
Pharmacotherapy

A Pathophysiologic Approach

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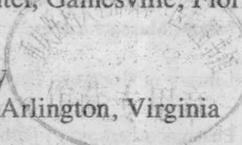
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*To those pharmacists who had the courage and perseverance to
take the early steps that were needed to develop personally
and professionally in the clinical practice of pharmacy*

*To our mentors whose vision provided educational and
training programs that encouraged professional growth
of their students*

*And to our families and faculty colleagues for their efforts
and support for our endeavors*



Foreword

Evidence of the maturity of a profession is not unlike that characterizing the maturity of the individual; a child's utterances and behavior typically reveal an unrealized potential for attainment, eventually, of those attributes characteristic of an appropriately confident, independently competent, socially responsible, sensitive, and productive member of society.

Within a period of perhaps 15 or 20 years, we have witnessed a profound maturation within the profession of pharmacy. The utterances of the profession, as projected in its literature, have evolved from mostly self-centered and self-serving issues of trade protection to a composite of expressed professional interests that prominently include responsible explorations of scientific/technological questions and ethical issues that promote the best interests of the clientele served by the profession. With the publication of *Pharmacotherapy: A Pathophysiologic Approach*, pharmacy's utterances bespeak a matured practitioner who is able to call upon unique knowledge and skills so as to function as an appropriately confident, independently competent pharmacotherapeutics expert.

In 1987, the Board of Pharmaceutical Specialties (BPS), in denying the petition filed by the American College of Clinical Pharmacy (ACCP) to recognize "clinical pharmacy" as a specialty, conceded nonetheless that the petitioning party had documented in its petition a specialist who does in fact exist within the practice of pharmacy and whose expertise clearly can be extricated from the performance characteristics of those in general practice. A refiled petition from ACCP requests recognition of "pharmacotherapy" as a Specialty Area of Pharmacy Practice. While the BPS had issued no decision when this book went to press it is difficult to comprehend the basis for a rejection of the second petition.

Within this book one will find the scientific foundation for the essential knowledge required of one who may aspire to specialty practice as a pharmacotherapist. As is the case with any such publication, its usefulness to the practitioner or the future practitioner is limited to providing such a foundation. To be socially and professionally responsible in practice, the pharmacotherapist's foundation must be continually supplemented and complemented by the flow of information appearing in the primary literature. Of course this is not unique to the general or specialty practice of pharmacy; it is essential to the fulfillment of obligations to clients in any occupation operating under the code of professional ethics.

Because of the growing complexity of pharmacotherapeutic agents, their dosing regimens, and techniques for delivery, pharmacy is obligated to produce, recognize, and remunerate specialty practitioners who can fulfill the profession's responsibilities to society for service expertise where the competence required in a particular case exceeds that of the general practitioner. It simply is a component of our

covenant with society and is as important as any other facet of that relationship existing between a profession and those it serves.

The recognition by BPS of pharmacotherapy as an area of specialty practice in pharmacy will serve as an important statement by the profession that we have matured sufficiently to be competent and willing to take unprecedented responsibilities in the collaborative, pharmacotherapeutic management of patient-specific problems. It commits pharmacy to an intention that will not be uniformly or rapidly accepted within the established health care community. Nonetheless, this formal action places us on the road to an avowed goal, and acceptance will be gained as the pharmacotherapists proliferate and establish their importance in the provision of optimal, cost-effective drug therapy.

Suspecting that other professions in other times must have faced similar quests for recognition of their unique knowledge and skills, I once searched the literature for an example that might parallel pharmacy's modern-day aspirations. Writing in the *Philadelphia Medical Journal*, May 27, 1899, D. H. Galloway, MD, reflected on the need for specialty training and practice in a field of medicine lacking such expertise at that time. In an article entitled "The Anesthetizer as a Specialty," Galloway commented:

The anesthetizer will have to make his own place in medicine; the profession will not make a place for him, and not until he has demonstrated the value of his services will it concede him the position which the importance of his duties entitles him to occupy. He will be obliged to define his own rights, duties and privileges, and he must not expect that his own estimate of the importance of his position will be conceded without opposition. There are many surgeons who are unwilling to share either the credit or the emoluments of their work with any one, and their opposition will be overcome only when they are shown that the importance of their work will not be lessened, but enhanced, by the increased safety and dispatch with which operations may be done. . . .

It has been my experience that, given the opportunity for one-on-one, collaborative practice with physicians and other health professionals, pharmacy practitioners who have been educated and trained to perform at the level of pharmacotherapeutics specialists almost invariably have convinced the former that "the importance of their work will not be lessened, but enhanced, by the increased safety and dispatch with which" individualized problems of drug therapy could be managed in collaboration with clinical pharmacy practitioners.

It is fortuitous, the coinciding of the release of *Pharmacotherapy: A Pathophysiologic Approach* with ACCP's peti-

Preface

Twenty years have passed since the term *clinical pharmacy* was applied to the practice of pharmacists whose primary focus includes the patient as well as the drug product. Consequently, the curricula of pharmacy schools have changed dramatically, placing a higher priority on patient-oriented practice. Therefore, there is a continuing need for instructional materials in clinical drug therapy, that is, pharmacotherapy. *Pharmacotherapy: A Pathophysiologic Approach* provides a basis of principles and information that reflects the breadth and depth of knowledge appropriate for today's pharmacy student and practitioner.

The text presents chapters, or primers, on topics such as pharmacokinetics or the use of laboratory tests in infectious diseases, which provide necessary background. The majority of the text is devoted to specific diseases; a concise review of epidemiology, etiology, and a thorough discussion of pathophysiology and clinical symptoms are presented. The sections on treatment attempt to place drug therapy in its proper perspective with other modalities. Accepted drug regimens are presented along with pertinent controversies in drug therapy. In recognition of the importance of adverse drug effects, specific chapters are devoted to these topics.

The pathophysiology sections of the text are the key to imparting a way of thinking for the developing practitioner. Mechanisms of disease processes identified in the beginning of the chapters should lead naturally into identification of possible approaches to treatment. The goal of the text is to present this logical process to the student, not just specific facts about therapy as we know it today. Understanding of pathophysiology and the principles of therapy will allow the student to assess more adequately the place of newly intro-

duced drugs. The number of reference citations has purposely been limited to those of most relevance and value. The overall scope of the text is intended to match the topics likely to be included in most therapeutics courses for Doctor of Pharmacy programs.

Pharmacotherapy: A Pathophysiologic Approach is very much a snapshot of the clinical practice of pharmacy in the late 1980s. Production of this text has required the contribution of 155 authors from 60 different universities and institutions. The authors demonstrate a high level of expertise in such diverse areas as cardiology, pulmonology, gastroenterology, nephrology, neurology, psychiatry, oncology, infectious diseases, and nutrition, to name just a few.

The editors recognize that many areas of this text will rapidly become outdated as our understanding of disease processes increases or new therapies are adopted. The challenge for student and practitioner is to integrate information from a variety of sources and form a basis for application in pharmacotherapy, and to be receptive to new information as it appears in the literature or is gained by personal experience.

We are indebted to the efforts of our authors, without whose contributions we would still be talking about a great idea for a textbook. Also, we are very grateful for the efforts of Yale Altman who assisted in the birth of the idea for the text and then convinced us that it was possible to accomplish this task. Finally, we are appreciative of the patience of Barbara Johnson-Schwagerl and the efforts of many others at Elsevier including Allison Essen, Regina Dahir, Philip Schafer, and Kathryn Silverio.

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