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EDITOR'S CHOICE

Ideology with evidence: global warming, maps and ethics

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The world is getting fatter and apart from the usual reasons for being worried about this—vast increases in diabetes and cardiovascular diseases—Edwards and Roberts have given us a new one.[1] They have calculated the energy costs of food production and transportation arising in two hypothetical populations, in which one has a 3.5% prevalence of obesity (reflecting UK in 1970) and the other of 40% (UK in 2010). The authors claim an increase in greenhouse gas emissions of between 0.4 and 1.0 Giga tonnes of carbon dioxide equivalents that was readily translated for environmentally naïve readers by *The Sun*—'FATTIES CAUSE GLOBAL WARMING' as a front page headline. It would be tempting to suggest that air companies should levy an additional carbon tax on obese passengers but the underlying message is the need to reduce the population distribution of energy consumption downwards—something for which we all need to take responsibility—rather than target those at the top end of the distribution. Powles provides a commentary that highlights the need for considering what we eat as an integral part of policy on climate change but notes the reluctance of affluent Western politicians and the public to consider a halving of their meat consumption in order to move towards 'contraction and convergence' policies for global control of green house gas emissions.[2]

Obesity is associated with several cancers but whether this is cause or effect remains debatable because of confounding and reverse causality. In this issue, Brennan *et al*.[3] have used a Mendelian randomization approach to examine the question. The recent discovery of the *FTO* gene has opened up new opportunities for studying the effect of obesity on cancers (and other diseases) as it is both a common polymorphic genetic variant and is also strongly associated with obesity. Comparisons of cancer cases and controls by *FTO* genotype provides an estimate of the effect of obesity (as *FTO* risk alleles are associated with a 3 kg increase in body weight) on cancer risk that is unconfounded by age, smoking and other factors and not affected by reverse causality. Although the findings reported here suggest a protective effect of higher body mass index for lung cancer and an increased risk of renal cancer among overweight people, estimates are imprecise requiring much larger sample sizes and replication.

Figure 1 Headline in *The Sun*, Tuesday 21 April 2009. © The Sun 04/2009—reprinted with permission

Having seen some of the beautiful geographic information system (GIS) maps created by Tanser *et al*. at the Africa Centre in Kwa Zulu Natal on a visit there a few years ago, I was interested to read their paper on spatial clustering of HIV infection in rural South Africa.[4] One of the early myths about the Africa Centre was that it was responsible for a cluster of HIV infection on its doorstep created by the social changes associated with the need to accommodate large numbers of new migrant staff in an under-resourced rural area. Using sophisticated GIS methods (i.e. I do not understand them at all) they demonstrate markedly increased HIV prevalence in clusters

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close to a national main road (and, fortunately, no cluster around the Centre itself). They conclude that 'spatial processes, complex sexual mixing patterns and community effects' are involved in transmission dynamics. Perhaps, GIS researchers need to get out a bit more.

Salim Karim, a veteran of HIV research in South Africa, notes that HIV clustering along this same national road was reported over 15 years ago[5]—a piece of work apparently lost to these contemporary investigators. He gives four possible explanations for clustering around the national road: age differences, migrant workers, sex workers and poverty, which could be formally assessed and would provide indications of where and how interventions might be targeted. Tanser's analysis provides little support for Karim's possible explanations as people living in high-prevalence clusters are twice as likely to be employed, are more educated, have fewer non-resident household members and have greater household assets than those living in low-risk clusters. It is tragic that after so many years of research we are still no further on in reducing HIV transmission in this large and seriously affected rural area of Africa.

Ethics in medical research tend not to create much passion in epidemiologists until our ability to conduct the studies that we need to do comes under threat. Claudot *et al*.[6] provide a discussion of the position of researchers who have conducted research under their own country's ethical systems that are at least as stringent in safeguarding universal ethical principles but fail to satisfy international—in this case USA—journal editors. Observational research, unlike clinical trials, has much less potential for harming participants and yet is treated in a similar way, with overwhelming emphasis on protection of individual rights as against that in the welfare and benefits to populations. The points raised deserve wider discussion than is likely to be afforded by publication in the *International Journal of Epidemiology*. It would be particularly interesting to engage the legions of researchers working outside the 'medical research' community in business, government and faculties of social and political sciences, for example, for whom the notions of ethical committee approvals and informed consent for participation are quite alien concepts.

Reading Michael Marmot's 'Facts, opinions and affaires du coeur'[7] for the first time, having missed it in 1976 and him being much too modest to suggest it as essential reading to his MSc epidemiology students in 1981 (I was one), is to realize how much such critical insights into understanding disagreements about the nature of evidence could have had in shaping a more fit-for-purpose 'evidence based' medicine over the last three decades. His follow-up piece, published in this issue—'Continued affairs with science and judgements'[8]—is both entertaining and provocative, illustrating how important it is to have an ideology within which evidence has its place.

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