In memory of

Benjamin L. Maxwell, Scott R. Maxwell,
and Edward J. Murphy,
whose experiences brought home
the human cost of environmental illness
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This second edition of *Understanding Environmental Health: How We Live in the World* incorporates updates to scientific understanding, changes in practice and policy, and important events of recent years. At the same time, it preserves the essence of the first edition, with only modest changes to the scope and structure of individual chapters.

An introductory text like this one, which frames environmental health for a broad group of students, should leave its readers with a permanent awareness of environmental influences on health, as well as an appreciation of the societal roots of those influences. It should prepare public health students who are not focusing in environmental health to engage the environmental health issues that will cross into their professional lives in other domains of public health. And it should be useful outside the public health sphere, introducing students of the natural environment to the public health aspects of environmental issues.

*Understanding Environmental Health* is briefer than most introductory environmental health texts. It provides the essential information about environmental health needed by the Master of Public Health (MPH) student, and it is designed to stand alone in an introductory course for students in concentrations other than environmental health—in fact, I first developed the book while teaching just such a course. At the same time, the brevity of the book gives instructors flexibility to customize their course content by assigning additional readings. With such supplemental readings, this book is appropriate as the core resource for a unified introductory course in environmental health for MPH students in all concentrations, as now offered in many schools and programs in public health. It is also suitable as the environmental health text in a survey course in public health or environmental studies—and in a variety of interdisciplinary courses spanning other fields. Further, the book has been used successfully in higher-level undergraduate courses.

In light of the varied science backgrounds of the students who will use this book, its treatment of science content is designed for readers who have different starting points yet need to end up with the same understanding of the subject matter. An early chapter presents
the fundamental science and methods of environmental health, much of which may be unfamiliar even to students with strong science backgrounds. In the rest of the text, sidebars present small bites of general science information at the point where it is first needed to understand an environmental health issue. This format directly addresses the challenge of students’ varied science preparation, allowing each reader to fill in, along the way, whatever gaps in background knowledge he or she may have.

The book’s organization also reflects its intended readership. Environmental health is a sprawling and diverse field, embracing many topics. Traditional topics in the field reflect professional specializations or regulatory domains; as a result, these topics are a mix of hazards (such as toxic chemicals or ionizing radiation), settings (such as occupational health), and environmental media (such as air or water pollution). For those outside the field—a core audience for this textbook—these categories do not easily add up to a coherent whole.

To provide that coherence, this text, more than most, tells a connected narrative, with chapters on the various things people do, as individuals or societies, that create environmental health hazards. After a brief introductory chapter and a substantial chapter on the science and methods of environmental health, there are chapters on the hazards of living in the natural world, including infectious disease, natural disasters, and naturally occurring radiation; producing energy from fossil fuels, nuclear fuels, and alternative sources; producing manufactured goods, with the associated pollution; producing food through an industrialized agricultural system; and living in communities, from local to global. Traditional environmental health topics fit easily in this larger framework; as an aid to instructors, a table in the Appendix locates traditional topics within this book’s chapter structure. The book’s organization gives instructors considerable flexibility in allocating class time to different topics over the course of a term.

Finally, this text offers a number of pedagogical features that serve both instructor and student. The writing style is direct and free of jargon, weaving together narration, explanation, and science. With the nontechnical reader in mind, the text makes explicit many assumptions and connections that are often left implicit, thus guiding the student through unfamiliar territory. Key terms are highlighted in the text and appear in an extensive glossary of more than 500 items. Learning objectives and study questions are provided for each chapter, and supplemental materials for both instructor and student are available online. The text is enriched by photographs and supported by diagrams, graphs, and tables that summarize or explain important concepts and processes. One series of tables, building chapter by chapter, sets out the complex U.S. regulatory framework for environmental health.

I hope this book will leave students with a basic understanding of environmental influences on health. But more than that, I hope they will gain an appreciation of the ways in which we all make the environment we live in, and a sense of how our future choices might differ from past ones.

Nancy Irwin Maxwell
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