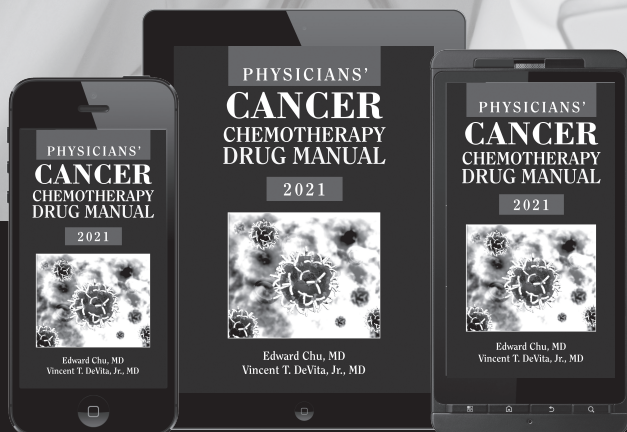
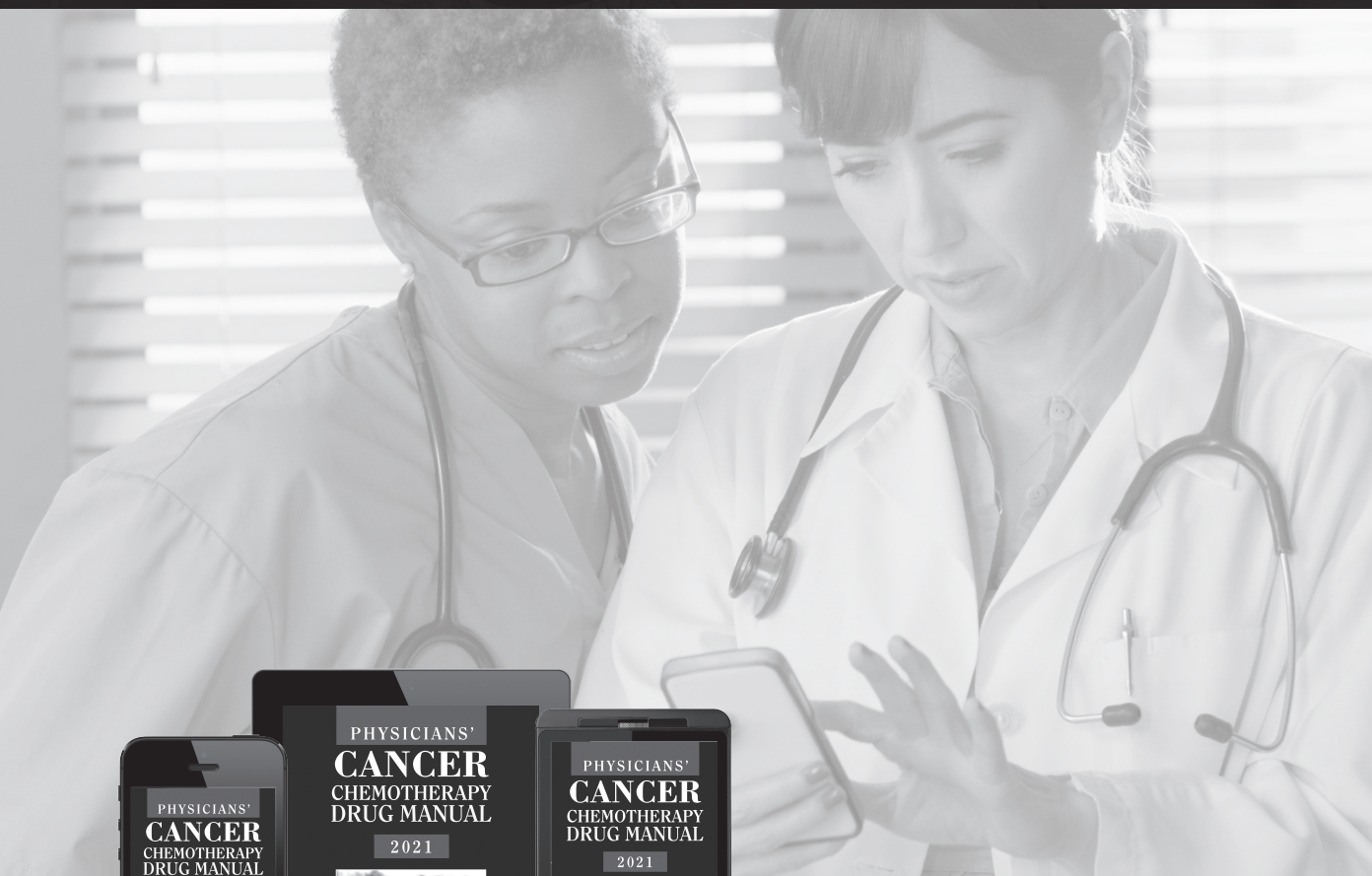


PHYSICIANS'  
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DRUG MANUAL

2021

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PHYSICIANS'

# CANCER

# CHEMOTHERAPY

# DRUG MANUAL

2021

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# Preface

The development of effective drugs for the treatment of cancer represents a significant achievement beginning with the discovery of the antimetabolites and alkylating agents in the 1940s and 1950s. The success of that effort can be attributed in large measure to the close collaboration and interaction between basic scientists, synthetic organic chemists, pharmacologists, and clinicians. This tradition continues to flourish, especially as we now enter the world of pharmacogenomics, genomics, proteomics, and other omics science along with the rapid identification of new molecular targets for drug design and development.

In this, our 21st edition, we have condensed and summarized a wealth of information on chemotherapeutic and biologic agents in current clinical practice into a reference guide that presents essential information in a practical and readable format. The primary indications, drug doses and schedules, toxicities, and special considerations for each agent have been expanded and revised to take into account new information that has been gathered over the past year. In this edition, we have included 16 new agents and a whole host of supplemental indications that have all been approved by the FDA for previously approved agents within the past year.

This drug manual is divided into five chapters. Chapter 1 gives a brief overview of the key principles of cancer chemotherapy and reviews the clinical settings where chemotherapy is used. Chapter 2 reviews individual chemotherapeutic and biologic agents that are in current clinical use; these agents are presented in alphabetical order according to their generic name. In this chapter, specific details are provided regarding drug classification and category, key mechanisms of action and resistance, critical aspects of clinical pharmacology and pharmacokinetics, clinical indications, special precautions and considerations, and toxicity. Chapter 3 includes recommendations for dose modifications that are required in the setting of myelosuppression and/or liver and renal dysfunction. Relevant information is also provided highlighting the teratogenic potential of various agents. Chapter 4 presents a review of the combination drug regimens and selected single-agent regimens for solid tumors and hematologic malignancies that are used commonly in daily clinical practice. This section is organized alphabetically by specific cancer type. Finally, Chapter 5 reviews commonly used antiemetic agents and regimens used to treat chemotherapy-induced nausea and vomiting, which is a significant toxicity observed with many of the anticancer agents in current practice.

Our hope remains for this book to continue to serve as both an in-depth reference and an immediate source of practical information that can be used by physicians and other healthcare professionals actively involved in the daily care of cancer patients. This drug manual continues to be a work in progress, and our goal is to continue to provide new updates on an annual basis and to incorporate new drugs and treatment regimens that reflect the rapid advances in the field of cancer drug development.

Edward Chu, MD  
Vincent T. DeVita, Jr., MD



# Acknowledgments

This book represents the efforts of many dedicated people. It reflects my own personal and professional roots in the field of cancer pharmacology and cancer drug development. It also reaffirms the teaching and support of my colleagues and mentors at Brown University, the National Cancer Institute (NCI), and the Yale Cancer Center. In particular, Bruce Chabner, Paul Calabresi, Robert Parks, Joseph Bertino, and Vince DeVita each had a major influence on my development as a cancer pharmacologist and medical oncologist. While at the NCI, I was fortunate to have been trained under the careful mentorship of Carmen Allegra, Bob Wittes, and Bruce Chabner. At Yale, I was privileged to work with a group of extraordinarily talented individuals including Yung-chi Cheng, William Prusoff, Alan Sartorelli, and Vince DeVita, all of whom graciously shared their scientific insights, wisdom, support, and friendship. I would also like to thank my co-author, colleague, mentor, and friend, Vince DeVita, who recruited me to the Yale Cancer Center and who has been so tremendously supportive of my professional and personal career. Special thanks go to my colleagues at Jones & Bartlett Learning for giving me the opportunity to develop this book and for their continued encouragement, support, and patience throughout this entire process. I wish to thank my wife, Laurie Harrold, for her love and patience, for her insights as a practicing medical oncologist, and for her help in writing and reviewing various sections of this book. I would also like to thank our two dogs, Mika and Lexi, who are no longer with us, but who live in our hearts forever, to our two new dogs, Rosie and Allie, and to our two beautiful children, Ashley and Joshua, who have brought great joy and pride to our family. Finally, this book is dedicated to my parents, Ming and Shih-Hsi Chu, for their constant and unconditional loyalty and love, support, and encouragement, and for instilling in me the desire, joy, and commitment to become a medical oncologist and cancer pharmacologist and who have shown me the way to be a better physician, scientist, and person. While they are no longer here with us, their spirit lives in our hearts forever.

Edward Chu, MD

