4th edition

EMERGENCY TREATMENT AND MANAGEMENT

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Preface to the Fourth Edition

Current modifications in concepts of causation and therapy, and in the modalities commonly available for management of urgent conditions, have resulted in a shift of emphasis in certain parts of this edition from the purpose—*portal-to-portal care in emergency situations*—specified in the first edition fifteen years ago.

The term *emergency care* is now generally accepted to include not only immediate management at the site of the injury or illness but also close supervision of transportation to an adequately equipped and staffed hospital emergency department. Here the patient can be given the advantages of methods of evaluation and treatment based on up-to-date understanding of the pathophysiology of trauma and catastrophic disease and on modern, often complex, laboratory determinations.

The treatment which a person suffering from an acute condition receives immediately following onset may make the difference between life and death; the longer the delay before institution of intensive specific therapy, the worse the prognosis. The use of a mobile emergency unit, staffed by specially trained personnel, will in many instances decrease the time lag between onset of the urgent condition and treatment and increase the patient's chances of survival and recovery. Immediate proper and energetic care in the emergency department is also important. Therefore, we have considered it advisable to extend and expand the discussion of certain aspects of intensive specific therapy—particularly those sections dealing with cardiac disorders, pulmonary conditions,

resuscitation and shock in which immediate informed action is all important.

Once again it should be stressed—as it has been in previous editions—that the interpretations of clinical and laboratory findings and the therapy recommended for each condition do not necessarily represent the *only* proper methods of evaluation and treatment. However, it is our opinion that the regimens outlined represent methods of handling which in many instances will save life and minimize disability as well as protect the attending physician against charges of uninformed or improper treatment.

During the last few years several new drugs or therapeutic agents have been developed or have become commonly used which have definite value in the management of emergency conditions. Among these are human tetanus-immune globulin (TIG) which has supplanted the equine antitoxin for active protection against tetanus, vasodilators in treatment of certain types of shock, Xylocaine intravenously in prevention and treatment of cardiac arrhythmias and pentazocine lactate (Talwin) orally and parenterally as a nonnarcotic agent for control of pain. For more detailed information regarding dosages, methods of administration, contraindications and side effects of these drugs, as well as of others mentioned in the text, the brochures prepared by the manufacturers or a standard text on pharmacology should be consulted.

In line with recent court decisions, an attempt has been made under *Administrative, Clerical and Medicolegal Principles and Procedures* to stress the necessity of informed consent on the part of the patient before operative or other potentially actionable procedures are begun by the attending physician. We hope that increasing use of this type of authorization will help to stem the rising tide of malpractice actions.

Finally, to expedite rapid reference, similar or related conditions have been grouped under systems whenever possible, and cross references have been expanded and simplified.

We would like to express our appreciation to Alfredo Burlando, M.D., Bernard Horn, M.D., and Paul Stange, M.D., of the Permanente Medical Group at the Kaiser Foundation Hospital, Vallejo, California and to Clifford Skinner, M.D., of the Permanente Medical Group at the Kaiser Foundation Hospital, Sacramento, California for encouragement, suggestions and constructive criticism of the text, to Betty Barr, R.N., for painstaking and accurate typing of the manuscript and to our respective wives for careful—and onerous—proofreading and checking of cross-references.

Vallejo, California — THOS. FLINT, JR., M.D.
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Preface to the First Edition

Many excellent texts are available covering first aid procedures, and surgical and medical care in acute conditions. The following pages, however, have a much more limited objective – the presentation of the treatment and management of the patient by the Emergency Physician from first examination until disposition for definitive treatment can be arranged. To borrow a phrase from current labor relations, I have endeavored to outline *in a rapidly available form* "portal-to-portal" care in emergency situations.

The term "Emergency Physician" has been used throughout this book to designate the physician in charge of the patient in the emergency room, department or private office. In large hospitals this physician may be on a full-time basis; in smaller units he may have numerous other duties, or be on part-time emergency call. Too often he is an intern, resident, or general practitioner of very limited experience in the management and treatment of acute conditions. To all these physicians whose contribution to the welfare of the patient is often overshadowed by a spectacular surgical procedure or a brilliant medical diagnosis, I am dedicating this book, with the hope that the information herein contained may be of some assistance to them in fulfilling their very great, and often unrecognized, responsibilities.

"Emergency Care" is used in this book in the sense of the examination, treatment and disposition of a person who has developed or sustained an unforeseen condition which is believed to call for prompt action. Examination may disclose no urgent or pressing

need for treatment, and reassurance of the patient or his family may be all that is necessary. On the other hand, prompt and proper handling of the case may result in saving a life, preventing a long illness, or preserving maximum function.

In the first section are grouped some important generally applicable miscellaneous medical procedures. Administrative medicolegal, and clerical principles and procedures which I have found to be of value in the operation of an efficient emergency service are covered in the third section. Since, by the nature of the cases which he is called upon to handle, the physician treating emergencies is especially vulnerable to legal action, the medicolegal aspects have been outlined in considerable detail. The underlying legal principles used as the basis for the medicolegal points involved are widely accepted although minor variations may occur in some localities.

In order to facilitate rapid reference all conditions covered in the second section are listed alphabetically, and cross-references are indicated. Although in some instances the most important diagnostic points have been given, I have made no attempt to cover this aspect fully. The methods of treatment suggested are *not necessarily the only proper therapeutic methods,* but they are based upon several years of experience in the handling of a large volume of emergency cases as well as upon accepted methods of emergency care. The drugs mentioned are those available in any well equipped emergency room or office. The dosages given are for adults unless otherwise specified and should, of course, be modified for infants, children or elderly persons. Whenever the use of Plazmoid is recommended, dextran, PVP (polyvinylpyrrolidone), serum albumin, or any of the other accepted plasma volume expanders can be substituted. If facilities for typing and cross matching are available the use of whole blood transfusions is even more desirable.

No attempt has been made to specify or suggest therapeutic measures after immediate emergency care with the exception of supportive therapy during ambulance transportation and occasional instructions to be carried out at home before receiving hospital or office treatment.

It will be noted that repetition and duplication occur rather frequently, particularly in the section covering *Poisoning, Acute* [Topic 49]. I believe that *for the purpose of quick reference* this repetition will be found to be of value.

The political and social unrest so prevalent throughout the world suggests the possibility that many physicians not familiar with

emergency measures may be called upon to treat large numbers of serious civilian casualties. This possibility—remote though it may be—in my opinion justifies the presentation of this summary at this time.

I should like to express my thanks to Dr. E. M. MacKay for his encouragement, constructive criticism and guidance in the preparation of this book. I am also grateful to Dr. Glenn Lubeck for his suggestions on *Cardiac Emergencies* and to Dr. Arthur Michels for the section on *Shock*. The interpretation and clarification of the medicolegal problems by Mr. James French and Mr. C. H. Brandon have been invaluable. Finally, I wish to thank Miss Bernice Turkovich for her very great assistance in the preparation of the manuscript.

THOS. FLINT, JR., M.D.

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GENERAL MEDICAL PRINCIPLES AND PROCEDURES

1. ACHIEVEMENTS IN URGENT THERAPY

Many definite advances have been made in the management of acutely ill and severely injured persons during the last decade. Among these advances are:

Assessment, mobilization and development of community resources.

Development and expansion of the concept of an emergency *department* instead of an emergency *room*.

Upgrading of training in first aid (immediate) care for ambulance attendants, law enforcement officers, firemen, orderlies, licensed vocational nurses, registered nurses and other medical and paramedical personnel with certification, registration and licensing (plus an appropriate pay scale) for qualified persons.

Improvement in the comfort, safety and efficiency of transportation of acutely ill and severely injured persons by stressing obedience to traffic laws, better communication (central dispatching, two way radio, cooperation with law enforcement agencies), the use of mobile care units, helicopters and air ambulances, and standardization and modernization of the equipment of vehicles used for transportation of urgent cases.

Better understanding of the underlying pathophysiology of trauma and shock with resultant more efficient diagnosis, treatment and management. Examples are the use of venous pressure monitoring as a guide to blood volume, the development of more efficient cardiopulmonary resuscitation methods and the limitation of use of vasoconstrictors with the substitution of vasodilators in certain types of shock.

Utilization of safer and more efficient drugs to accomplish a given result (nonnarcotic drugs in place of narcotics for control of pain; human immune globulin (TIG) in place of tetanus antitoxin).

Intensive critical and constructive studies to determine more efficient methods of staffing emergency departments for better management of urgent conditions and to delineate the responsibilities – clinical, ethical and medicolegal – of physicians and ancillary personnel responsible for first aid and emergency care.

Increased emphasis on instruction and practical experience in accepted methods of care of urgent cases in medical schools and teaching hospitals and in *refresher courses* for practicing physicians.

More frequent scheduling at international, national, state, county and local levels of symposia, conferences, seminars and workshops for the discussion of modern advances in the care of acutely ill and severely injured persons.

2. ADDICTION

The two most common and least recognized examples of addiction in everyday life are the use of caffeine-containing drinks and tobacco products. Both fulfill the requirements for true addiction (increased tolerance and withdrawal symptoms), but social condemnation of habitual use of either has never become widespread, although it does occur in certain religious, sociologic and professional groups. The possible results of rigid government control (tried unsuccessfully and eventually repealed for alcohol and now in effect in varying degrees in different localities for narcotics, barbiturates, marihuana and other so-called *dangerous drugs*) is an interesting topic for surmise. Widespread and indiscriminate use of *mood modifiers* (hallucinogens, sedatives, stimulants, tranquilizers and psychedelics) has introduced problems which currently are requiring medical and sociologic consideration.

Public attention at the present time is focused mainly upon three causes for addiction.

2—1. ALCOHOL

Acute dehydration and malnutrition may make hospitalization for fluid replacement (**6**) necessary. Delirium tremens (**34—3**) and alcoholic neuritis (**46—8**) as well as degenerative mental changes (**50—1**. *Organic Psychoses*) may require institutional care. For the toxic picture and treatment of acute alcoholism see **49—315**. *Ethyl Alcohol.*

2—2. BARBITURATES

Chronic addiction to barbiturates rarely requires emergency care unless an overdose has been taken, but hospitalization is often indicated for supportive therapy when the drug is stopped. Too rapid a

withdrawal may result in convulsions, irreversible mental changes and even death.

For signs, symptoms and treatment of acute poisoning see **49—111**. *Barbiturates.*

2—3. NARCOTICS

Whenever addiction to, or self-administration of, any of the substances covered by the Narcotics Act is known or suspected, certain restrictions (**2—5**) apply. Most of the substances covered are included in the following list:

Alpha and beta eucaine (**49—324**).
Alphaprodine (Nisentil) (**7—2**).
Apomorphine (**49—85**).
Cocaine and its salts, preparations, compounds and derivatives (**49—218**).
Codeine and its salts, preparations, compounds and derivatives (**49—219**).
Dihydrocodeinone (Hycodan) (**49—273**).
Hemp and its extracts and compounds (**49—441**. *Marihuana*).
Heroin (**49—366**).
Hydromorphone (Dilaudid) (**49—277**).
Laudanum (tincture of opium) (**49—413**).
Levorphan (Levodromoran) (**49—472**. *Methorphinan hydrobromide*).
Lophorphora (mescal, peyote) (**49—460**).
Marihuana (**49—441**).
Meperidine (Demerol) (**7—2** and **49—245**).
Methadone (Adanon, Dolophine) (**49—464**).
Morphine and its salts, preparations, compounds and derivatives (**49—495**).
Opium and its salts, preparations, compounds and derivatives (**49—545**).
Pantopon (pantopium hydrochloride) (**49—562**).
Paregoric (camphorated tincture of opium) (**49—545**. *Opium*).
Racemorphan (Dromoran, methylmorphinan) (**49—472**. *Methorphinan hydrobromide*).

2—4. ADDICTION TO OPIATE-TYPE DRUGS

SIGNS AND SYMPTOMS

1. In spite of widespread publicity to the contrary, a habitual user of opium derivatives or opiate-like synthetics who is taking his regular dose of a pure preparation at accustomed intervals will rarely show any outward evidences of dependence on the drug. Mental impairment of any type almost never occurs; neither does physical or social degeneration, if the addict is financially able to support the very expensive habit without interruption and if degenerative mental or physical processes were not already present when habitual use became established.

2. Scars—old, recently healed, healing and fresh—from subcutaneous, intramuscular or intravenous injections.