmacy Residencies in Emergency Medicine | 246 |
| | | Index | 255 |

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PREFACE

As a pharmacy intern at Northeastern University during my undergraduate years of pharmacy school, I recall the day I was on Coronary Care Unit rounds at Massachusetts General Hospital, not sure of my role and wishing at the time that there was someone to tell me what to do. The pharmacy preceptor visited and showed me all the problems that the team had just created and that I failed to fix. During my endocrine rotation at St. Johns University, I witnessed an endocrinology specialist, an expert I hoped to resemble, who helped couples become pregnant with hormone therapy through an understanding of pharmacology. It was during my Toxicology rotations of my post-baccalaureate PharmD (at that time PharmD was a two-year post graduate requirement) when I discovered my interest—toxicology. It was so fascinating and the practitioners at the New York City Poison Control Center were great mentors with this relentless pursuit for knowledge of pharmacology and toxicology. Despite this, I still felt peripheral to the care of the patient. One day, during my rotation at Mary Imogene Bassett Hospital in Cooperstown, I witnessed a code and saw everyone running toward the bedside; I was excited and intensely focused but was upset that I did not have the skills to respond or assist in saving the patient's life. I remember requesting to initiate an emergency medicine rotation at Miami VA Healthcare System where I was completing my first year of residency training. I recall running with the medical team toward the front of the medical center where a patient was just dropped off by his friend; the patient appeared unresponsive and in respiratory distress after injecting heroin. The nurses were not sure what to do; I suggested to the physician to try naloxone. Even with the chaos that this event created, I knew I was hooked.

Despite having a good knowledge base in toxicology, I needed more knowledge on how to respond during an emergency, and it was not until I began my second year of postgraduate training at Robert Wood Johnson University Hospital where I witnessed what the expectation for a pharmacist is within an emergency department. I recall my first days responding to a Trauma code, gowning up, assisting with delivery of a patient to the CT scanner, or being paged for a pediatric code that the ICU physician would not start until the pharmacy team was present to disperse medications.

These experiences developed my passion for emergency medicine and the perseverance to understand the role of a pharmacist. At that time, there were few clinical pharmacy jobs available within the ED setting so I compromised and took an academic position with the intent to establish and foster an emergency medicine pharmacy practice service.

Since then, I have worked over ten years with numerous physicians and nurses in a multidisciplinary manner to ensure optimal use of medications. First, we used a paper system, and then we transformed the system into an electronic one. Over the years, as a result of these experiences, I have been asked “what do you do as a pharmacist in the emergency department?” or “what value do you bring?” I have been questioned how to solve this problem clinically and operationally. Furthermore, when pharmacy issues arise, I am a catalyst for change and implementation through education and communication, which are often lacking within healthcare institutions due to politics and economics. With this journey in mind and the current exposure given to the ED due to the recent Institute of Medicine report, it was time to shed light on what I have experienced.

Safe and Effective Medication Use in the Emergency Department is intended to serve several purposes. First, this book is an introductory text for allied health care professional students, residents, and practitioners of all disciplines because it serves as a resource to explaining the emergency department, its history, its essential role in healthcare, circumstances that have overwhelmed this resource, and the inherent risks associated with an overloaded system. Second, this book is intended for undergraduate and postgraduate PharmD students, first-year pharmacy practice residents who may be doing an elective clerkship in emergency medicine as part of their advanced practice pharmacy experiences, and second-year postgraduate pharmacy residents who have developed an interest for this area of specialization. This text provides instruction on the role of pharmacists, pharmacist activities in the emergency department, and how to blend into the chaos of the department. Most importantly, this book instructs on how to respond during emergency care.

Safe and Effective Medication Use in the Emergency Department can serve as a primer to pharmacist practitioners who either want to establish a clinical pharmacy services in the ED, plan to establish one, or have been re-deployed and are tasked to provide services to the ED. This text provides practitioners with answers to what are the contextual elements of emergency medicine clinical pharmacy services, and how to implement sustainable services. Fourth, this text can serve as a primer to administrators, quality assurance experts, and regulatory groups as a means to understanding the impact on various regulations and the strides that healthcare systems have to go through to achieve these goals. This text may also be used by educators in all fields of medicine to illustrate patient safety issues and the interconnectedness of all disciplines and their processes;

xii Preface

communication is the most essential component to ensure a safe medication use system.

Safe and Effective Medication Use in the Emergency Department serves as an entry into the world of emergency medicine pharmacotherapy; the fusion of experience of current practice and evidence-based pharmacotherapy can foster a research agenda in emergency medicine pharmacotherapy. There is no current text that describes the specific issues associated with emergency medicine pharmacotherapy within the ED. This text may help improve deployment of technology into the ED or show how to modify technology to achieve regulatory goals and assure better continuity. This text was also intended for the medical director and nursing director of emergency departments to identify how they may deploy pharmacy to be advantageous to the overall clinical operations of the ED. We describe pharmacy leadership and management and introduce the PharmER pyramid model as a means to establishing a sustainable clinical pharmacy service that achieves The Joint Commission's Medication Management Standards. The PharmER pyramid acts as building blocks or the establishment of structure within the ED, which if implemented, can help evaluate processes or measure outcomes. This text also covers how best to respond to public health emergencies and explains current issues associated with care of specific patient populations (geriatric, obstetric, and pediatric).

This book is a fusion of evidence from the literature, and when there was no evidence, we provided our experience or that of those who have successfully implemented activities and wrote of their observations. Published peer-reviewed data from pharmacy, pharmacotherapy, emergency medicine, public health, toxicology, critical care, infectious

diseases, quality assurance, and medication safety were used to compile this book. We visited other EDs, and my research included observing the needs of pharmacists by attending numerous ED-pharmacy conferences.

I acknowledge those days at Robert Wood Johnson University hospital where I participated in trauma codes on a daily basis. I acknowledge the healthcare staff of the pharmacy department and ED at Maimonides who provided me with countless opportunities to improve the process of care; the pharmacy interns, some would complain about not knowing what to do, some cried over what they saw in the ED, and some excelled in the ED; and the PGY-1 and PGY-2 residents who have helped me sustain this service. The physicians, nurses, and research teams of the ED who request my assistance at times, guided me, and accepted my specialty skills as an advantage to use and apply for the better good of the patient. Ultimately, this book was written to improve direct patient care in the ED, and I acknowledge each patient who I see suffering and who I seek to help quickly and efficiently.

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