

New studies, technology, and the progress of epidemiology

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The progress of epidemiology depends on advances in epidemiologic methods and in research findings. For both, new technologies are highly important. It is, for example, difficult to understand the strong growth in epidemiologic data-analysis without the emergence of the computer, or of molecular and genetic epidemiology without major advances in molecular technology. The purpose of this editorial is to invite articles on the new technologies that are likely to play a crucial role in the further development of epidemiology and of epidemiologic research.

For the practice of epidemiology and its methods, we already see the first glimpses of introduction of modern information technology [1–9]. We have witnessed the application of new technology in the remarkable explosion of genome-wide association studies (GWAs) of various diseases [10–27] and traits [28–39]. We also see the first results of new imaging studies and the emergence of the exceedingly important field of population imaging [26, 40–47].

The new array technologies used in GWAs have led to interesting changes in the way epidemiologic research is conceived and performed. The “hypothesis free” approach in the GWAs, i.e. approach without use of prior knowledge, has been considerably more productive than the candidate gene approach. This is sobering for those of us who have an optimistic view on what we know, and has led to the boutade that “most recent findings are false” [48]. The GWAs have also led to large-scale collaborations in epidemiology in a form and quantity that we had not witnessed before, although it remains to be seen whether this is a lasting phenomenon [10, 49].

The new imaging techniques that are currently applied in population studies are likely to be the beginning of an avalanche in epidemiologic studies of many diseases. These imaging techniques enable epidemiologists to study disease at an earlier stage than when a clinical diagnosis can be made, allow for objective assessment of the disease or trait, and make repeated assessment possible. These features are likely to be very advantageous, in particular for etiologic epidemiologic research [50–78].

The European Journal of Epidemiology publishes quite frequently descriptions of new studies and presents also occasionally updates of these studies’ objectives and design [3, 40, 41, 79–89]. We invite in particular new studies that make use of new technologies and we will also certainly consider manuscripts on the technical details of these technologies that are applied in epidemiologic research [90–92].

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