
**ANESTHESIA AND PERIOPERATIVE CARE
OF THE COMBAT CASUALTY**



The Coat of Arms
1818
Medical Department of the Army

A 1976 etching by Vassil Ekimov of an original color print that appeared in *The Military Surgeon*, Vol XLI, No 2, 1917

The first line of medical defense in wartime is the combat medic. Although in ancient times medics carried the caduceus into battle to signify the neutral, humanitarian nature of their tasks, they have never been immune to the perils of war. They have made the highest sacrifices to save the lives of others, and their dedication to the wounded soldier is the foundation of military medical care.

Textbook of Military Medicine

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Editor in Chief

Brigadier General Russ Zajtchuk, MC, U.S. Army
*Director, Borden Institute
Commanding General
U.S. Army Medical Research and Materiel Command
Professor of Surgery
F. Edward Hébert School of Medicine
Uniformed Services University of the Health Sciences*

Officer in Charge and Managing Editor

Colonel Ronald F. Bellamy, MC, U.S. Army
*Borden Institute
Associate Professor of Military Medicine,
Associate Professor of Surgery,
F. Edward Hébert School of Medicine
Uniformed Services University of the Health Sciences*

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The care of the combat casualty is a multifaceted endeavor in which the acts of individual medical personnel are inextricably linked. A continuum of care must exist from the most junior medic in the field through evacuation to the most senior specialist in a deployable hospital. The essential prerequisites at all echelons of care are courage, endurance, skill, knowledge, and above all, devotion to the well-being of the casualty.

ANESTHESIA AND PERIOPERATIVE CARE OF THE COMBAT CASUALTY

Specialty Editors

BRIGADIER GENERAL RUSS ZAJTCHUK
Medical Corps, U.S. Army

CHRISTOPHER M. GRANDE, M.D.
Executive Director
International Trauma Anesthesia and Critical Care Society

Office of The Surgeon General
United States Army
Falls Church, Virginia

Walter Reed Army Medical Center
Washington, D.C.

United States Army Medical Department Center and School
Fort Sam Houston, Texas

Uniformed Services University of the Health Sciences
Bethesda, Maryland

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Editorial Staff: Lorraine B. Davis
Senior Editor
Colleen Mathews Quick
Associate Editor/Writer
Nancy Michel
Copyeditor

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Foreword

This is an exciting time to be in the U.S. Army Medical Department. Not since the end of World War II have such fundamental changes occurred: decreased resources and personnel; increased emphasis on support of forces deployed in the field; uncertainty as to the nature of the next war in which we will be providing medical support—a consequence of the dissolution of the Cold War; and overlaying all, the fundamental changes likely to be wrought by applications of advanced technology. These factors will change the provision of combat casualty care in ways that we can only speculate about. But we must not make changes simply for the sake of change; we must keep faithful to the fundamental principles of military medicine. The *Textbook of Military Medicine* is a repository of the science and art of military medicine, and as such is our anchor in this vast sea of change. By keeping the historical, factual, and scientific bases of military medicine readily accessible in this series of textbooks, the lessons learned in previous wars will not need to be relearned—at the casualty's expense—in future wars.

The U.S. Army does not recognize any one group of practitioners as preeminent in the management of combat casualties. Rather, combat casualty care occurs along a spectrum ranging from buddy aid on the battlefield to definitive care at hospitals in the continental United States. For this reason, this textbook, *Anesthesia and Perioperative Care of the Combat Casualty*, is not restricted merely to the technical aspects of providing anesthetics; instead, it encompasses the constellation of actions that, taken together, ensure an optimal outcome for the casualty.

The probability of massive wars of prolonged duration has decreased. These wars were dominated by attrition of personnel, in which conserving the fighting strength was the major focus of the U.S. Army Medical Department. In future wars, however, the medical department will probably be judged more by its ability to save lives. Thus this book, with its emphasis on lifesaving intervention, is especially timely. Nevertheless, the true contribution of anesthesia in military medicine is probably not found in mortality and morbidity statistics but in something more difficult to measure and perhaps even more important: the alleviation of pain and suffering.

I strongly recommend that all commanders and medical officers read this volume with an open mind. Massive changes are occurring in military medicine. Medical officers of the future will encounter numerous changes in doctrine and advanced technology; our willingness to respond to these opportunities will be necessary to ensure that our soldiers receive nothing less than the best combat casualty care.

Lieutenant General Alcide M. LaNoue
The Surgeon General
U.S. Army

December 1995
Washington, D.C.

Preface

The extent to which the specialty of anesthesiology has come of age is apparent when we consider that no official history was published on the science and practice of providing anesthesia in World War II. Information on anesthesia was contained in single chapters in other specialty volumes. Now we have a 31-chapter volume, *Anesthesia and Perioperative Care of the Combat Casualty*. This textbook is not limited to the purely technical aspects of anesthesia practice. Instead, except for details of surgical technique and rehabilitation, it portrays the entire expanse of modern combat casualty care. In a real sense, this volume of the *Textbook of Military Medicine* can be viewed as a treatise on combat casualty care for the military anesthesia provider. Throughout the textbook, the term “military anesthesia provider” has been used whenever possible to underline the fact that in the U.S. Army Medical Department, as well as in the other services, the provision of anesthesia is the joint effort of officers drawn from two corps: medical and nursing.

Because military medicine is organized by echelon, the provision of combat casualty care is best understood as a continuum to which each echelon makes an essential contribution. This is the fundamental difference between combat casualty care in military medicine and trauma management in civilian hospitals, and this approach must be clearly understood in advance by all healthcare providers in the military medical services. The best efforts of hospital-based practitioners will be to no avail if lifesaving first aid on the battlefield is inadequate or if evacuation from the battlefield is not timely. Likewise, the best battlefield first aid or the most expeditious evacuation will be wasted unless hospital care is correspondingly excellent. An optimal outcome for the casualty is ensured only by the entire constellation of actions that compose combat casualty care.

The *Textbook of Military Medicine* is honored to publish illustrations of combat casualties from two sources that were compiled during the Vietnam War: the Wound Data and Munitions Effectiveness Team (WDMET) collection, a vast databank that was compiled at the direction of General Creighton Abrams, which contains information on nearly 8,000 casualties; and the Swan Vietnam Surgical Slide Set, which was compiled by Colonel Kenneth Swan, Medical Corps, U.S. Army Reserve, in 1970. This volume contains more than 100 never-before-published illustrations from these sources.

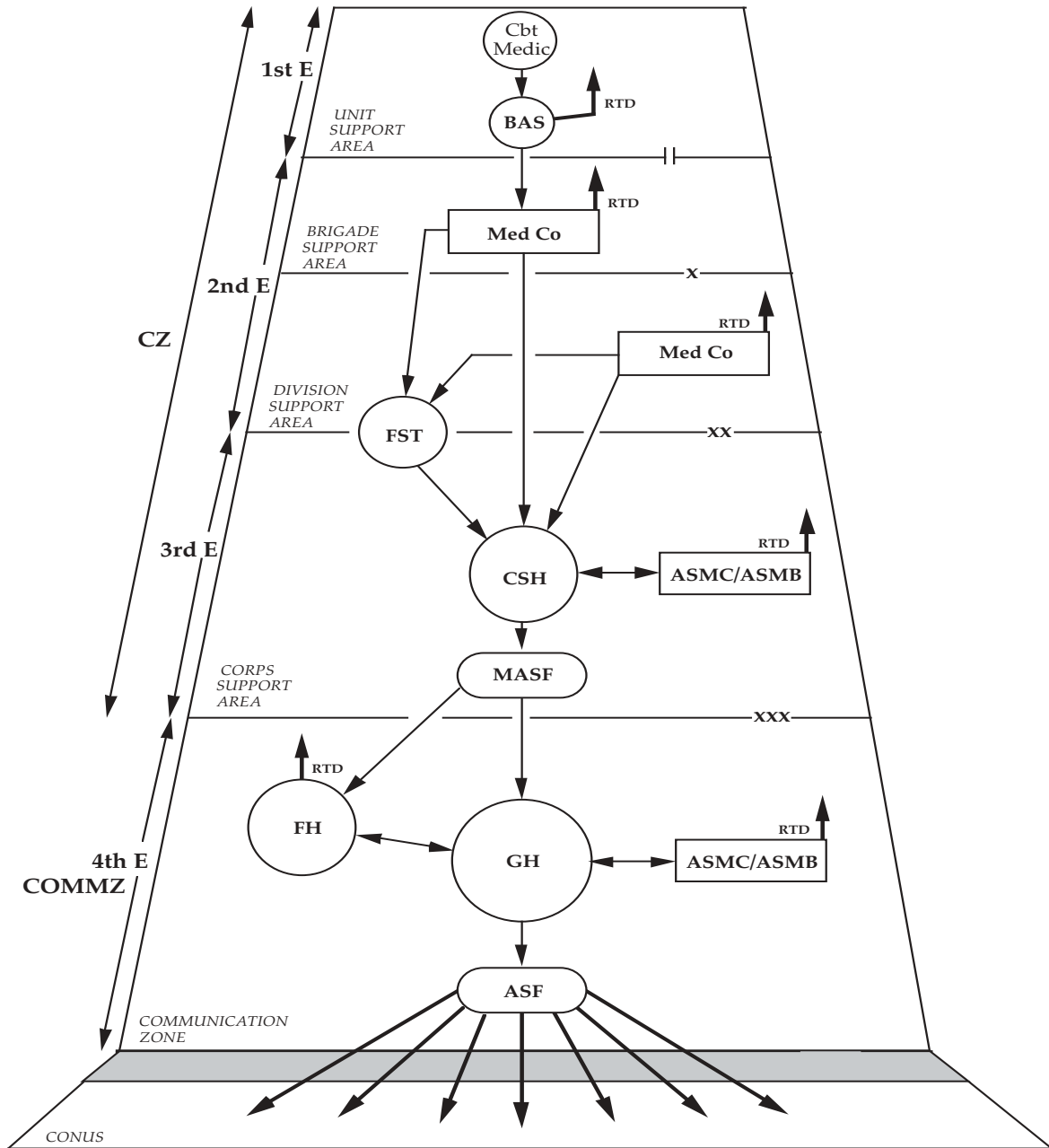
This book’s long gestation began while Donald P. Jenkins, Ph.D., was Managing Editor. During the book’s formative years, Colonel Brian C. Condon, Medical Corps, U.S. Army (retired), in his capacity then as Anesthesia Consultant to The U.S. Army Surgeon General, and Christopher M. Grande, M.D., of the International Trauma Anesthesia and Critical Care Society, recruited authors and guided the development of their chapters. More recently, however, at my request, Captain W. Clayton Petty, Medical Corps, U.S. Navy, and Colonel Denver E. Perkins, Medical Corps, U.S. Army, provided the professional advice and the de novo chapters that made publication possible. The U.S. Army Medical Department owes each of these individuals a debt of gratitude.

Brigadier General Russ Zajtchuk
Medical Corps, U.S. Army

December 1995
Washington, D.C.

The current medical system to support the U.S. Army at war is a continuum from the forward line of troops through the continental United States; it serves as a primary source of trained replacements during the early stages of a major conflict. The system is designed to optimize the return to duty of the maximum number of trained combat soldiers at the lowest possible level. Far-forward stabilization helps to maintain the physiology of injured soldiers who are unlikely to return to duty and allows for their rapid evacuation from the battlefield without needless sacrifice of life or function.

Medical Force 2000 (MF2K) PATIENT FLOW IN A THEATER OF OPERATIONS



- | | | | |
|--------|------------------------------------|---------|---|
| ASF: | Aeromedical Staging Facility, USAF | E: | Echelon |
| ASMB: | Area Support Medical Battalion | EAC: | Echelon Above Corps |
| ASMC: | Area Support Medical Company | FST: | Forward Surgical Team |
| BAS: | Battalion Aid Station | MASF: | Mobile Aeromedical Staging Facility, USAF |
| CM: | Combat Medic | Med Co: | Medical Company |
| CONUS: | Continental United States | RTD: | Return to Duty |
| CZ: | Combat Zone | | |