COMPREHENSIVE TRAUMA NURSING

THEORY AND PRACTICE

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To my family — Claire, Thyra, Ami, Harriet, and Charles, for your support, encouragement, and prayers

ELEANOR HOWELL

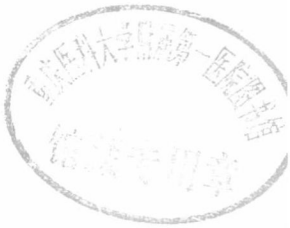
To the special individuals in my life — my husband Len, my children, my parents, my brother Russ — for their love which nurtures me, their faith which strengthens me, and their quiet expectations which challenge me to excel

LINDA SCHAEFER WIDRA

To my family — Ann, Larry, Vickie, and the children, who stand by me with kindness and love

M. GAIL HILL

PREFACE



Trauma, the number one killer of young people, results in loss of life-long productivity for many people of all ages and often includes severe psychological as well as physical disruption. Trauma is associated with a sense of compelling urgency, a perception of immediacy that challenges us as professional care providers.

In recent years, with the growing sophistication of medical care, Trauma Nursing has evolved into a specialty with a rapidly expanding knowledge base. *Comprehensive Trauma Nursing: Theory and Practice* is founded on the premise that high-quality trauma care depends not only on the mastery of this specialized body of knowledge but also on the use of a systematic approach to meeting the comprehensive needs of the trauma client population. As the organizing framework for this text, the nursing process outlines the nurse's specific roles and responsibilities in assisting the trauma patient to advance along the health-illness continuum toward high-level wellness.

Comprehensive Trauma Nursing follows the patient's progress throughout the course of trauma, whether physiological or psychosocial. Each chapter is structured to provide a logical flow from the prehospital phase through the rehabilitation phase of trauma, with the nursing process providing a frame of reference for planning and implementing care. **Assessment,** the critical first phase of the nursing process, guides the trauma care provider in the collection of a comprehensive data base. Adequate and accurate subjective and objective data are essential for the formulation of nursing diagnoses. **Planning,** based on this comprehensive data base and its associated nursing diagnoses, enables the trauma nurse to structure an individualized and goal-directed plan of care. The format of the nursing diagnoses presented in this text follows the system presented by M. D. Mundinger and G. D. Jauron in their 1975 *Nursing Outlook* article, "Developing a Nursing Diagnosis." Experiences in clinical practice and in guiding the practice of students have led the editors to a strong belief that this format conveys the most information for continuity and accuracy of care delivery. **Implementation** involves the operationalization of the plan of care, using cognitive, behavioral, and psychomotor intervention strategies tailored to meet the needs of the individual. **Evaluation** enables the trauma care provider to judge the effectiveness of the plan of care in addressing and meeting goal criteria and to outline recommendations for subsequent nursing actions.

Within each chapter, major subheadings — "Formulating the Diagnostic Impression," "Foundations for Planning," and "Management of Nursing Care" — reflect the components of the nursing process and assist in providing internal consistency. "Formulating the Diagnostic Impression" incorporates pertinent assessment criteria and findings required for both initial emergent interventions and definitive diagnosis. "Foundations for Planning" presents an overview of the medical/surgical management of specific traumatic injuries as an extended knowledge base upon which assessment findings build and lead to the identification of nursing diagnoses. The section titled "Specific Client Groups"

presents subtle distinctions in care delivery where applicable to pediatric, obstetric, and geriatric trauma patients. "Management of Nursing Care" uses selected nursing diagnoses as a framework from which goals and interventions are specified and upon which evaluation of effectiveness proceeds.

Although the nursing process constitutes the primary frame of reference for this book, several nursing theories and universal concepts selected for their particular relevance to trauma patients are also incorporated. Stress, adaptation, coping, pain, loss, and alterations in self-image are examples of concepts that significantly affect the totality of the trauma patient's response to what is often viewed as a predominantly physical or physiological insult. Through the integration of applicable theoretical and conceptual constructs, this book provides a structured approach to trauma nursing and helps the nurse identify and deal effectively with the multiplicity of factors that impinge upon the trauma victim either directly or tangentially. The level of content presumes knowledge of fundamental nursing care and focuses on the mastery and integration of more advanced material. Accordingly, this book has been prepared primarily for professional students in nursing; for trauma, emergency, and critical care nursing specialists; and for other medical and allied health professionals interested in a holistic approach to the care of the trauma patient.

As long as humans move and interact with their environment, traumatic injury will be with us. Rapid and continual expansion of the body of knowledge of trauma care stimulates nurses and other care providers to continue to demand of themselves the provision of high-quality care in an organized and nonfragmented manner. This book strives to assist the trauma nurse in attaining this goal.

A number of people have contributed time and expertise to this effort, and we would like to acknowledge them in grateful appreciation. First and foremost, we wish to thank those many professionals who contributed from their knowledge and experience by writing the chapters that make up this text. We would like to thank the following reviewers who read the manuscript for accuracy and relevance, and who provided us with suggestions for improvement: Elizabeth Bayley from the School of Nursing, Widener University, Chester, Pennsylvania; Patricia Chamings from the School of Nursing, University of North Carolina at Greensboro; Linda Baas from the School of Nursing, Medical College of Georgia; Gaylyn Pfahles from the School of Nursing, University of Texas at Austin; Sharon Smith, Mary Jeane Ozborne, and Ellie Frages from Lehigh Valley Hospital Center in Allentown, Pennsylvania; and Abel Moreno from Seton Medical Center in Austin, Texas. We appreciate the photographic skills of Betty Bock; the tireless help of Jay Harris, Kay Kinnear, and Sondra Myers, reference associates at Lister Hill Health Sciences Library at the University of Alabama at Birmingham; and the assistance of Laurel R. Clapp from Cumberland Law Library. We thank those physicians who reviewed chapters, provided access to extensive personal libraries, or simply spent time to provide insight and accuracy on specific topics. They include Stephen Cantrill and William Campbell of Denver, Colorado, who shared their expertise in the emergency care of facial and neck injuries; Donald Trunkey of Portland, Oregon, who made his vast store of information available to the authors of the chapter on shock; and Robert Fraser of Birmingham, Alabama, whose expertise and extensive library of chest radiography were invaluable. Appreciation is expressed to Margie Kinney, professor at the University of Alabama at Birmingham, and also to Lenette Burrell, professor at the Medical College of Georgia, who shared their practical knowledge regarding the huge undertaking of editing such a volume. Finally, we wish to acknowledge the superlative guidance and tireless patience we received from our editor Ann West and her associates at Scott, Foresman/Little, Brown.

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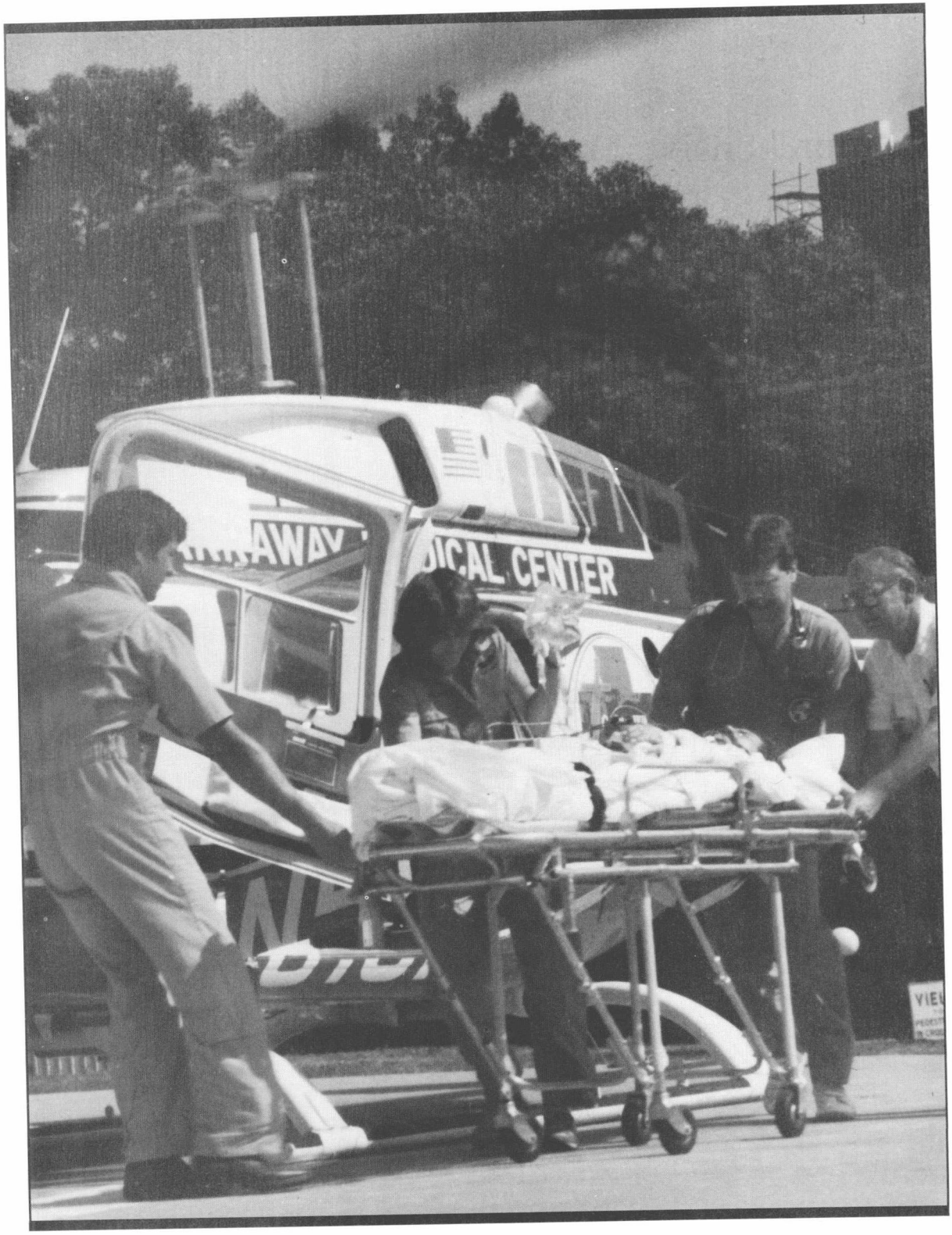
Notice

The indications and dosages of all drugs in this book have been recommended in the medical literature and conform to the practices of the general medical community. The medications described do not necessarily have specific approval by the Food and Drug Administration for use in the diseases and dosages for which they are recommended. The package insert for each drug should be consulted for use and dosage as approved by the FDA. Because standards for usage change, it is advisable to keep abreast of revised recommendations, particularly those concerning new drugs.

CONTENTS

Comprehensive Trauma Nursing: Theory and Practice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PART I

Foundation for Trauma Nursing

A *foundation* is the basis upon which an object, practice, concept, or idea is built. The foundation for trauma nursing stands not only on an extensive and rich history, but also on the continually evolving achievements of science and technology.

The evolution of concepts integral to the organization of trauma care services is presented in Chapter 1. Trauma, the most ancient of human afflictions, has necessitated the development of complex systems of care that incorporate the components of triage, transportation, and definitive, acute, and rehabilitative care. Chapter 1 also focuses on the scientific and technologic advances, many of them extracted from experiences on the battlefield, that have been applied to improve the system of care delivery and reduce the mortality and morbidity that accompanies traumatic injury.

The strength of a foundation depends on the value or worth of the components that constitute it, as well as the structure or cohesive force that binds and relates the components to one another. Chapter 2 discusses the essence of theory in nursing, the value of theory in developing a scientific basis for nursing practice, and the overall form and cohesiveness that result from using theoretical or conceptual models to guide the nursing process. Three models for practice — Roy's adaptation model, Orem's self-care model, and Neuman's health care systems model — are presented, although it is the responsibility of the individual trauma nurse practitioner to evaluate a particular model in light of his or her own practice, as well as its compatibility with his or her own values and philosophy of practice. Case study presentations are included to demonstrate each model's usefulness in guiding nursing assessment, developing a data base, and formulating nursing diagnoses and a plan of care.

ELEANOR HOWELL

CHAPTER 1

The Evolution of Trauma Care

Now Cain said to his brother Abel, "Let's go out to the field." And while they were in the field, Cain attacked his brother Abel and killed him.

— GENESIS 4:8

Trauma, or injury from an external source, became a part of human existence following the departure of Adam and Eve from the Garden of Eden and remains a major cause of death and disability today. Each year, nearly one-third of Americans — more than 70 million persons — are injured to the extent that they seek medical care or are unable to perform their usual activities [24]. Of these injured, millions are disabled, either temporarily or permanently. Every year, 80,000 or more people are added to the existing numbers of those rendered permanently disabled from spinal cord or head injury [24].

Given the magnitude of the problem of traumatic injury and its lengthy history, it could be anticipated that significant, steady progress would have been made in the prevention of injury and the management of the care of trauma victims. However, the development of trauma care has followed an uneven course marked by periods of significant growth and fallow. This chapter briefly traces the development or evolution of the field of trauma care, primarily focusing on the prehospital and acute care phases. Events are, for the most part, presented in chronological order, which may imply that once a technique or concept was understood and implemented or its value demonstrated, it became integrated in future care systems; however, this was frequently not the case.

DEVELOPMENT OF TRAUMA CARE

Statistics

Trauma is the primary cause of death for Americans between the ages of 1 and 44, and results in the death of approximately 140,000 persons in the United States every year [24]. According to the National Safety Council figures (which exclude homicides, suicides, and deaths related to military conflicts), in 1985, 92,500 persons lost their lives from accidents, primarily motor vehicle accidents, falls, and drowning; 8,700,000 were temporarily disabled; and 340,000 were permanently disabled [51].

A breakdown of deaths and associated sources or agents of trauma for the various age groups is displayed in Tables 1.1 and 1.2 [51]. More Americans ages 1 to 34 are killed by injuries than all diseases combined [24]. Infants, young children, and teenagers are four times more likely to die from trauma than from the second leading cause of death. Of all deaths among teenagers and young adults, three-fourths are caused by trauma.

The socioeconomic impact of mortality and disability associated with trauma is enormous when one considers the loss of human lives, loss of providers and productivity, disruption of structure and earnings in families, and the expense of rehabilita-