

Fundamentals of Cancer Epidemiology

Second Edition

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Dedication

This book is dedicated to my wife, Bonnie, who has been my greatest source of inspiration and support for the past 42 years, and to my children and grandchildren, who help to keep me young and on my best behavior.

P.N.

This book is dedicated to my family and to my students. Patricia, Katharine, and Andrew provided the inspiration and support to always go the extra mile in pursuing my career's challenges; my students provided the challenging questions that required me to be as exacting as science would allow.

H.P.

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Revisions are not supposed to be as hard as first editions, but given the rapidly changing nature of the field, this work required significant updating. I am indebted to Alexa Gallagher and Pam Pope for pushing me and for checking me.

H.P.

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Preface

Revising *Fundamentals of Cancer Epidemiology* was a “labor” of love. We emphasize *labor* because advances in our understanding of the etiology of cancer and associated benefits relative to cancer prevention have advanced rapidly. This revision has paid particular attention to updating information in this rapidly evolving field. Students and other readers will benefit from the concise summarization of technical information, especially related to our understanding of the biology of cancer, gene–environment interaction, opportunities for better cancer control, and associated topics.

Substantive changes are to be found in every chapter and two new chapters were added: Childhood Cancer (Chapter 17) and Cancer Screening (Chapter 18).

As we said in the preface of our first edition, as longtime teachers of cancer epidemiology courses in graduate schools of public health, we often face the difficulty of selecting a course textbook. Although there are numerous books that cover aspects of cancer biology or present the epidemiology of cancer from a site-specific perspective, we felt that no single book offered a treatment of cancer epidemiology at a level appropriate for first-time students. In *Fundamentals of Cancer Epidemiology*, we offer students and others wishing to learn more about cancer an introduction of the current understanding of what cancer is, how it develops biologically and genetically, the “who, when, and where” of cancer (its descriptive epidemiology), and the determinants of cancer.

Although this book is not a methods text *per se*, we have included discussions of pertinent methodological issues in order to provide students with an epidemiological framework for evaluating hypotheses concerning the etiologic role of various risk factors as well as for developing rational preventive measures.

The book is divided into two parts. The objective of the first part is to provide an overview of the definition and observed distribution of cancer and cancer risk factors as we know them today. The second part is devoted to cancer risk factors that, based on current evidence, have the potential to affect the incidence of various human cancers to a substantial degree. To

add separate chapters on each major cancer site would have made the text too long for a standard introductory course.

In any case, site-specific information is widely accessible in monographs and via the Internet (note that Appendix B contains a list of cancer-related informational Web sites). *Fundamentals of Cancer Epidemiology* is intended for use in cancer epidemiology courses in schools of public health as well as in schools of medicine, dentistry, nursing, and allied health programs. It is also directed toward individuals who work in cancer prevention and control programs in local, state, and federal agencies and who need an overview of the field. We assume that readers will have completed an introductory course in epidemiology. If they have not, we suggest that an epidemiology text be used in conjunction with this book. Although our overall goal was to create a text suitable for a typical 15-week graduate course, in developing it we assumed that it would be supplemented by instructor-prepared course notes and selected readings from the literature. In any case, whether the readers are graduate students or workers in the field of cancer prevention, our hope is that this text will provide them with a basic understanding of cancer epidemiology and stimulate them to pursue their interest in this field as they continue their education or professional development.

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