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Epidemiology

Key to Prevention
Preface

This book is the successor to the textbook “Lessons on Epidemiology” (in Vietnamese) that has been in use at the Medical University of Thái Bình since 1990. After a critical analysis of these “lessons” we wrote a completely new text. It is meant for adoption in the first courses on epidemiology in Medical Schools and Faculties of Public Health in developing and transition countries and in workshops in these countries, taught, for example, by members of international organizations. It is also suitable for parallel or second reading within curricula in developed countries and for teaching epidemiology in a Master’s programme on “International Health”. The book will enable any lecturer to compose his or her introductory courses on epidemiology by selecting the material deemed appropriate. It will provide a solid foundation for more advanced teaching.

Hence, the intended readership consists, in the first place, of general medical students; students following the programme “Preventive Physician” that runs parallel to general medical studies in some countries; students starting to specialize in Public Health; and lecturers in epidemiology. The book can also serve well as an introduction to epidemiology for anybody else interested in this field; for example, staff of health institutions and students and lecturers of international development.

Examples and practical work are taken from the present situation of health in Vietnam. Such a coherent setting in one specific country is seen as an advantage, not a drawback; it is preferable to illustrations from many countries that will necessarily remain diffuse and superficial. The book is in fact a large case study that can easily be adapted to any other developing or transition country.

The general level is that which can be expected of students who were admitted to medical studies. The only specific prerequisite is some basic secondary-school mathematics. Above all, the reader should be ready to think; rote learning is not encouraged.

When writing the new book we were guided by a few general principles that concern its purposes, its content, and its didactic approach. Let us sketch them briefly.
The main purpose is to give the reader a clear picture of the fundamental ideas that underlie the field of epidemiology and to recognize their role in any situation in practice. It is only by being familiar with these ideas that the right questions can be asked in real situations and the right methods can be chosen to solve practical problems. We emphasize throughout the position of epidemiology as the centre-piece of Public Health; in particular, Prevention.

Also, when reading the report on a study, students of Medicine or Public Health should be able to put it into the correct framework, to extract the essentials and to judge its significance and correctness. This is all the more important as most students will never have an occasion of participating themselves in a major study. They will later on have to base their decisions about practical matters of Public Health, especially about Prevention, on publications.

Our book is not intended to teach details of techniques. When engaged in an epidemiologic study or faced with an epidemiologic problem underlying prevention, health education, outbreak investigation or control of infectious diseases, physicians must know which steps are to be taken and why, but they need not know how these steps look in detail; for that they can consult specialists or appropriate manuals.

This text will also prepare its readers to use statistical software with discernment. Since many different software packages are being employed in various institutions we have neither recommended nor used a particular one.

One more purpose of the book is to lay the ground for what we would like to call “population-side teaching”, which is the public health analogue to “bedside teaching” of clinical medicine; it is related to, but not identical with, “community-based teaching”. Medical students should help health workers on the primary level to understand simple epidemiologic facts and to describe them and use them if possible. Part of their training can also take place in direct contact with the population. Our text provides much material that lends itself to this kind of teaching.

Regarding the content of this book, the scope is fairly large and covers topics that play an important role in present day health activities but are rarely treated in existing texts. The topics include registers, health information systems, sample surveys, and elementary statistics. Much attention was of course paid to non-infectious diseases. We have also added some topics that are, in our experience, often handled wrongly in the literature and need to be elucidated. Nevertheless we have tried to restrict ourselves to the essentials. Lesson 28 (Outlook) gives an overview of more advanced subjects and areas that could not be treated here.

At first sight the organization of the book as reflected in the table of contents may not look very systematic. It is the result of didactic viewpoints. We did not want to start with general theory and handle applications afterwards. Instead we have tried to place the theoretical bases at their natural places. Thus, in the beginning, that is in Lessons 1–10, most fundamental ideas appear only in a specific concrete context. They are explained in an intuitive way, not very rigorously, but sufficiently well so that the student can understand their role. Theory and methods are then provided in Lessons 11–17 when the student has already gained some feeling about them.
Then, armed with these tools, we go back to specific problems but again, three more theoretical and general lessons (20, 21, and 24) are put in only later, when they are needed.

This organization also corresponds to basic differences between the epidemiology of infectious and of non-infectious diseases. Firstly, in the past, epidemiologic thinking in developing countries was dominated by problems of infectious diseases but at present non-infectious ones play an equally important role. Secondly, modern general and rigorous epidemiologic methods have been established mainly as a response to challenges by non-infectious diseases; whereas, problems of the epidemiology of infectious diseases can be handled to a large extent by more elementary tools, with the exception of mathematical modelling. Thirdly, and most importantly, most curative interventions against an infectious disease in a community also have an indirect preventive effect by eliminating sources of infections; nothing of the kind exists for non-infectious diseases.

The reader should be aware of the fact that the lessons on specific problems are determined in two basically different ways: either by the outcome variable as in Lessons 6–10 and 22–23 or by the exposure as in Lessons 25 and 26.

For didactic reasons, too, we have treated systematically only the action of a single exposure variable, with the exception of Lesson 21 on confounding, where we have explained everything with the help of two examples. Having understood the principle of the action of one risk factor, the reader should have no difficulty in understanding the essential ideas of the role of several exposures together as they come up in the examples of Lessons 22, 23, 25, and 26 in an informal way.

Similarly, we have restricted ourselves mainly to studying binary exposure and outcome variables.

A last important didactic viewpoint is the unity of the book. It should not, and cannot, be seen as a collection of more or less independent lessons. In particular, there are very many cross-references, considered as a didactic tool, too. We have not been afraid of being repetitive in some places.
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