*MANUAL OF*

# PREOPERATIVE and POSTOPERATIVE CARE

Second Edition

*BY THE COMMITTEE ON*
*PRE AND POSTOPERATIVE CARE*


AMERICAN
COLLEGE
OF
SURGEONS

*Editorial Subcommittee*
JOHN M. KINNEY, M.D., *Chairman*
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# Preface

The purpose of this manual is to provide the busy clinical surgeon and surgical resident with quick and concise access to recent advances in surgical metabolism, nutrition, fluid and electrolyte balance, clotting disorders, infection and shock, together with cardiac, ventilatory and renal pathophysiology. It is intended to provide a useful outline of the modern management of problems of pre- and postoperative patients undergoing both elective and emergency operation. The authors have, in the latter chapters of this book, described the approaches to the handling of pre- and postoperative care of patients undergoing operation on particular body systems, including the management of related complications. Other chapters include the management of multiple injuries and the treatment of burns. The appendix includes a table of normal laboratory values, a list of selected tests of various organ systems and a brief discussion of acid-base balance.

The manual does not attempt to be a text, and so technical details of operations have usually been omitted in the interest of maintaining a volume of modest size and cost. References to standard texts and important articles will be found at the end of most chapters, and from them additional information can be obtained. It is hoped that such a manual may serve as a ready reference for the surgeon who lacks the time to read more extensive material on a given subject, or who might appreciate an abbreviated discussion prior to a more extensive review of the literature.

The manual has been prepared as an activity of the Committee on Pre and Postoperative Care of the American College of Surgeons with the approval of the Regents of the College. Since the Committee's formation in 1959 under the chairmanship of Dr. Francis D. Moore of Boston, a major activity has been the sponsoring of teaching sessions in pre- and postoperative care. The manual is an outgrowth of the course in pre- and postoperative care given annually at the Clinical Congress of the American College of Surgeons.

The selection of the material for the second edition reflects certain

changes from the previous volume. There are fewer chapters, of somewhat longer length, new illustrative material and additional references. This editorial committee does not contend that methods or approaches other than the ones presented in this volume may not be successful in the management of surgical patients. What we have endeavored to do is provide a useful guide for the management of surgical patients, based upon the description of the metabolic and physiologic principles that must underlie successful treatment.

We wish to acknowledge the unusual time and effort that was spent by the members of the first edition's editorial committee in translating the multiple wishes of the parent committee into initial book form. Our appréciation for this goes to Dr. Henry T. Randall, Chairman, Dr. James D. Hardy and Dr. Francis D. Moore. The success of the first edition confirmed the need for such a volume and contributed greatly to the preparation of this second edition.

Particular thanks are due to Dr. William Adams of the American College of Surgeons and Mr. Robert Rowan of W. B. Saunders Company for continuing advice and encouragement. In addition, we wish to thank the many secretaries whose patient and careful work contributed to the preparation of this volume.

RICHARD EGDAHL
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*Editorial Subcommittee*

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# Part I

# GENERAL PRINCIPLES

CHAPTER 1

# WOUND HEALING AND CARE OF THE WOUND

ERLE E. PEACOCK, JR., M.D., F.A.C.S.

Healing—the most fundamental biological phenomenon in surgical biology—is affected significantly by pre- and postoperative care. Although most problems in wound healing are the result of local factors within the wound and immediate surrounding area, systemic factors are occasionally responsible for failure to heal, and some of these factors are amenable to pre- and postoperative manipulation. It is a good idea to remember, however, that the healing wound is dynamically very similar to a fetus, and like a developing embryo appears to have high priority when calling for the resources required for protein synthesis. Moreover, even though the entire body may be rather severely depleted of some fundamental building block, the relative amount of such a substance needed to heal a surgical incision is so small compared to the general body pool that it should not come as a surprise to learn that wound healing progresses remarkably well. Uremia, carcinomatosis, anemia, protein depletion, corticosteroid excess, and poorly controlled diabetes are but a few of the general metabolic disorders which have been implicated in the past as significantly retarding the gain of tensile strength in a healing wound. Of these, corticosteroid excess is the only one which has been shown so far to affect wound healing significantly in human beings, and then only to the extent of delaying gain in tensile strength—not preventing collagen synthesis and deposition. Other influences can be shown to inhibit gain of tensile strength in the wounds of laboratory animals, but the severity of the disorder and the clinical insignificance of the measured inhibition are of such an order that they are seldom important during management of a human patient. Addition of cartilage powder and zinc, for example, increases the rate of gain of burst strength to a mathematically significant degree in the healing wound of a laboratory animal; the effect of these agents is not great enough to be clinically significant in most patients, however.