



Book Reviews

A Dictionary of Epidemiology

Miquel Porta (ed). 6th edition. New York, NY: Oxford University Press 2014, pp. 376, £42.00, ISBN-13: 978-0-19-997673-7

When glancing at the cover of the sixth edition of *A Dictionary of Epidemiology*, the first question that came to mind was whether a new edition of the dictionary was really necessary in an era when everything or almost everything can be found on the internet. It is a difficult question: instead of discussing whether a book is good or not, we debate whether it makes sense to have it in the first place. I will not hold back: a dictionary is absolutely necessary and it is a pleasure to hold the new edition and browse through it. Miquel Porta, editor of the fifth and sixth editions, discusses precisely this issue in the preface (very entertaining: recommended reading!) and suggests that ‘[the dictionary] can be more relevant and useful than ever before because nowadays we suffer from an unprecedented level of air pollution, noise and potential confusion’. We need an authoritative reference, even if we all know that definitions are never definitive and are often controversial. Indeed, being able to offer different views and modify definitions over time is a sign of authoritativeness. However, my view may just be outdated and isolated, so I asked 11 close colleagues, including senior and junior epidemiologists and biostatisticians, what source they would use for the definition of epidemiology when preparing teaching material. It was an open question, so they could cite more than one source. In total, seven colleagues would have used an influential textbook—I will not report titles and authors as this is a review of the *Dictionary*; five would have used one of the previous versions of the *Dictionary*; and two would have used Wikipedia. This experiment would not be mentioned in the *Dictionary* as an example of good epidemiological practice but does suggest that the internet alone is not enough.

A dictionary of epidemiology directly sponsored by the International Epidemiological Association is also a sort of building block of our discipline. Rather than drawing a line

between epidemiology and other disciplines, it implies a shared language and core of concepts and knowledge. It does not mean that its readership is limited to epidemiologists; on the contrary it is a way to communicate with other disciplines and especially with the multitude of disciplines that typically interact with epidemiology in one way or another. Communication should always be two-way and the *Dictionary*, consistently, includes terms that do not really belong to epidemiology (see for example: *epigenome* or *retrovirus*, both mentioned in previous editions too). A multidisciplinary approach is definitely one of the hallmarks of epidemiology, as well demonstrated by the first sentence in the definition of the newly introduced term *global health*: ‘The international, transdisciplinary, and intersectoral research, knowledge, and policies for improving population health and health determinants on a planetary scale’.

I am not the only one to believe that one of the main recent changes in our field is a formal methodological approach to causal inference. Epidemiologists have been discussing causal inference since the earliest days of the discipline, but we have now new tools and methods and we use a more formal approach to distinguish between association and causation. We are witnessing the flourishing of courses in causal inference at all levels—but not yet in medical schools, at least not in Italy—and thematic scientific journals. This big, or small, revolution was entered the fifth version of the *Dictionary* and has been further developed in this sixth edition. Just looking at the letter C as in *cause*, terms like *confounding*, *confounder*, *collider*, *causal inference* and *counterfactual outcome* have been profoundly revised or newly introduced.

Given it is a dictionary, its appreciation is based on the reader’s scientific interests and field of work. I felt it natural to start from the definition of *epidemiology*, which has been slightly changed, mainly broadening its

applications. The aims now read '[...] to promote, protect, and restore health, and to advance scientific knowledge'. The latter was not mentioned in the previous editions, and I support this change in an era when it seems that we should justify any research activity with its practical, yet relevant, (clinical, economic, etc.) implications, whereas scientific knowledge in itself is often regarded as unimportant. I have a specific methodological interest in selection bias and generalizability issues, and I looked at these and related terms in the *Dictionary*. *Selection bias* is a complex and partly controversial term which has been updated in the new edition. For example, it now makes reference to the issue of generalizability and acknowledges that under some circumstances it is possible to address selection bias analytically via inverse probability weighting. *Generalizability* has been extended to mention its relationship with *representativeness*, acknowledging the distinction between descriptive studies and studies of aetiological nature. *Transportability* has been added as a new term, with no definition but a direct link to generalizability, and the concept of transportability is mentioned in the term

validity, which in turn has been only slightly revised compared with the previous edition.

I also work on internet-based research, which is why I looked for web-based or internet-based epidemiology in the *Dictionary* but without finding the terms. I am not sure whether these terms would necessarily have to be included in a dictionary, but we should consider anyway the process that led to the new edition. A large number of eminent epidemiologists contributed to the definition of at least one of the terms in the current and previous editions (and they are acknowledged as contributors), and John Last, Sander Greenland, Miguel Hernan and Isabel dos Santos Silva acted as associate editors. Furthermore, a call for contributions was launched and widely disseminated in 2012. Thus, if you do not find your favourite term in the *Dictionary*, do not complain and get prepared to contribute to the next edition.

Lorenzo Richiardi

Email: lorenzo.richiardi@unito.it

International Journal of Epidemiology, 2015, 374–378

doi: 10.1093/ije/dyu232

Advance Access Publication Date: 13 December 2014



G is for Genes

Kathryn Asbury, Robert Plomin. Chichester, UK: Wiley, 2014, pp. 197, £16.99, ISBN9781118482810

It is unfortunate that the authors of this book appear to assume that its readership will not be quite up to their 'level'. As a result, many 'facts' are stated dogmatically and without qualification, only to be contradicted by an equally dogmatic unqualified statement on the same issue later in the book. Given what the authors believe about the spread of ability, it is very hard for them not to assume that most people reading this book do not possess their intellectual ability.

I'll explain what I think the key errors and half-thoughts are later, but to understand why they matter so much, first consider the 11 recommendations the authors make. If the authors are mistaken, it really matters, because of the educational policies they propose and the damage many of those policies would cause. I directly quote from the book in many cases, or give page numbers for where I have paraphrased.

- i. Reduce teaching for most children to a set of very basic skills. Use 'learning chips' to identify those few

with the most promising genes and potential, and treat that subset very differently (pp. 161–62).

- ii. Introduce a much wider range of choices in school, with teachers using genetic information about each child to decide which children should be directed towards what particular choices (pp. 163–64).
- iii. Most children should return to receiving a school-leaving certificate (as was common before World War II). Alongside this certificate, 'Children who excel should also be offered the support and opportunities they need as a matter of course' (p. 166); presumably those few will be getting much more than just a certificate.
- iv. A large team of psychologists should be employed in every school to incorporate information from 'each child's DNA sequence into their 'big picture' of each child's needs' (p. 168).
- v. 'Within schools, teachers should use IQ tests and psychological measures of confidence and motivation to