EDITOR’S CHOICE

Uncertainty and significance

In this issue of the *International Journal of Epidemiology*, Philip Brachman reminds us that, until a couple of decades ago, there was great optimism that all the major issues with respect to control of infectious disease had been dealt with. Several papers in this issue show that this is not the case. These papers largely concern infections identified since the age of optimism—human immunodeficiency virus (HIV), hepatitis C and new-variant Creutzfeldt-Jakob disease (CJD), or re-emergent since then, as in the case of tuberculosis.

As in other papers in this issue, the articles concerning infectious disease are generally littered with P-values. Attempts to ban P-values from epidemiology journals are probably unrealistic, but our reprint of Berkson's 60 year old paper critical of P-values, together with a contemporary response by Fisher and a series of new commentaries, illustrates that the debate about the appropriate place of P-values in scientific inference is still alive. Interestingly, while Berkson and Fisher disagreed on this issue, they were as one with respect to a major public health concern of their time: they were both sceptics with regard to the association between smoking and lung cancer. Clearly the position one takes with regard to P-values is no strong determinant of whether you get things hopelessly wrong or not.

The wide ranging papers in this *IJE* all present findings that would contribute something to an updated evaluation of current evidence regarding a particular issue. One no longer sees scientific papers that state, as the cardiologist Carey Coombs did in the *Lancet* in 1920, that 'I am afraid I cannot claim any very convincing results; but such as they are, I bring them forward'. Perhaps P-values have led us to consider things as 'significant' in the broader sense of the term when they are merely statistically significant. In this issue of the *IJE*, however, there are papers that do not depend on significance tests to show important things. For example, we see how increasing socioeconomic inequalities in cardiovascular disease mortality underlie widening inequalities in overall mortality in Western European countries; and that pipe and cigar smoking do, after all, appear to increase the risk of mortality. Identifying uncertainty can also be of importance, as the systematic review of birthweight and lipid levels in later life, and the accompanying commentary, show. Similarly the impossibility of giving a definitive answer as to what will happen with the new-variant CJD epidemic in Britain again demonstrates just how important such demonstration of uncertainty can be.

References


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