History of epidemiologic methods

A knowledge of epidemiological history, combined with a firm grasp of the statistical method were as essential parts of the outfit of the investigator in that field as was a grounding in bacteriology.

Major Greenwood

Social and Preventive Medicine (International Journal of Public Health) starts the publication of a collection of papers presented at a Workshop on the history of epidemiology entitled "Measuring our scourges", held in Annecy, France, on July 1–10 1996. This workshop focused on the historical emergence of the corpus of epidemiologic methods used today and their relative importance at different points in time. Three papers (on the history of cohort analysis, case-control studies and cancer registries) were written after the conference but will also be part of this series.

There is currently a need for a text on the history of epidemiology written by both professional historians and epidemiologists. In the absence of such text, this collection of papers can provide useful material for courses dedicated to history in the teaching curriculum of epidemiology scholars.

The aim of the Annecy workshop was to focus on the history of epidemiological methods rather than on specific achievements of epidemiology for the following reason. Students of epidemiology learn successfully how to describe states of health on populations, how to investigate outbreaks and then will learn, with increasing degrees of complexity, to understand and to apply the design of prospective and retrospective studies, and the concepts of bias, confounding, interaction. They are also brought to think in terms of causation, with different levels of sophistication. Thus, epidemiology can be viewed as a set of methods and concepts that one needs to master to become an epidemiologists. Mastering these methods becomes the reasons why someone is considered (and given a position) as an epidemiologist rather than any other kind of scientist.

A historical question is then to determine when were current epidemiologic methods developed? Methods, just as diseases or scientists, have their own history. It is important to scientists to be aware of the genesis of the methods they use, of the context in which they were developed. This is of cultural interest but can also stimulate a critical appraisal of the methodological tools at hand. The net result should be better science as suggested by Major Greenwood (1880–1947) in the citation at the beginning of this introduction.

The first set of three papers are about the history of cohort analysis and studies. George W. Comstock (b. 1915)[1] deals with the adaptation by Frost of the life table methods and the refinement of what we currently call "cohort analysis", that is, "the morbidity or mortality rates experienced by a group of persons born in a specified time period, the 'cohort'."

In the two subsequent papers, Sir Richard Doll (b. 1912) describes the development of prospective[2] and retrospective[3] cohort studies. The titles of Doll's papers require their own historical explanation. The name "prospective study" was coined by Richard Doll and Austin Bradford Hill (1897–1991) in their 1954 paper on "The mortality of doctors in relation to their smoking habits"[4] in which they wrote: "In the last five years a number of studies have been made of the smoking habits of patients with and without lung cancer (...) Further retrospective studies of the same kind would seem to us unlikely to advance our knowledge materially or to throw any new light upon the nature of the association. If, too, there were any undetected flaw in the evidence that such studies have produced, it would be exposed only by some entirely new approach. That approach we considered should be 'prospective'". Reference

was made after the word "prospective" to a footnote which read:" O. E. D. Characterised by looking forward into the future. (Leigh Hunt: "He was a retrospective rather than a prospective man"). The name "cohort study" instead of "prospective" study was later successfully proposed by Brian MacMahon (b. 1923) in 1960.

Some aspects of the history of epidemiology will not be dealt with specifically in this collection of papers: the history of epidemics, the history of epidemiologists and the evolution of conceptual and philosophical frames. The achievements of epidemiology in the control of plagues such as cholera, tuberculosis, malaria, typhoid fever or lung cancer are fascinating issues. Studying the lives and contributions of specific epidemiologists such as John Snow (1813–1858), William Farr (1807–1883) or Wade Hampton Frost (1880–1938), are fully part of the history of epidemiology. The on-going debate on the "future of epidemiology" and the vigorous reflection on ethics in epidemiology are timely and must be grounded on a historical appraisal of lessons of epidemiology's past. Aspects of these three facets of our history as epidemiologists are exposed in the contributions but are not the main focus of this interrogation on the genesis of epidemiologic methods.

In order to offer a support to people who would like to use this material for teaching purposes, the full papers will be available on a web site (www.epidemiology.ch/history), along with iconography and additional references.

Readers are invited to send their comments. We will also be happy to publish new material that would be submitted for peer-review to this journal.

References

1 *Comstock GW.* Cohort analysis: W.H. Frost's contributions to the epidemiology of tuberculosis and chronic disease. Soz Praventivmed 2001; *46:* 7–12.

2 *Doll R.* History of epidemiologic methods: Cohort studies. 1. Prospective cohorts. Soz Praventivmed 2001; *46* (2).

3 *Doll R.* History of epidemiologic methods: Cohort studies. 2. Retrospective cohort studies. Soz Praventivmed 2001; *46* (3).

4 *Doll R, Hill AB.* The mortality of doctors in relation to their smoking habits: a preliminary report. BMJ 1954; *1:* 1451–5.

Alfredo Morabia

Soz.- Präventivmed. 46 (2001) 001–006