

OCCUPATIONAL *and* ENVIRONMENTAL RESPIRATORY DISEASE

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PREFACE

Occupational and environmental exposures play major roles in causing many forms of respiratory disease. All humans are exposed to potential occupational or environmental toxins such as indoor or ambient air pollutants or unique respiratory toxins occurring in the workplace. No longer are occupational toxin exposures limited to blue-collar jobs in heavy industries such as mining and manufacturing; significant hazards exist in modern industries and office environments. The disorders resulting from these exposures are diverse in nature, ranging from acute lung injury from toxic gas inhalation to subtle effects of environmental pollutants upon persons with asthma. All aspects of the respiratory system, from the nose to the alveoli, can be affected by inhaled environmental agents; therefore this book seeks to address the full range of respiratory effects of environmental exposures. The respiratory system does not distinguish whether an inhaled agent came from a workplace or a community (nonoccupational) source. For this reason, a unitary approach, jointly considering occupational and environmental respiratory disease, is employed in this book. However, exposure assessment methods and control strategies often differ between workplace and community environments; these differences are discussed.

There are many perspectives and approaches to understanding occupational and environmental respiratory diseases. These include clinical approaches, focused upon the diagnosis and treatment of disease in an individual patient; environmental monitoring perspectives, emphasizing evaluation of the potential exposures; epidemiologic assessment, evaluating patterns of health and disease in *groups* of persons; biologic considerations of the mechanisms by which environmental agents produce disease; and public policy aspects, emphasizing control by regulation and law.

This book is predicated on the belief that approaches to understanding respiratory disease are intertwined, and all must be integrated to prevent and manage such disorders. There is also a strong emphasis on the relationship between disease and exposure, recognizing that disease prevention is directly related to controlling exposure. However, discussion of fundamental biologically oriented research, without direct clinical or public health implications, has been deemphasized. These topics are covered in more detail in other texts.

Figure 1 suggests a "user's guide" for this book. It reflects the organization of the major sections. Section I presents a historical overview of the field. Section II

discusses the major approaches employed in the field, presenting the "tools" (e.g., radiology, epidemiology) from a methodologic standpoint. Section III presents methods employed for assessing exposures. Section IV provides an overview of the major disease categories, emphasizing aspects that are common to the disease group regardless of the etiology. For example, the symptoms and treatment of lung cancer are generally similar regardless of the underlying etiology. A clinician faced with an individual patient with a respiratory disease may move from this section of the book to sections dealing with specific exposures causing a disease or group of diseases.

Sections V and VI discuss disorders resulting from exposure to known agents; specifically, Section V includes the interstitial lung diseases, and Section VI covers disorders that primarily affect the airways. In instances where an agent can produce diseases in either category, the agent is discussed in the section appropriate to the major associated disease and is cross-referenced in the other section.

Section VII includes agents that cause upper airway disorders, cancers, and acute toxic effects. This section also discusses classes of agents such as metals, which may lead to diverse categories of disease. Section VIII discusses industries that are associated with the development of occupational and environmental respiratory disease. In some industries the agent is well identified, whereas in others a complex mixture of etiologic agents exists. Diagnosis and control may be based on general characteristics of the industry rather than on controlling a specific agent. Section IX emphasizes respiratory disorders caused by nonoccupational pollutants in both indoor and outdoor environments.

The next several sections discuss systematic approaches to occupational and environmental respiratory diseases. Section X focuses upon person-oriented approaches, and it includes discussions of disability assessment, accommodation, and rehabilitation of individuals with occupational and environmental respiratory diseases and includes organized surveillance methods for the detection and prevention of disease in *groups*. Section XI addresses occupational and environmental respiratory disease from a policy perspective. The legal and regulatory framework in the United States is discussed. Special considerations are presented for the recognition and control of occupational and environmental respiratory disease in developing nations where resources and approaches to the diagnosis and control of disease may be different. The final section deals with control technologies.

Appendix A

RESOURCES

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Gregory J. Kullman
John E. Parker

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