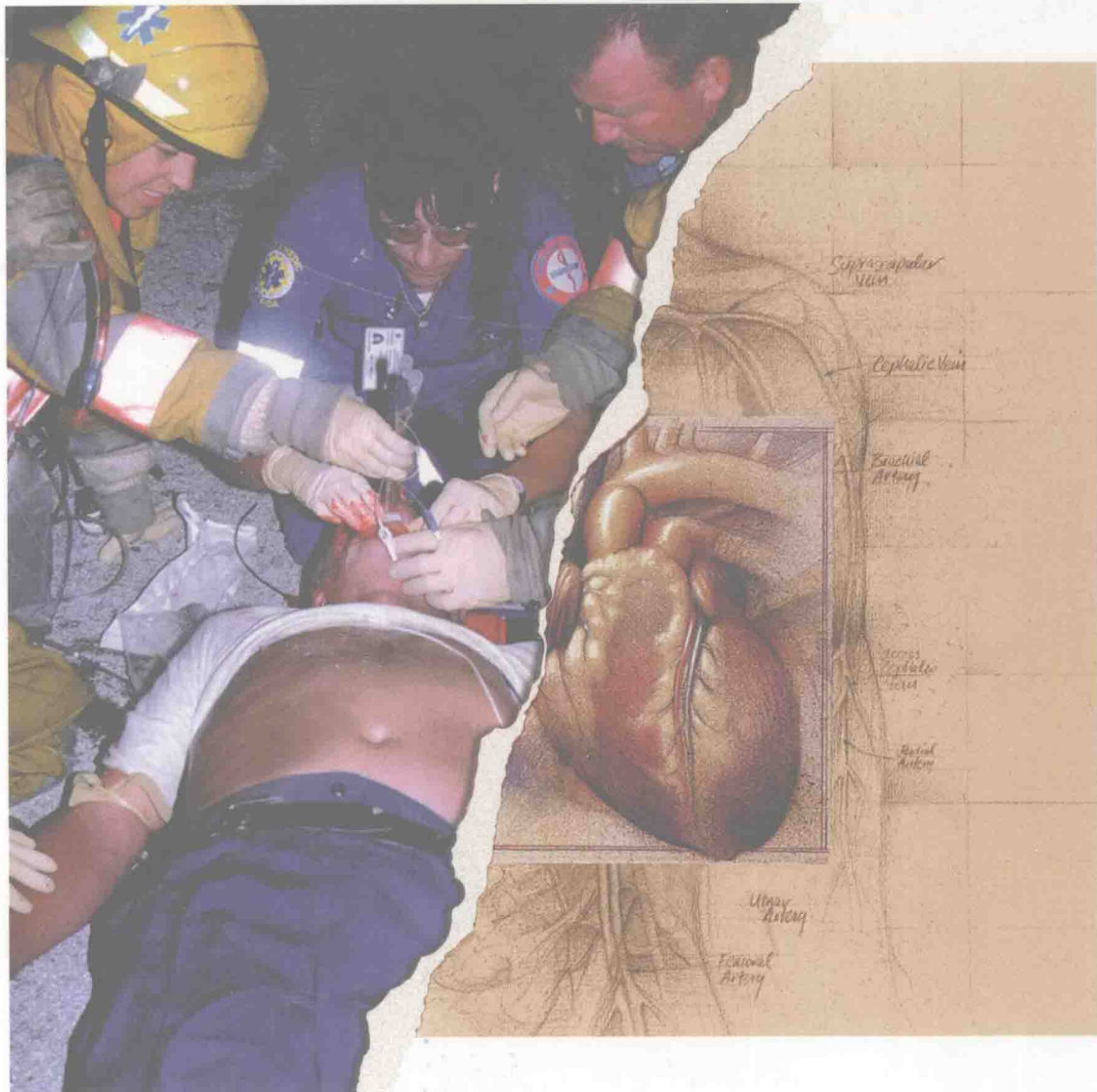


BRADY

PARAMEDIC CARE: PRINCIPLES & PRACTICE

PATIENT ASSESSMENT



BLED SOE • PORTER • CHERRY

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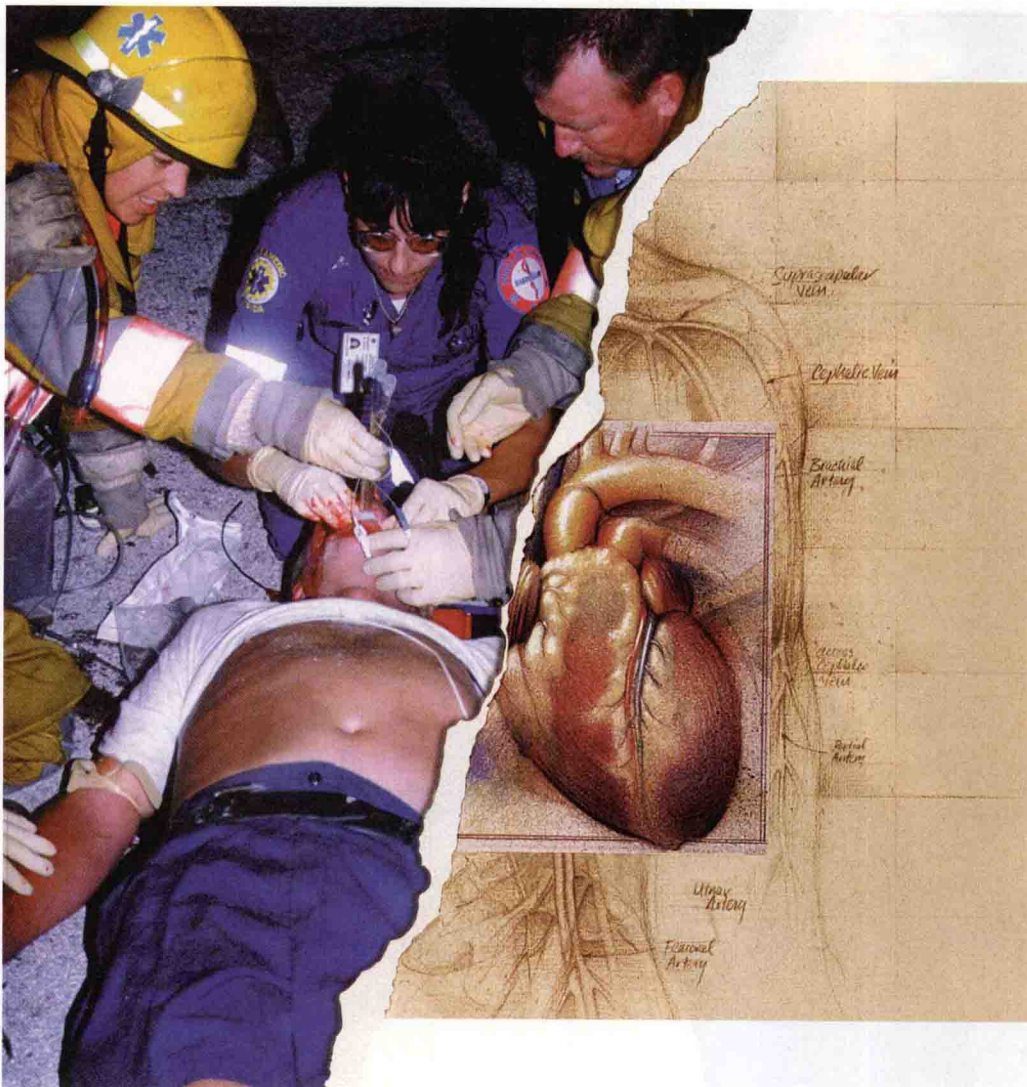
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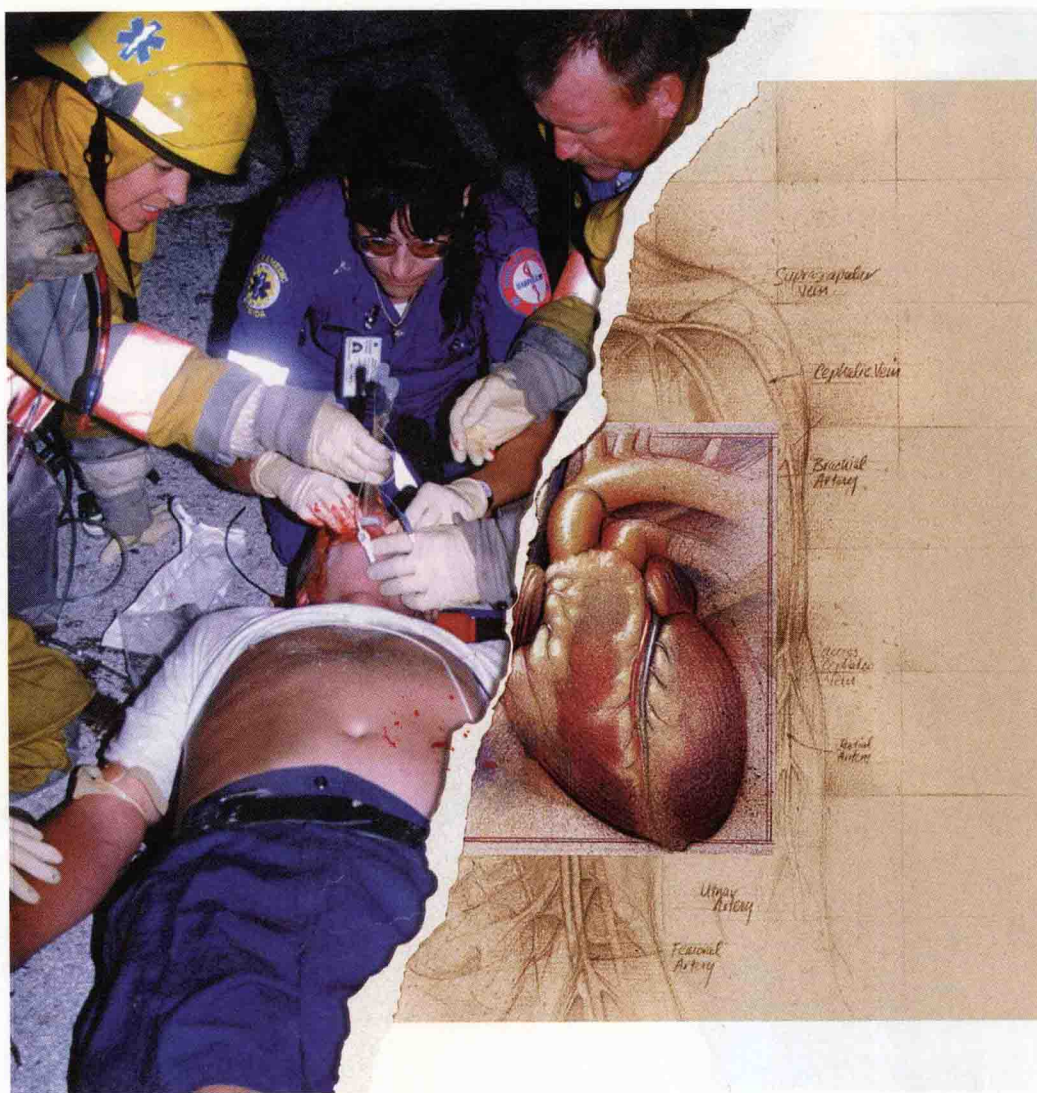
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SPECIAL NOTES

This book is respectfully dedicated to the EMTs and paramedics who toil each day in an environment that is unpredictable, often dangerous, and constantly changing. They risk their lives to aid the sick and the injured, driven only by their love of humanity and their devotion to this profession we call emergency medical services.

B.E.B.

To those who answer the call to care on cold, dark, and rainy nights.

R.S.P.

"At one time or another in everyone's lives the inner fire goes out. Then it is burst into flame by an encounter with another human being." Rudyard Kipling just described what my wife Sue has meant to me.

R.A.C.

Series Preface

Congratulations on your decision to further your EMS career by undertaking the course of education required for certification as an Emergency Medical Technician-Paramedic! The world of paramedic emergency care is one that you will find both challenging and rewarding. Whether you will be working as a volunteer or paid paramedic, you will find the field of advanced prehospital care very interesting.

This textbook will serve as your guide and reference to advanced out-of-hospital care. It is based upon the 1998 United States Department of Transportation EMT-Paramedic National Standard Curriculum and is divided into five volumes. The first volume is entitled *Introduction to Advanced Prehospital Care* and addresses the fundamentals of paramedic practice, including pathophysiology, pharmacology, medication administration and advanced airway management. The second volume, *Patient Assessment*, builds on the assessment skills of the basic EMT with special emphasis on advanced patient assessment at the scene. The third volume of the series, *Medical Emergencies*, is the most extensive and addresses paramedic level care of medical emergencies. Particular emphasis is placed upon the most common medical problems; respiratory and cardiovascular emergencies. *Trauma Emergencies*, the fourth volume of the text, discusses advanced prehospital care from the mechanism of injury analysis to shock/trauma resuscitation. The last volume in the series addresses *Special Considerations/Operations* including neonatal, pediatric, geriatric, home health care, and specially challenged patients, and incident command, ambulance service, rescue, hazardous material, and crime scene operations. These five volumes will help prepare you for the challenges of prehospital care.

SKILLS

The psychomotor skills of fluid and medication administration, advanced airway care, ECG monitoring and defibrillation, and advanced medical and trauma patient care are best learned in the classroom, skills laboratory, and then the clinical and field setting. Common advanced prehospital skills are discussed in the text as well as outlined in the accompanying procedure sheets. Review these before and while practicing the skill. It is important to point out that this or any other text cannot teach skills. Care skills are only learned under the watchful eye of a paramedic instructor and perfected during your clinical and field internship.

HOW TO USE THIS TEXTBOOK

Paramedic Care: Principles & Practice is designed to accompany a paramedic education program that follows the 1998 United States Department of Transportation *Emergency Medical Technician-Paramedic: National Standard Curriculum*. The education program should include ample classroom, practical laboratory, in-hospital clinical, and prehospital field experience. These educational experiences must be guided by instructors and preceptors with special training and experience in their areas of participation in your program.

It is intended that your program coordinator will assign reading from *Paramedic Care: Principles & Practice* in preparation for each classroom lecture and discussion section. The knowledge gained from reading this text will form

the foundation of the information you will need in order to function effectively as a paramedic in your EMS system. Your instructors will build upon this information to strengthen your knowledge and understanding of advanced prehospital care so that you may apply it in your practice. The in-hospital clinical and prehospital field experiences will further refine your knowledge and skills under the watchful eyes of your preceptors.

In preparing for each classroom session, read the assigned chapter carefully. First, review the chapter objectives. They will identify important concepts to be learned from the reading. Read the Case Study to get a feeling of why a chapter is important and how the knowledge it contains can be applied in the field. Read the chapter content carefully, while keeping the chapter objectives in mind. Read the You Make the Call feature and answer the questions to assure you understand the application of the knowledge presented in the chapter. Last, re-read the chapter objectives and be sure that you are able to answer each one completely. If you cannot, reread the section of the chapter to which the objective relates. If you still do not understand the objective or any portion of what you have read, ask your instructor to explain it at your next class session.

Ideally, you should read this entire text series at least three times. The volume chapter should be read in preparation for the class session, the entire volume should be read before the division or course test, and the entire text series should be reread before the program final exam and/or certification testing. While this might seem like a lot of reading, it will improve your classroom performance, your knowledge of emergency care, and ultimately, the care you provide to emergency patients.

The workbook that accompanies this text can also assist in improving classroom performance. It contains information, sample test questions, and exercises designed to assist learning. Its use can be very helpful in identifying the important elements of paramedic education, in exercising the knowledge of prehospital care, and in helping you self-test your knowledge.

Paramedic Care: Principles & Practice presents the knowledge of emergency care in as accurate, standardized, and clear a manner as is possible. However, each EMS system is uniquely different, and it is beyond the scope of this text to address all differences. You must count heavily on your instructors, the program coordinator, and ultimately the program medical director to identify how specific emergency care procedures are applied in your system.

Preface to Volume 2, Patient Assessment

The authors of the 1998 U.S. DOT *EMT-Paramedic National Standard Curriculum* have made one thing perfectly clear. They are no longer interested in training programs that prepare technicians, or skilled tradesmen, at the paramedic level. Twenty-first century paramedics are practitioners of emergency field medicine and professional health care clinicians. The expanded curriculum provides both a broad-based medical education and a specific, intensive training program. They designed it to prepare paramedics to perform their traditional role as providers of emergency field medicine. They also have provided a much broader foundation in anatomy and physiology, patient assessment, pathophysiology of disease, and pharmacology. This dual-purpose curriculum will allow paramedics to expand their roles in the health care industry. This change in philosophy marks a new beginning for the paramedic field. *Patient Assessment* reflects that philosophy.

This book provides paramedic students with the principles of patient assessment. The first two chapters present the techniques of conducting a comprehensive history and physical exam. The remaining chapters discuss ways to integrate the techniques learned in the first two chapters to real patient situations. Like the entire curriculum, this book is both broad-based and specific.

Chapter 1 “The History” provides the basic components of a complete health history. The components include the chief complaint, the present history, the past history, the current health status, and the review of systems. It is comprehensive and not meant to be used in its entirety in emergency field situations. It also discusses how to effectively conduct an interview and use nonverbal communication skills to elicit vital information from your patients. In addition, it provides suggestions for communicating with difficult patients, hostile patients, and patients with language barriers.

Chapter 2 “Physical Exam Techniques” presents the techniques of conducting a comprehensive physical exam. Like the history, it is complete and not intended for all situations. With time and clinical experience you will learn which components of the history and physical exam are appropriate to assess and manage your particular situation. If you are hired to conduct pre-employment physical exams, you may use the history and physical exam in its entirety. If you are assessing and managing a critical patient in the field, you will select those components most appropriate for your situation. Topics in this chapter include assessing the skin; the head; the neck; the chest along with the respiratory and cardiovascular systems; the abdomen and digestive system; the extremities and musculoskeletal system; the peripheral vascular system; and how to conduct a comprehensive neurological exam. With each section is a review of the anatomy and physiology of the areas you are examining.

Chapter 3 “Patient Assessment in the Field” offers a practical approach to conducting problem-oriented history and physical exams. It deals with ways to use your new skills to assess patients in the field. With time and clinical experience, you will learn which components are appropriate for different situations. Topics include scene safety; the initial assessment; the focused history and physical exam for the following types of patients: responsive medical patient, unresponsive medical patient, trauma patient with significant mechanism of injury,

and the trauma patient with an isolated injury; the detailed physical exam, and the ongoing assessment.

Chapter 4 “Clinical Decision Making” provides the basic steps for making clinical decisions. It describes each step in detail and discusses how to think critically in emergency situations. Topics include forming a concept, interpreting the data, applying principles of emergency medicine, evaluating your treatment plan, and reflecting on your care after the emergency response. This chapter is unique to emergency medical services textbooks.

Chapter 5 “Communications” deals with verbal communication. Communication is the key component that links every phase of an EMS response and helps ensure a continuity of care. Topics include the principles of communication, communication during the different phases of an EMS response, communication technology, and giving a medical report. We have provided several examples of typical radio medical reports.

Chapter 6 “Documentation” deals with writing a Prehospital Care Report, or PCR. Topics include the use of medical terminology and abbreviations, the elements of a good report, writing the narrative, and dealing with patient refusals. Again, we have provided examples of the various narrative writing styles.

This volume, *Patient Assessment*, describes how to conduct a comprehensive history and physical exam and document your findings appropriately. It also describes how to perform a problem-oriented patient assessment on a real patient in the field, report your findings to your medical direction physician, and document the response on your PCR. It represents the philosophy of the new paramedic curriculum and helps the student prepare to meet the challenge of being a twenty-first century paramedic. Good luck!

Brady's *Paramedic Care: Principles & Practice* is a five-volume series designed to provide educational enrichment as prescribed by the 1998 U.S. DOT EMT-Paramedic National Standard Curriculum. Volume 1, *Introduction to Advanced Prehospital Care* presents the foundations of paramedic practice as well as an introduction to pathophysiology, pharmacology, medication administration, and airway management and ventilation. Volume 2, *Patient Assessment* adds the cognitive and psychomotor skills of patient assessment, communications, and documentation. This knowledge base expands as the series applies it to the medical patient in Volume 3, *Medical Emergencies* and to the trauma patient in Volume 4, *Trauma Emergencies*. Volume 5, *Special Considerations/Operations* enriches these general patient care concepts and principles with applications to special patients and circumstances we commonly see as paramedics. The product of this complete and integrated series is a set of principles of paramedic care you will be required to practice in the 21st century.

Acknowledgments

We wish to thank the following groups of people for their assistance on developing this volume of *Paramedic Care: Principles & Practice*.

DEVELOPMENT AND PRODUCTION

The task of writing, editing, reviewing, and producing a textbook the size of *Paramedic Care: Principles & Practice* is complex. Many talented people have been involved in developing and producing this new program.

First, the authors would like to acknowledge the support of Julie Alexander and Laura Edwards. Their belief in us and support of EMS has allowed us to assure that *Paramedic Care: Principles & Practice* will be in the forefront of paramedic education. Special thanks go to Sandra Breuer, who served as Project Coordinator for this new paramedic series, and John Joerschke, Development Editor for this volume. The extraordinary efforts of these exceptionally dedicated editors are deeply appreciated.

The challenges of production were in the very capable hands of Patrick Walsh and Larry Hayden, who skillfully supervised all production stages to create the final product you now hold. In developing our art and photo program we were fortunate to work with yet additional talent, leaders within their professions. Most of the staged photographs are by Michal Heron of New York City, whose commitment to excellence never falters. The new art was drafted by Rolin Graphics of Plymouth, Minnesota.

REVIEW BOARDS

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Our special thanks also to Dr. Howard A. Werman, Associate Professor, Department of Emergency Medicine, The Ohio State University College of Medicine and Public Health, Columbus, Ohio. Dr. Werman's reviews were carefully prepared, and we appreciate the thoughtful advice and keen insight he offered.

INSTRUCTOR REVIEWERS

The reviewers of *Paramedic Care: Principles & Practice* have provided many excellent suggestions and ideas for improving the text. The quality of the reviews has been outstanding, and the reviews have been a major aid in the preparation

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Dr. Bryan Bledsoe is an emergency physician with special interest in prehospital care. He received his B.S. degree from the University of Texas at Arlington and received his medical degree from the University of North Texas Health Sciences Center / Texas College of Osteopathic Medicine. He completed his internship at Texas Tech University and residency training at Scott and White Memorial Hospital / Texas A&M College of Medicine. Dr. Bledsoe is board-certified in emergency medicine and family practice. He is presently a Ph.D. candidate at Charles Sturt University at Wagga Wagga, New South Wales, Australia.

Prior to attending medical school, Dr. Bledsoe worked as an EMT, paramedic, and paramedic instructor. He completed EMT training in 1974 and paramedic training in 1976, and worked for 6 years as a field paramedic in Fort Worth, Texas. In 1979, he joined the faculty of the University of North Texas Health Sciences Center and served as coordinator of EMT and paramedic education programs at the university. Dr. Bledsoe is active in emergency medicine and serves as medical director for several EMS agencies and educational programs.

Dr. Bledsoe has authored several EMS books published by Brady including *Paramedic Emergency Care*, *Intermediate Emergency Care*, *Atlas of Paramedic Skills*, *Prehospital Emergency Pharmacology*, and *Pocket Reference for EMTs and Paramedics*. He is married to Emma Bledsoe. They have two children, Bryan and Andrea, and live in Midlothian, Texas, a suburb of Dallas. He enjoys salt-water fishing and listening to Jimmy Buffett.

ROBERT S. PORTER, M.A., NREMT-P

Robert Porter has been teaching in Emergency Medical Services for 25 years and currently serves as the Senior Advanced Life Support Educator for Madison County, New York, and as a Flight Paramedic with the Onondaga County Sheriff's Department helicopter service, AirOne. Mr. Porter is a Wisconsin native and received his Bachelor's degree in education from the University of Wisconsin. He completed his Paramedic training at Northeast Wisconsin Technical Institute in 1978 and earned a Master's Degree in Health Education at Central Michigan University in 1990.

Mr. Porter has been an EMT and EMS educator and administrator since 1973 and obtained his National Registration as an EMT-Paramedic in 1978. He has taught both basic and advanced level EMS courses in the states of Wisconsin, Michigan, Louisiana, Pennsylvania, and New York. Mr. Porter served for more than ten years as a paramedic program accreditation-site evaluator for the American Medical Association and is a past chair of the National Society of EMT Instructor/Coordinators. He has published numerous articles in EMS periodicals and has authored Brady's *Paramedic Emergency Care*, *Intermediate Emergency Care*, *Tactical Emergency Care*, and *Weapons of Mass Destruction: Emergency Care* as well as the workbooks accompanying this text, *Paramedic Emergency Care*, and *Intermediate Emergency Care*. When not writing or teaching, Mr. Porter enjoys offshore sailboat racing, historic home restoration, and listening to Dr. Bryan Bledsoe complain about the Texas heat.

RICHARD A. CHERRY, M.S., NREMT-P

Richard Cherry is Clinical Assistant Professor of Emergency Medicine and Director of Paramedic Training at SUNY Upstate Medical University in Syracuse, NY. His experience includes years of classroom teaching and emergency field work. A native of Buffalo, Mr. Cherry earned his Bachelor's degree and teaching certificate at nearby St. Bonaventure University in 1972. He taught high school for the next 10 years while he earned his Master's degree in Education from Oswego State University in 1977. He holds a permanent teaching license in New York State.

Mr. Cherry entered the emergency medical services field in 1974 with the De-Witt Volunteer Fire Department where he served his community as a firefighter and EMS provider for over 15 years. He took his first EMT course in 1977 and became an ALS provider two years later. He earned his paramedic certificate in 1985 as a member of the area's first paramedic class. He still answers emergency calls for Brewerton Ambulance.

Mr. Cherry has authored several books for Brady. Most notable is *EMT Teaching: A Common Sense Approach*. He has made presentations at many state, national, and international EMS conferences on a variety of teaching topics. In addition to his paramedic teaching, he is course director, instructor, and instructor trainer for ACLS, PALS, and PHTLS courses conducted for physicians, residents, nurses, medical students, and other house staff. He lives in Parish, New York with his wife Sue, a paramedic with Rural-Metro Medical Services, their children, and many pets.

Notices

It is the intent of the authors and publishers that this textbook be used as part of a formal paramedic education program taught by a qualified instructor and supervised by a licensed physician. The care procedures presented here represent accepted practices in the United States. They are not offered as a standard of care. Paramedic-level emergency care is to be performed only under the authority and guidance of a licensed physician. It is the reader's responsibility to know and follow local care protocols as provided by medical advisors directing the system to which he or she belongs. Also, it is the reader's responsibility to stay informed of emergency care procedure changes.

NOTICE ON DRUGS AND DRUG DOSAGES

Every effort has been made to ensure that the drug dosages presented in this textbook are in accordance with nationally accepted standards. When applicable, the dosages and routes are taken from the American Heart Association's Advanced Cardiac Life Support Guidelines. The American Medical Association's publication *Drug Evaluations*, the *Physician's Desk Reference*, and the Appleton & Lange *Health Professionals Drug Guide 2000* are followed with regard to drug dosages not covered by the American Heart Association's guidelines. It is the responsibility of the reader to be familiar with the drugs used in his or her system, as well as the dosages specified by the medical director. The drugs presented in this book should only be administered by direct order, whether verbally or through accepted standing orders, of a licensed physician.

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 paramedics and patients are female. However, in some instances, male pronouns may be used to describe both male and female paramedics and patients solely for the purpose of brevity. This is not intended to offend any readers of the female gender.

NOTICE ON PHOTOGRAPHS

Please note that many of the photographs contained in this book are taken of actual emergency situations. As such, it is possible that they may not accurately depict current, appropriate, or advisable practices of emergency medical care. They have been included for the sole purpose of giving general insight into real-life emergency settings.

NOTICE ON CASE STUDIES

The names used and situations depicted in the case studies throughout this program are fictitious.

Precautions on Bloodborne Pathogens and Infectious Diseases

Prehospital emergency personnel, like all health care workers, are at risk for exposure to bloodborne pathogens and infectious diseases. In emergency situations it is often difficult to take or enforce proper infection control measures. However, as a paramedic, you must recognize your high-risk status. Study the following information on infection control before turning to the main portion of this book.

Infection control is designed to protect emergency personnel, their families, and their patients from unnecessary exposure to communicable diseases.

Laws, regulations, and standards regarding infection control include:

- * *Centers for Disease Control (CDC) Guidelines.* The CDC has published extensive guidelines regarding infection control. Proper equipment and techniques that should be used by emergency response personnel to prevent or minimize risk of exposure are defined.
- * *The Ryan White Act.* The Ryan White Act of 1990 allows emergency personnel to find out if they were exposed to an infectious disease while rendering patient care. Employers are required to name a “designated officer” to coordinate communications with the treating hospital.
- * *Americans with Disabilities Act.* This act prohibits discrimination against individuals with disabilities including those with contagious diseases. It guarantees equal employment opportunities and job protection if the infected individual can perform essential job functions and does not pose a threat to the safety and health of patients and coworkers.
- * *Occupational Safety and Health Administration (OSHA) Regulations.* OSHA recently enacted a regulation entitled Occupational Exposure to Bloodborne Pathogens that classifies emergency response personnel as being at the greatest risk of occupational exposure to communicable diseases. This regulation requires employers to provide hepatitis B (HBV) vaccinations free of charge, maintain a written exposure control plan, and provide personal protective equipment (PPE). These requirements primarily apply to private employers. Applicability to local and state governmental employees varies by locality. Many states have developed their own OSHA plans.
- * *National Fire Protection Association (NFPA) Guidelines.* This is a national organization that has established specific guidelines and requirements regarding infection control for emergency response agencies, particularly fire departments and EMS services.

BODY SUBSTANCE ISOLATION PRECAUTIONS AND PERSONAL PROTECTIVE EQUIPMENT

Emergency response personnel should practice *Body Substance Isolation (BSI)*, a strategy that considers ALL body substances potentially infectious. To achieve this, all emergency personnel should utilize *Personal Protective Equipment (PPE)*.

Appropriate PPE should be available on every emergency vehicle. The minimum recommended PPE includes the following:

- * *Gloves.* Disposable gloves should be donned by all emergency response personnel BEFORE initiating any emergency care. When an emergency incident involves more than one patient, you should attempt to change gloves between patients. When gloves have been contaminated, they should be removed as soon as possible. To properly remove contaminated gloves, grasp one glove approximately one inch from the wrist. Without touching the inside of the glove, pull the glove half-way off and stop. With that half gloved hand, pull the glove on the opposite hand completely off. Place the removed glove in the palm of the other glove, with the inside of the removed glove exposed. Pull the second glove completely off with the ungloved hand, only touching the inside of the glove. Always wash hands after gloves are removed, even when the gloves appear intact.
- * *Masks and Protective Eyewear.* Masks and protective equipment should be present on all emergency vehicles and used in accordance with the level of exposure encountered. Masks and protective eyewear should be worn together whenever blood spatter is likely to occur, such as arterial bleeding, childbirth, endotracheal intubation, invasive procedures, oral suctioning, and clean-up of equipment that requires heavy scrubbing or brushing. Both you and the patient should wear masks whenever the potential for airborne transmission of disease exists.
- * *HEPA Respirators.* Due to the resurgence of tuberculosis (TB), prehospital personnel should protect themselves from TB infection through use of a high-efficiency particulate air (HEPA) respirator, a design approved by the National Institute of Occupational Safety and Health (NIOSH). It should fit snugly and be capable of filtering out the tuberculosis bacillus. The HEPA respirator should be worn when caring for patients with confirmed or suspected TB. This is especially true when performing “high hazard” procedures such as administration of nebulized medications, endotracheal intubation, or suctioning on such a patient.
- * *Gowns.* Gowns protect clothing from blood splashes. If large splashes of blood are expected, such as with childbirth, wear impervious gowns.
- * *Resuscitation Equipment.* Disposable resuscitation equipment should be the primary means of artificial ventilation in emergency care. Such items should be used once, then disposed of.

Remember, the proper use of personal protective equipment ensures effective infection control and minimizes risk. Use ALL protective equipment recommended for any particular situation to ensure maximum protection.

Consider ALL body substances potentially infectious and ALWAYS practice body substance isolation.