



10th EDITION UPDATE

EMERGENCY BRADY Care



**MEETS
2005
AHA
GUIDELINES**



CD-ROM INCLUDED

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BRADY

10TH EDITION Update

Emergency Care

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Student aid.ed.gov, the U.S. Department of Education's website on college planning assistance, is a valuable tool for anyone intending to pursue higher education. Designed to help students at all stages of schooling, including international students, returning students, and parents, it is a guide to the financial aid process. The website presents information on applying to and attending college as well as on funding your education and repaying loans. It also provides links to useful resources, such as state education agency contact information, assistance in filling out financial aid forms, and an introduction to various forms of student aid.

NOTICE ON CARE PROCEDURES

It is the intent of the authors and publisher that this textbook be used as part of a formal EMT-Basic education program taught by qualified instructors and supervised by a licensed physician. The procedures described in this textbook are based upon consultation with EMT and medical authorities. The authors and publisher have taken care to make certain that these procedures reflect currently accepted clinical practice; however, they cannot be considered absolute recommendations.

The material in this textbook contains the most current information available at the time of publication. However, federal, state, and local guidelines concerning clinical practices, including, without limitation, those governing infection control and universal precautions, change rapidly. The reader should note, therefore, that the new regulations may require changes in some procedures.

It is the responsibility of the reader to familiarize himself or herself with the policies and procedures set by federal, state, and local agencies as well as the institution or agency where the reader is employed. The authors and the publisher of this textbook and the supplements written to accompany it disclaim any liability, loss, or risk resulting directly or indirectly from the suggested procedures and theory, from any undetected errors, or from the reader's misunderstanding of the text. It is the reader's responsibility to stay informed of any new changes or recommendations made by any federal, state, or local agency as well as by his or her employing institution or agency.

NOTICE ON GENDER USAGE

The English language has historically given preference to the male gender. Among many words, the pronouns "he" and "his" are commonly used to describe both genders. Society evolves faster than language, and the male pronouns still predominate in our speech. The authors have made great effort to treat the two genders equally, recognizing that a significant percentage of EMTs are female. However, in some instances, male pronouns may be used to describe both males and females solely for the purpose of brevity. This is not intended to offend any readers of the female gender.

NOTICE RE "STREET SCENES" AND "SCENARIOS"

The names used and situations depicted in the Street Scenes and Scenarios throughout this text are fictitious.

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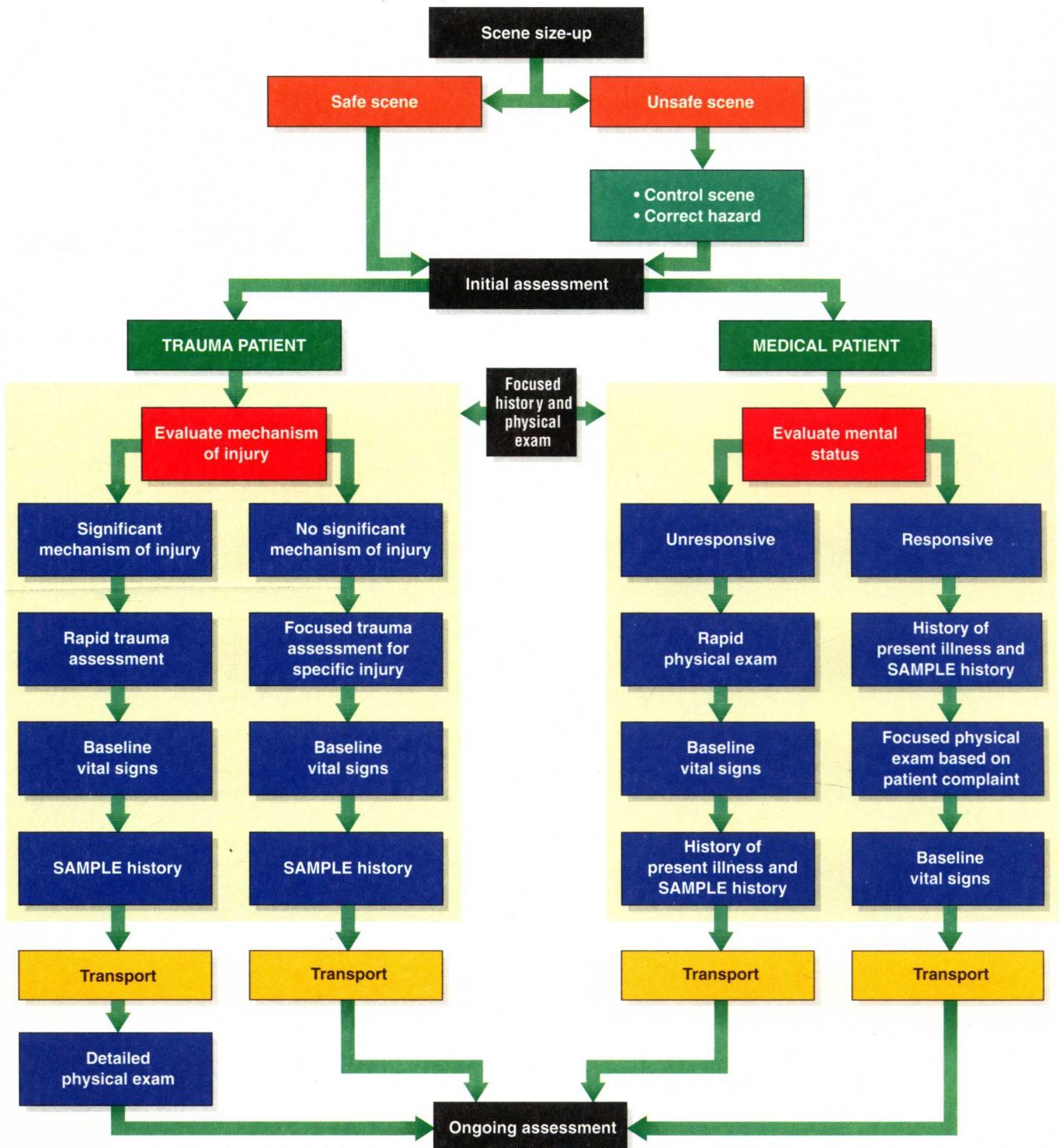
The authors and the publisher of this book have taken care to make certain that the equipment, doses of drugs, and schedules of treatment are correct and compatible with the standards generally accepted at the time of publication. Nevertheless, as new information becomes available, changes in treatment and in the use of equipment and drugs become necessary. The reader is advised to carefully consult the instruction and information material included in the page insert of each drug or therapeutic agent, piece of equipment, or device before administration. This advice is especially important when using new or infrequently used drugs. Prehospital care providers are warned that use of any drugs or techniques must be authorized by their medical director, in accord with local laws and regulations. The publisher disclaims any liability, loss, injury, or damage incurred as a consequence, directly or indirectly, of the use and application of any of the contents of this book.

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PATIENT ASSESSMENT



BRADY

10TH EDITION Update

Emergency Care



To Stephanie, Sarah Katherine, and Theo for their support of me in these and other projects. For listening to the same old jokes and laughing, for understanding my passion for EMS, and most importantly for making me feel like home is the best place in the whole world.

D.L.

To my parents, Mike and Noreen, my first and best teachers.

M.O'K.

To Debbie, Stephen, and Alex for their endless love and extraordinary patience throughout this and many other projects.

E.T.D.

NATIONAL EMS MEMORIAL



The National EMS Memorial is the federally designated memorial to honor emergency medical services personnel who have died in the line of duty. The memorial, located at the To the Rescue Museum in Roanoke, Virginia, serves to ensure that all are recognized for the ultimate sacrifice they made for fellow human beings. The names of those who have been honored are permanently engraved on bronze oak leaves as a part of a "Tree of Life." The oak leaf is universally accepted as a symbol of strength, valor, and solid character. A memorial book contains each honoree's biography and photograph.

The National EMS Memorial Service is held in Roanoke, Virginia, on the Saturday prior to Memorial Day. The service began in 1993 and is held annually. Various events occur on that weekend whereby the inductees and their families are honored. The service is a reverent and emotional tribute to those who gave their lives so others may live. During the service, a family member or agency representative is presented with a U.S. flag denoting the honoree's service to our country, a white rose representing undying love, and an engraved medallion signifying eternal memory.

BRADY

IT'S ABOUT PEOPLE

Dear Student:

Thank you for purchasing Brady's *Emergency Care* EMT-B textbook. This text program has been on the market for more than 30 years and has proudly served generations of EMT-B students. We take great pride in the book you have before you now. The 10th Edition Update continues the tradition of a highly understandable, technically accurate book that presents up-to-date medical information.

Your book is written by real people who have over 75 years of combined EMS experience. Dan Limmer became an EMT-B in 1980 and a paramedic in 1981. He actively practices as a paramedic and teaches EMT-B and paramedic courses. Mike O'Keefe is the EMS Training Coordinator for the State of Vermont. He is a paramedic and served as a member of the committee that created the original curriculum EMT training is today based on. Medical Editor Ed Dickinson is an emergency physician with a solid background of EMS field experience. Ed began his career in medicine as an EMT-paramedic prior to medical school. He has extensive experience in the fire service and has received the prestigious Firehouse Magazine Award for Heroism. He is active as a fire company and paramedic service medical director.

We believe that actual practicing authors are critical for a book to provide a practical, street-wise presentation. You want to pass the exam—but you also want to be prepared for the street. *Emergency Care* is the book that provides both.

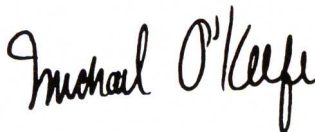
Our experience has given us perspective in other areas as well. EMS has been a wonderful experience for us all. Every profession has ups and downs, heartache and triumph. EMS is no different. Patients will be saved, but some patients will be lost. Some calls will be exciting; many will not. What stands out among this mix of calls and patients is that the rewards of EMS are many for those who embrace it. There are lifelong friends with common interests to be made and the ability to affect many people positively, in both large and small ways.

In short, EMS is about people. Welcome. Be safe. Have fun. We wish you well in your education and in the practice of EMS.

Sincerely,



Daniel Limmer



Michael O'Keefe



Edward Dickinson

Emergency Care has set the standard for EMT-B training for over 30 years. We strive to stay current with new research and developments in emergency medical services, and this new edition is no exception. We've updated the text to meet 2005 American Heart Association guidelines for CPR and ECC, to prepare your students for testing and practice in the year 2007 and beyond.

The foundation of *Emergency Care* is the U.S. DOT 1994 EMT-Basic National Standard Curriculum; everything in the 1994 curriculum is addressed in the text. In the editions since publication of the 1994 curriculum, information has been added in response to changes in research and practice that affect the way prehospital care is delivered. *Emergency Care* 10th Edition Update is the most current reflection of EMS practice today and of what EMS systems and EMT-Basics are actually doing around the country. The caveat "follow local protocols," of course, appears frequently—whenever the equipment or practice described has been adopted in some but not all systems.

In addition, the text and the accompanying CD-ROM were developed taking into account the years of experience that the authors, with the input of countless instructors and students, have had with the DOT curriculum since its publication. The result is a proven text with outstanding readability and a level of detail that more instructors have found appropriate for their classrooms than any other.

The content of the 10th edition is summarized below, with emphasis on "what's new" in each module of this edition:

Module 1, PREPARATORY: CHAPTERS 1–5

The first module sets a framework for all the modules that follow by introducing some essential concepts, information, and skills. The EMS system and the role of the EMT-B within the system are introduced. Issues of EMT-B safety and well-being and legal and ethical issues are covered. Basic anatomy and physiology and techniques of safe lifting and moving are also included in this first module.

What's New in the Preparatory Module?

- In Chapter 2, "The Well-Being of the EMT-Basic" a new section on **emerging diseases and conditions** such as West Nile Virus and SARS.
- In Chapter 3, "Medical/Legal and Ethical Issues," a section on the confidentiality provisions of the new **HIPAA privacy rules**.

- In Chapter 5, "Lifting and Moving Patients," the **vacuum mattress** is added as a carrying device.

Module 2, AIRWAY MANAGEMENT: Chapter 6

There is only one chapter in Module 2, but it may be considered the most important module in the text, because no patient will survive without an open airway. Basic airway management techniques that meet newly revised American Heart Association guidelines are covered in detail.

What's New in the Airway Management Module?

- In Chapter 6, "Airway Management," a new in-depth section on **inadequate breathing**—what constitutes inadequate breathing, how to assess for it, when and how to intervene.

Module 3, ASSESSMENT: CHAPTERS 7–14

The ability to perform a thorough and accurate assessment, treat for life-threatening conditions, and initiate transport to the hospital within optimum time limits are the essence of the EMT-B's job. In this module, all of the steps of the assessment and their application to different types of trauma and medical patients, plus the skills of measuring vital signs, taking a patient history, communication, and documentation, are explained and illustrated.

What's New in the Assessment Module?

- In Chapter 9, "Vital Signs and SAMPLE History," the concept of **oxygen saturation** is introduced with discussion of the use of **pulse oximetry**.
- In Chapter 14, "Documentation," further discussion of the new **HIPAA privacy rules** and how they impact documentation practices.

Module 4, MEDICAL EMERGENCIES: CHAPTERS 15–25

The Medical Emergencies module begins with a chapter on pharmacology in which the medications the EMT-B can administer or assist with under the

1994 curriculum are introduced. The module continues with chapters on respiratory, cardiac, abdominal, diabetic, allergy, poisoning and overdose, environmental, behavioral, and obstetric/gynecological emergencies. It ends with a new chapter on caring for patients with multiple medical complaints.

What's New in the Medical Emergencies Module?

- In Chapter 16, "Respiratory Emergencies":
 - **pulse oximetry** (introduced in Chapter 9) included in respiratory assessment
 - A new "FYI" section on **assessment of lung sounds**
 - A new "FYI" section on **small-volume nebulizers**
- In Chapter 17, "Cardiac Emergencies":
 - Transport decisions re **hospitals with "clot-buster" and angioplasty capabilities**
 - **Aspirin** administration for suspected cardiac compromise
 - Advantages of **biphasic AEDs**
 - New AHA **pediatric AED use** guidelines
 - New AHA **guidelines for CPR and ECC**
- **Chapter 18, "Acute Abdominal Emergencies" is a new chapter** in this edition.
- In Chapter 19, "Diabetic Emergencies and Altered Mental Status":
 - Use of **blood glucose meters**
 - New emphasis on **"time is of the essence" for suspected stroke**
 - New section on **dizziness and syncope**
- In Chapter 24, "Obstetric and Gynecological Emergencies," the **APGAR score** for assessment of the newborn has been included, as well as new AHA **guidelines for CPR and ECC**.

Module 5, TRAUMA: CHAPTERS 26–30

The Trauma module begins with a chapter on bleeding and shock; continues with chapters on soft-tissue injuries, musculoskeletal injuries, and injuries to the head and spine; and ends with a new chapter on caring for multiple-trauma patients.

What's New in the Trauma Module?

- In Chapter 26, "Bleeding and Shock," a new photo essay details the **progression of shock** and **how the EMT-Basic can detect the presence and stage of shock during assessment**.

- In Chapter 28, "Musculoskeletal Injuries":
 - The **vacuum splint** is introduced
 - The **pelvic wrap** is introduced
- In Chapter 29, "Injuries to the Head and Spine," **selective spine immobilization** protocols are discussed.
- In Chapter 30, "Putting It All Together for the Trauma Patient," a new "FYI" section on **Trauma Scoring** has been added.

Module 6, YOUNGER AND OLDER PATIENTS: CHAPTERS 31–32

The difference between treating adult patients, pediatric patients, and geriatric patients often lies in understanding the physical and psychological differences in infants and children compared to adults and older adults. This module explores special aspects of pediatric and geriatric care as well as medical conditions and injury patterns that are especially common to or critical for infants, children, and older adults. New AHA guidelines for CPR and ECC are included.

What's New in the Younger and Older Patients Module?

- In Chapter 31, "Infants and Children," the **pediatric assessment triangle** is introduced.
- **Chapter 32, "Geriatric Patients" is a new chapter** in this edition.

Module 7, OPERATIONS: CHAPTERS 33–36

This module deals with nonmedical operations and special situations, including ambulance operations, motor-vehicle collision rescues, and multiple-casualty and hazardous materials incidents. A new chapter has been added on EMS response to terrorism.

What's New in the Operations Module?

- In Chapter 34, "Gaining Access and Rescue":
 - A new section on **Choosing the Correct Level of Protection**
 - New photo scans detail the **latest methods of vehicle stabilization**
- In Chapter 35, "Special Operations":
 - A revised section on establishing a treatment sector includes **new information on decontamination**.
 - The **START triage system** is now included.
- **Chapter 36, "EMS Response to Terrorism" is a new chapter** in this edition.

Module 8, ADVANCED AIRWAY MANAGEMENT (ELECTIVE): CHAPTER 37

In some states and regions, EMT-Bs will be trained to perform invasive airway management procedures, including orotracheal intubation and, in children, nasogastric intubation. Module 8 is included as an elective to cover these advanced airway management skills.

What's New in the Advanced Airway Module?

- In Chapter 37, "Advanced Airway Management," the **laryngeal mask airway (LMA)** is introduced.

Appendices and BCLS Review

There are three appendices to this textbook, covering advanced life support assist skills and the National Registry of Emergency Medical Technicians skill sheets as well as a review of the basic cardiac life support course, which is a prerequisite to the EMT-Basic course.

What's New in the Appendices?

- In Appendix A, "ALS Assist Skills," **CPAP and BiPAP** respiratory equipment are introduced.
- In Appendix B, "National Registry Skill Sheets" the **latest skill sheets from the National Registry of EMTs** are included.

- In Appendix C, "BCLS Review," a new section on working with **laypersons who are performing CPR when you arrive**. New AHA guidelines for CPR and ECC are included.

Our Goal: Improving Future Training and Education

Some of the best ideas for better training and education methods come from instructors who can tell us what areas of study caused their students the most trouble. Other sound ideas come from practicing EMT-Bs who let us know what problems they faced in the field. We welcome any of your suggestions. If you are an EMS instructor who has an idea on how to improve this book, the companion CD, the Companion Website, or EMT-Basic training in general, please write to us at:

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If you experience a problem with the companion CD, please write to technical support at media.support@pearsoned.com or call 800-677-6337.

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Andrew Stern spent a considerable amount of time creating realistic “Street Scenes” and, with the aid of Hugh Skerker, documentation examples for you to learn from. Michael Grill, NREMT-P and educator, Sierra Vista (AZ) Fire Department, also contributed to our “Street Scenes.”

Word on the Street Contributors

We also thank everyone who shared experiences in the “Word on the Street” feature. Their stories highlight that EMS is about people.

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Ogunquit Fire Rescue

Christopher Brassard, EMT-I; Shannon Bridges, EMT-I; David Moore, EMT-I; Bob Munson, NREMT-P; Doug Patey, EMT-P; Ed Smith FF; Andrew Weisgarber, NREMT-P

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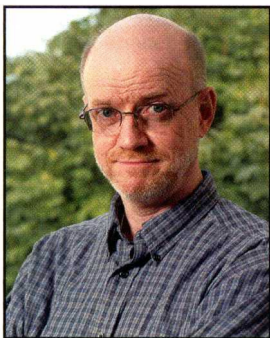
Dan Limmer, EMT-P, has been involved in EMS for over 25 years. He remains active as a paramedic with Kennebunk Fire Rescue in Kennebunk, Maine, and the Kennebunkport EMS (KEMS) in Kennebunkport, Maine. A passionate educator, Dan teaches EMT

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Dan was formerly involved in law enforcement, beginning as a dispatcher and retiring as a police officer in Colonie, New York, where he received three command recognition awards as well as the distinguished service award (Officer of the Year) in 1987. During his 20-year law enforcement career he served in the communications, patrol, juvenile, narcotics, and training units.

In addition to authoring several EMS journal articles, Dan is co-author of a number of EMS textbooks for Brady including *First Responder: A Skills Approach*, *Essentials of Emergency Care*, *Advanced Medical Life Support*, the military and fire service editions of *Emergency Care*, and others. He speaks frequently at regional, state, and national EMS conferences.

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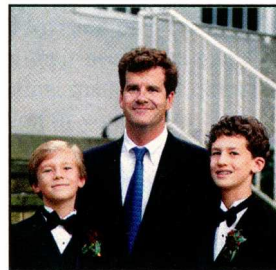
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Mike was chosen to participate in the development of all four U.S. Department

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Dr. Dickinson began his career in emergency services in 1979 as a firefighter-EMT in upstate New York. He has remained active in fire service and EMS for the past 25 years. He frequently rides with EMS units and has maintained his certification as a National Registry EMT-Paramedic.

He has served as medical editor for numerous Brady EMT-B and First Responder texts and is the author of *Fire Service Emergency Care* and co-author of *Emergency Care, Fire Service Edition*, and *Emergency Incident Rehabilitation*. He is co-editor of *ALS Case Studies in Emergency Care*.