The future role of the IEA

Jorn Olsen

Epidemiology is an important and well-recognized scientific discipline within health research because epidemiologic research is needed in health planning and disease prevention, as well as in clinical practice. The call for evidence-based treatment and prevention has certainly helped in ‘spreading the gospel of epidemiology’ to borrow the term Cruickshank, one of the founders of the IEA, often used.1

The reasons for the success of epidemiology are, to a large extent, also the threat to epidemiology, at least the threat to epidemiology as an independent and coherent discipline in itself. By far, most epidemiologists have been divided into subgroups classified according to the disease they study (for example, infectious disease or cancer epidemiologists) or the exposure they address (for example air pollution or HIV epidemiologists). Although they conduct epidemiological research they often do not see themselves first and foremost as epidemiologists. They do not become members of the IEA and they may even see general epidemiological journals, such as the International Journal of Epidemiology, as irrelevant to their needs.

In order for the IEA to remain healthy we will have to focus upon that which is common for all epidemiologists, namely the growing set of methods we use for our quantitative approach to studying the occurrence of diseases in human populations. It may be true that many epidemiologists have been lured away from doing good in public health—their ‘service’ role—to being good in research, but this has been driven by need and an academic interest in developing and refining our methodology. Without that development we would have been in a much worse position.

The opportunities in genetic epidemiology came not only with the mapping of the human genome and new biotechnology but have also required the development of a new design methodology and new tools to handle large and complex data. Bioinformaticians may become more important collaborators in the future than statisticians. Compared with the need to understand gene function, the issue of assessing the size of random errors is likely to become a smaller concern in evaluating epidemiologic data, as studies move from moderate to massive size.

We can sometimes overcome serious sources of biases, or we can at least disclose them by using new design methods, such as Mendelian randomization and case-time control studies, etc. It may also be useful to revisit the methodology developed in infectious disease epidemiology many years ago. Infectious diseases play a major role in global health and remain a serious threat to health all over the world, perhaps today more so now than in the past. HIV/AIDS may well be the first important warning sign of what might happen in the future if we are not well prepared to fight new communicable diseases. Biologists will be key collaborators in this battle but they need to be guided by good epidemiological data.

Methodology is the glue that binds epidemiologists together whether we work in public health epidemiology, clinical epidemiology or genetic epidemiology. There is no contradiction between taking an interest in global public health and taking an interest in methodology. On the contrary, IEA should provide a platform ‘from which to spread the gospel for the best possible epidemiologic methodology’, if we are ‘to help solve major public health problems all over the world’.1 Having access to the best possible methodology where it is badly needed is a challenge that the IEA, and its journal the International Journal of Epidemiology, should accept. For this reason, the IEA has encouraged meetings to be held in countries with big health problems and limited resources.

Being a member of the IEA is in itself a way of supporting colleagues in countries with limited resources and big health problems. Epidemiologists with a concern for global health problems and an interest in doing collaborative research involving several countries should join the IEA, as well as all who consider themselves full time epidemiologists. The thinning out of epidemiologists into many subspecialties is a serious threat to our wish to be heard and taken seriously as epidemiologists when research programmes for funding are written, when rules for data protection are being formulated, or when ethical committees make general individualistic decisions that deeply affect our work. The ongoing process of strengthening the regionalization of the IEA is a response to these threats. The IEA felt it necessary to have a structure within the region that could act on regional matters at short notice and could make plans for the future together with national societies in epidemiology and public health.

Breslow may have been wrong about an improper balance between interests in methodology vs an interest in public health, instead the imbalance may in fact be the opposite of what he had in mind. Although, he may well be right in his concern about a lack of interest in public health among epidemiologists and others, but this reflects political fashions that will change over time. If we keep turning right we will soon go in circles.

Breslow is right in concluding that epidemiologists have mainly studied the phenotypes that our clinical colleagues have called patients, and diseases are only one part of the health spectrum. Rather than studying the determinants of dementia, we should perhaps study the determinants of cognitive functioning. It would fit well with Rose’s point of view concerning the importance of changing the whole distribution of a risk factor (for example, serum-cholesterol) rather than just treating the few with the highest levels.2 A change in the
population distribution to lower levels would have a much greater impact on the burden of cardiovascular diseases in the population than just treating those suffering for hypercholesterolaemia. Breslow wants us, however, to go further than changing the distribution for a risk factor. We should look at the entire spectrum of health and focus upon optimal health. Although this idea has been around for a while, it has not changed our traditions much, perhaps because traditions are mainly driven by the political and scientific establishment who write funding the programmes. There have, however, been some prominent examples of ‘spectrum expansion’, like the search for longevity genes in the oldest members of the populations and the search for determinants of not being infected with HIV in spite of massive exposures to HIV.

The health point of view was much debated 10–20 years ago when epidemiologists were accused of only telling people that they should not do the things they enjoyed (like smoking, eating too much and having sex) and they should start doing things they did not enjoy (like taking exercise, using condoms and eating broccoli). We seemed to be obsessed with diseases and sudden death, rather than how best to enjoy life.

Do we now have the methodology to focus upon the full spectrum of health rather than just diseases? To some extent we do and the idea actually fits well with the current emphasis of taking a life course approach to study diseases. We have to set up long-haul, high quality cohorts since we cannot rely upon existing disease registers or medical records with their non-systematic recording of exposures and inadequate disease ascertainment in defined populations. We need large-scale, systematic longitudinal records of health and exposures. Such studies may be expensive to set up, but need not be more expensive than our usual case-control studies if the cost is counted per amount of information, and ability to influence policy.

As Breslow states, this path is a natural consequence of the WHO definition of health: health is not only the absence of diseases but complete physical, mental, and social well-being. Some may say that WHO defined ‘happiness’ rather than ‘health’ and would research on social well-being actually be epidemiology? Would we wish to see professorships in the epidemiology of happiness? Would we want to expand our definition of epidemiology to cover all aspects of WHO’s definition of health, and would this trespass the ground of social psychologists and sociologists? The time has come to find our roots rather than spreading the gospel into all areas of human life and experience. We should not turn epidemiology into ‘occurrence research’ without limits.

References