

# Pharmacy in Public Health

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## **BASICS AND BEYOND**

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# Dedications

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To my parents, Ruth and Richard Carter  
*Jean Carter*

To my family—my husband, Don; my daughters, Jonel and Jennifer;  
and my mother, Nona Kimball  
*Marion Slack*

To the memory of Lon Larson, a colleague and role model who inspired us both with his  
intelligence, insight, and humanity.

What comes to mind when you think of pharmacy and public health? Immunizations? Medication safety? Is that everything? The answer is no. Pharmacists have the skills, knowledge, and opportunities to facilitate the public health agenda and improve the health of their patients. We chose to write this book because of the limited resources available to pharmacy students and practitioners who want to participate in activities to improve the health of their community. We wanted members of the pharmacy profession to have knowledge of the basic concepts and tools as well as a framework for recognizing public health problems and opportunities for participation in public health activities. We wanted them to know that, as pharmacists, they can be proactive and become leaders in addressing health issues. Finally, we wanted pharmacists to know that they do not have to wait to intervene until the patient develops a disease, which is treated by medication, but can participate in initiatives to improve health and prevent disease.

Because our goal is to make sure that pharmacy students and practitioners develop the knowledge and skills to participate in and lead public health activities, this book is not a comprehensive encyclopedia of facts and figures in public health or a compendium of every public health issue that involves the use of medication. It is instead focused on teaching pharmacists the basic concepts and tools of public health so that they have the understanding and skills to incorporate public health activities into their practice. Public health concepts and tools can be very different than those that govern the use of medications to treat disease. Public health is more concerned with the promotion of health and the prevention of disease in populations rather than the treatment of disease in individuals. This book is structured to provide the three types of knowledge required for public health: concepts, tools, and models of pharmacist participation in public health activities.

The book is divided into three sections that build on one another. This approach is based on the idea that readers will obtain a basic orientation to public health and what it involves in the first section. The second section introduces basic concepts and tools required for engaging in public health activities. The third section provides descriptions of models of public health programs in which pharmacists have participated.

The basic orientation to public health provided in the first section includes chapters on history, ethics, and laws of public health as well as a description of the public health system. The second section provides the underlying concepts of public health using an ecological model of health to describe those factors in the environment related to health and prevention of disease. The ecological model was chosen because it is oriented toward health and because it is useful at any population level from a neighborhood to the global level. The remaining chapters in this section delineate a framework to guide public health activities and provide specific tools, for example, basic epidemiological and statistical concepts. The third section of the book provides models of public health practice that involve pharmacists. We hope pharmacists can use the models to recognize opportunities for becoming involved so they can improve the health of their communities or their world.

When developing each chapter, we decided to use an integrated case study approach. Each chapter is built around a case study. The case study is first introduced at the beginning of the chapter, and is then revisited throughout the chapter to illustrate concepts and applications of public health tools as well as provide a model for how pharmacists can address similar public health issues. Chapter questions are used to help readers focus on the learning outcomes. In the third section of the book, the chapters are entirely based on cases used to illustrate models of pharmacist involvement in various public health services. Additionally, an “Applying Your Knowledge” section provides thought-provoking questions for discussion or suggestions for activities that are intended to move learning from the textbook to the real world of public health. Throughout the book, an effort is made to provide suggestions for actively engaging in activities that will help students learn and enable them to become involved in public health. This book supports the belief that all health care professionals, because of their knowledge and position in the community, have a responsibility to improve health and prevent disease.

This book is designed primarily as a textbook but can be useful in numerous situations, including:

*The classroom.* The most obvious use of the book is in the classroom. Professors can use the book to introduce students to the basic concepts and tools of public health through the text and the suggested learner activities. (See the Note to Instructors below.)

*Student experiential rotations.* Students can take the book with them on rotations so that they get to know the community they serve—to understand the context of health and disease in which they practice pharmacy. By understanding the context of their practice, they can better meet the pharmacy-related needs of community residents as well as participate in local efforts to address health issues.

*Pharmacy practice.* Established practitioners who are interested in tailoring pharmacy services to the needs of community residents or participating in activities to improve health in their service area can use the book to learn the basic concepts and tools of public health.

*In the community.* In addition to pharmacy education and practice, pharmacists may use the information to become more involved in local, state, national, or international public health efforts that they find are personally or professionally rewarding.

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## Note to Instructors

This textbook and its supplemental materials can be used in several ways within a pharmacy curriculum. We recognize that some schools may have a single course dedicated to public health topics, while others may have the topics integrated into the curriculum through several courses. To help identify which chapters may be best used in different situations, several tracks have been created.

### **Track A: All topics covered in one course**

If the text is used entirely within one course, then the three sections of the book are best presented in their current order. Within a single section, chapters may be moved around to accommodate the flow of the syllabus. The topics in the first section (chapters 1–5) should be used first, followed by the topics in chapters 6–12. These chapters can serve as the topic areas for lectures. The models in the third section (chapters 13–18) are probably best used as a basis for classroom discussions.

### **Track B: All or some topics covered in two or more courses**

For programs where the topics must be integrated into the curriculum via two or more courses, it will probably be most helpful to present the information in several contiguous lectures. This approach is suggested because students will have to consider issues from a public health perspective rather than a pharmacy perspective. The first course in the curriculum, to include one or more chapters, should begin with the introductory chapter. If there is not sufficient time to use each chapter, the instructor could use the models in the last section (chapters 13–18) as cases or examples.

*Ethics course.* In addition to the introductory chapter, the instructor should use chapters 2 (history), 5 (ethics), and 7 (culture) to provide a historical context and introductions to public health ethical principles and cultural influences.

These chapters set the stage for debates about inherent conflicts between public health and pharmacy ethics, including personal autonomy versus public welfare and privacy versus the public's right to know.

*Drug literature course.* The introductory chapter should set the tone, then chapters 10 (epidemiology), 11 (describing populations), and 12 (community health) should be included. The model chapters in the third section all include statistics and epidemiological data and results that can serve as examples.

*Communication course.* The introductory chapter is the logical place to begin before using chapters 6 (determinants of health) and 7 (culture). Although these chapters do not focus on communication per se, they provide background information about the many forces that shape human behavior and understanding of the world. If not covered elsewhere, chapters 8 (health promotion) and 9 (disease prevention) provide fine examples of how communication is used.

*Introduction to pharmacy practice course.* The introductory chapter and the models in the last chapters (13–18) can provide students with another avenue of practice to consider and provide the instructor with a valuable comparison of health care practice and public health practice.

*Health systems course.* The introductory chapter should be used first and then chapters 2 (history), 3 (public health systems), and 4 (public health law). Chapters 8 (health promotion) and chapter 9 (disease prevention) can be used to compare and contrast similar or different perspectives between health care and public health practices.

*Pharmacy law course.* The law chapter (chapter 4) by itself is not sufficient for teaching pharmacy law; however, it is a good way to introduce the students to why we need pharmacy laws and regulations. Complementary information about government roles and police power are found in chapters 2 (history) and 3 (public health systems), respectively.

### **Use of supplemental materials**

In addition to the textbook, we have created instructional materials. Short slide sets that focus on major topic areas can be mixed and matched or incorporated into existing classroom lectures. These short sets of slides give the instructor more flexibility in arranging the order and allowing time for discussion. We included key figures and tables from the book in the slides. Additional and often more advanced cases are also provided to encourage deeper thinking and discussion of key concepts and applications. Cases may be adapted to the local community or used to illustrate cultural and health issues of other populations. Because new knowledge about health and disease emerge each year, the cases can be updated as needed and re-used for many years. Both the slide sets and cases will be available online to students and instructors.

# Acknowledgments

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The great fear in writing the acknowledgments is that we won't adequately represent everything the significant people in our professional and personal lives have contributed to this book.

*Marion Slack:*

I worked in an environment that provided lots of room for creativity but also supported me—the College of Pharmacy at the University of Arizona. Then I was lucky enough to be associated with Dr. Lon Larson in the days just after I received my Ph.D. and was looking for employment. Lon suggested that I participate in the federal grant for interdisciplinary training in rural areas that had just been awarded to the University of Arizona. It happened that the training program was focused on community health, so I learned about rural and community health as well as public or population health. I also began to work with Marylyn McEwen, Ph.D., from nursing and learned about Anderson and McFarlane and their “Community as Partner” model of public health. When the first grant cycle ended on the interdisciplinary training project, Marylyn and I decided that we would become the PIs and work with Nogales, Arizona as our collaborating community. Fortunately, Karen Halverson, the Executive Director of the Southeast Area Health Education Center, and her staff and Gail Randolph, the Director of Nursing at Mariposa Community Health Center, became our collaborators in the community. Joyce Latura and the promotoras (Spanish word for community health workers) taught us so much about the local culture and the issues of trying to be healthy on a low income.

*Jean Carter:*

As your co-author, I would like to thank you (Marion) for saying “Yes” when I asked if you wanted to write a book about pharmacy and public health. It has been a pleasure working with you. I want to recognize the public health professionals in the Missoula City/County Health Department, especially Ellen Leahy, for their ongoing involvement in our school's “Pharmacy in Public Health” course. I also received great support from the Montana Department of Health and Human Services, which came primarily from Dr. Todd Damrow who was serving as the state's epidemiologist at the time. Another important group of people who provided support for this textbook are my colleagues at The University of Montana. A special thanks goes to my department chair, Mike Rivey, who ensured that I had the time I needed to write; my dean, Dave Forbes, for having a vision for pharmacy involvement in public health; and my colleague, Donna Beall, for her various activities. Her campus TB clinic for students and a rural outreach screening program inspired several cases used in the chapters and provided sources for photographs. I would also like to acknowledge one of my nursing colleagues from Montana State University, Dr. Sandra Kuntz, whose enthusiasm for community and public health is downright infectious!

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# Contents

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<b>Preface</b> .....	iv
<b>Acknowledgments</b> .....	viii
<b>Reviewers</b> .....	x
<b>Part 1 – Foundations of Public Health</b> .....	1
Chapter 1: Introduction.....	2
Chapter 2: History of Public Health .....	22
Chapter 3: Public Health at the Local, State, National, and Global Levels .....	45
Chapter 4: Role of Law in Public Health .....	71
Chapter 5: Ethics and Economics in Public Health .....	92
<b>Part 2 – Concepts and Tools of Public Health Policy</b> .....	109
Chapter 6: Determinants of Health .....	110
Chapter 7: Cultural Competence in Public Health .....	134
Chapter 8: Health Promotion .....	159
Chapter 9: Disease Prevention .....	178
Chapter 10: Epidemiology and Disease .....	197
Chapter 11: Describing Populations .....	227
Chapter 12: Community Health .....	247
<b>Part 3: Models of Pharmacist-Run Public Health Programs</b> .....	273
Chapter 13: Tobacco Control Programs .....	274
Chapter 14: A Community Pharmacy Influenza Vaccination Service.....	291
Chapter 15: A Community Health Worker Program for Obesity Prevention in a Minority Population.....	309
Chapter 16: Campus-Based Tuberculosis Service .....	326
Chapter 17: Emergency Preparedness Planning and Response .....	341
Chapter 18: Domestic Violence Prevention: Improving Services for Perpetrators .....	359
<b>Glossary</b> .....	374
<b>Index</b> .....	382

# Reviewers

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