

A Dictionary *of* Epidemiology

Fifth Edition

Edited for the
International Epidemiological Association
by

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TO WRITE A DICTIONARY IN ANY SCIENTIFIC DISCIPLINE IS A RISKY ENDEAVOR, BECAUSE scientists often disagree. The nature of science is not to reach consensus but to advance our knowledge by bringing conflicting ideas to critical examinations. That is true also for how we define the concepts we use. No dictionary will ever be able to satisfy all, nor should it try to.

The aim of the International Epidemiological Association (IEA) in cosponsoring this dictionary in its more than 20 years' history has been to facilitate communication among epidemiologists—to develop a “common language” to the extent that this is possible. We need a common language when we write papers, teach, and communicate findings to the public.

This “common language” changes over time, as anybody can see by reading the successive editions of this dictionary. The language changes because our understanding of the concepts changes over time and new research options bring forward new concepts.

From the IEA, we want to thank John Last for his tremendous achievements as editor of the dictionary, and we are happy to welcome Miquel Porta as the new editor. Miquel has provided the smooth transition we were looking for, and we are pleased to see that he continues the tradition of collaborating with leading epidemiologists worldwide to get the best possible result.

Jørn Olsen, Neil Pearce, and Chitr Sitthi-Amorn
Current, coming, and past presidents,
International Epidemiological Association
www.ieaweb.org

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THERE WAS VIRTUALLY NO GOOGLE, AND NO WIKIPEDIA THEN, SEEMINGLY CENTURIES ago, when the previous edition of this dictionary came out in 2001. And of the respected dictionaries, very little was “posted on the Internet.” Hard to believe. How did we manage, how could we ever have worked? But we did, we surely did: with open minds, critical sense, intellectual rigor. . . . No *google* or *wiki* or information technology (IT) whatsoever will change that. The need to do the epidemiological work with “that.”

Now we have thousands of webs and wikis with millions of papers, definitions, and discussions regarding terms at our very fingertips. Many are truly authoritative. You’ll find them – some, selected – duly referenced at the end of this book. Yes, we googled and used the Wikipedia, “surfed” and “visited” many remote, beautiful places. To surf, to post . . . whew, these terms will soon be obsolete, won’t they?

We continue to seek and to find *meaning*: in PubMed/Medline, in online textbooks and websites. Foremost, within the main dictionaries,¹⁻³ which we read often while writing this new edition, and which I hope you will always use in case of doubt or simply to enrich the definitions that we offer here (See pages 265 and 273–289). At—and through—“places” such as HighWire, ScienceDirect, Scopus, SciELO, ProQuest, Synergy, ISI Web of knowledge, Google, Yahoo, Live Search . . . what yesterday was an unthinkable utopia has become an “achievable utopia,” in many places actually achieved daily: the infinite library, and with it the unlimited dictionary too. I wish Borges were alive to enjoy it, if not actually to see it, since he was blind.

So what sense does it make, to craft a dictionary? Simple: in a radically new way, the “IEA dictionary”, “Last’s dictionary” can be as relevant—or more so—as it has been before. Because we have again, as always, critically listened and read, thought, discussed, and *selected* terms, meanings and definitions. With “that”: open minds, critical sense, common sense, intellectual rigor, creativity, flexibility, craftsmanship. . . . And because nowadays, with more “noise” than ever in history, sifting, decanting—selection with “that” is more valuable than ever before.

You will judge, but writing this dictionary confirmed to me that it was perfectly feasible to achieve a normative purpose and an informative one. With help of the highest possible academic level from many colleagues (duly acknowledged later), I tried to integrate two approaches to dictionary making: expert-opinion-based prescription (to aid production) and corpus-based description (to aid decoding).³⁹⁵ Meanings of scientific terms need to be proposed—and may occasionally be imposed—on the basis of expert advice; yet experts

and specialists can also keep an ear for actual usage, from which meanings must also be extracted. When we were choosing terms and meanings, we not only kept epidemiological theory and general logic in mind, but usage as well, and often attested explicitly the different uses of polysemic terms. The word “dictionary” is itself notoriously polysemic.³⁹⁵ This book shows how comfortable the coexistence of diverse meanings of “dictionary” can be. More importantly, it also shows a healthy “micropolysemic” variation³⁹⁵ in the terms and definitions. This edition also reflects, I believe, how plural—professionally, scientifically, culturally, and ideologically—epidemiologists are. John Last’s outstanding first four editions were themselves the result of a highly comprehensive and inclusive process of selection of terms and definitions: some 20 years of fantastic collaborative work by several hundred contributors since the early 1980s. The five editions are an extraordinary “record”—a “DVD,” if you wish, or an “mp4”—of the evolution of epidemiology during the last quarter century. I think they are also excellent materials for a sociology of epidemiology.

Therefore, as we continued the process and revised the last edition, we kept well in mind many types of reader, most with unimaginable resources, smart, “IT-wise.” Although you are cordially invited to pull the many strings that this book holds by simply reading and turning its pages with your fingers (odd and familiar as this may at once seem), we assumed that these pages were just a stop on your journey: perhaps you just came here from Oxford Reference Online and will next be at The Cochrane Library. Who could know? You know.

Not only can you always expand and progress on what you find here, we know you can always assess, contrast, verify. Quite a responsibility for an editor of a dictionary. This duty is not new, but it surely works on a different scale nowadays. It is now so easy to find that we were wrong, narrow-minded, off beam, too punctilious . . .

In the meantime, the ancestral book and our beloved library have not died. Neither did the paper journal. News of the death of academic journals—loudly proclaimed in the early years of this, the long awaited twenty-first century—were premature. We therefore may hope that this book will again find a place in your mind and be close to your heart. It’s light in weight, its pages will welcome your handwriting, it can be comfortably read out there in the sunlight—batteries are not needed.

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My call for contributions to this 5th edition was widely disseminated beginning early in 2006—prominently, in the *International Journal of Epidemiology* and the *Newsletter of the International Epidemiological Association (IEA)*, the worldwide scientific organization of epidemiologists that has nurtured all editions. The call was operationally answered by 224 professionals who registered in the wiki that we had set up with Oxford University Press. When invited to choose the sentence that best described their professional relationship with epidemiology, 67% of respondents selected “I have some to extensive training in epidemiology

and currently work or have professional experience as an epidemiologist [you may also have professional experience in other fields],” 27% answered “While my main job is not as an epidemiologist, I often use epidemiologic knowledge, methods or reasoning in my work,” 2% selected “I have little to no training in epidemiology and I seldom or never use it in my work [your contribution is nevertheless welcomed],” and 4% “Other.” These data provide a factual background for the next paragraphs.

Is this dictionary an attempt to *demarcate* epidemiology neatly? I don’t think so. Or I’d rather think it is not, to the extent that a dictionary can—or needs to—avoid demarcating a discipline.⁴ Yet like many other scientists, every now and then epidemiologists engage in boundary-making endeavors and disciplinary demarcation. And then, as usual in other disciplines, epidemiologists assert or reclaim contested epistemic authority and may claim jurisdiction over areas of public health, medicine, statistics, or science. These efforts evolved in the course of the twentieth century while epidemiology developed as a very diverse, eclectic—and foremost, *integrative*—field of practice and academic discipline.⁴⁻¹² And so will they evolve as the societies of the twenty-first century continue developing. There is nothing wrong with that, it is the *natural* thing.

Is this dictionary an epistemic space? Well, of course it is, in the broadest sense: a space of knowledge. Does it belong to an epistemic community or to more than one? Both answers are true. It belongs to one very diverse community of knowledge—epidemiologists around the globe. And to a lesser but no less important extent, the dictionary pertains also to the many communities of knowledge that interact and cooperate with epidemiology, or with which epidemiology cooperates, or that simply use epidemiological reasoning, knowledge, methods, or techniques.

No matter how many mistakes we may have made (eventually, they are all my responsibility), I would like to think that in making this new edition we again practiced a high level of scientific and intellectual rigor in two opposite and complementary directions: (1) in selecting and defining terms that are at the ontological, epistemological, and methodological core of epidemiology, and (2) in selecting and defining terms that are near or within disciplines with which epidemiology maintains vital interactions—vital for epidemiology, the other disciplines, science, and society.

These I take to be facts: today research methods with strong epidemiological roots and properties are fruitfully applied “within” and “outside” epidemiology. A positive blurring of the boundaries of epidemiological research methods occurred in the last decades of the last century; e.g., the integration of population thinking and group comparison into clinical and public health research.¹⁰ The expansion of this influence toward other research areas remains a significant—and in my view highly attractive—challenge for many scientists. Such an expansion of influence will not be identical to what occurred via clinical epidemiology and, later, evidence-based medicine and, today, evidence-based health care. The nature of the hypotheses at stake is often quite different in clinical medicine

than in, say, molecular biology or proteomics. Largely because of this ontological fact, because biotechnologies generate and drive different types and amounts of information and research, and for other reasons, today epidemiological thinking continues to create new approaches, research designs, strategies of analysis, and ways to assess causality for such biological disciplines. Thus the influence of epidemiology continues. The potential to improve the health of citizens is there. In fact, the rationale for task (2) mentioned above also includes the relevance of epidemiological methods for research on the public health problems that are best tackled by blending the reasoning and the tools of epidemiology and of some of the social sciences. Therefore this new edition aims at being useful not only to classic epidemiological and clinical research but would also like to continue favoring the integration of epidemiology into “microbiological” and “macrosocial” health research and practice. I am confident and content that much of this is already happening, and thus feel this book is rather in harmony with most of the contemporary scientific world: wide open and interconnected—much more creative, relevant, efficient, and interesting because of the porousness and plasticity of the disciplines than because of the putative higher mission or language of their leaders and disciples.

In short, if you live in a foreign land and have come to visit this book from “outside” epidemiology, be welcome. If you are an epidemiologist on the eve of a “trip” to a foreign discipline, please take this book with you. And, again, if you mostly work “inside” epidemiology, please keep it at hand: this is your territory—yet I hope you will here discover new landscapes of unsuspected beauty.

Miquel Porta
January 2008
Barcelona

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IT IS A PLEASURE AND A PRIVILEGE TO THANK EACH AND ALL INDIVIDUALS throughout the world who volunteered to contribute terms, definitions, or other ideas for this dictionary: never before had I enjoyed such a large, diverse, and creative group of coauthors. Thanks! I trust you will understand that I could not always make all your scientific, linguistic, and lexicographic dreams come true. And I very much hope you will have fun skimming through the pages that follow.

It is equally a joy and an honor to thank all members of the International Epidemiological Association (IEA), and in their name, especially, past, current or coming presidents Rodolfo Saracci, Charles du V. Florey, Chitr Sitthi-Amorn, Jørn Olsen, and Neil Pearce for their intellectual stimulus, personal encouragement, and institutional support in editing this book.

I feel extremely fortunate that Sander Greenland and John Last accepted my personal invitation to work as associate editors and that they offered extremely valuable contributions; I am sure that readers—some, perhaps unknowingly—will be equally fortunate: a lot in this volume is due to John and Sander. It is also my great pleasure to give special thanks to Miguel A. Hernán and Vasily Vlassov for their extremely thoughtful, insightful, and practical contributions, many made speedily and when it seemed impossible to achieve clarity for particularly complex or unusual terms. For what I have made of the advice of all contributors, and for any errors, I alone am responsible.

Warm thanks are also due to the linguistic and lexicographic consultants, Janet Byron Anderson (fourth edition), Lluís Quintana, Albert Rico and David J. MacFarlane (fifth edition). Skilled editorial assistance was kindly and efficiently provided by Joan Pau Millet, Eva Morales, Tomas Lopez and Silvia Geeraerd.

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Like many other human beings for centuries, I continue to treasure my love—both emotional and practical—for books, and have come to experience a somewhat peculiar bliss in reading prophecies on the death of the book. I am, therefore, so glad to acknowledge everyone at Oxford University Press, who with their outstanding editorial competence and wisdom also *made* this book.

M. P.

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