Britain's) committed themselves to Agenda 21 in Rio.¹ Agenda 21 is a comprehensive blueprint for how to bring about a global shift towards sustainable development. It not only includes an entire chapter on the protection and promotion of human health but is based on the premise that progress towards a healthier life requires powerful input from public health professionals.

In his opening address Dr Greg Goldstein, of the World Health Organisation's healthy cities programme, pointed out that the health sector continues to focus almost exclusively on caring for the sick without seeking to influence the determinants of sickness. Citing the examples of population growth, the environment, pollution, and social behaviour, Dr Goldstein commented that the statutory health sector should be a stronger partner in developing policy in these areas. By the year 2000 more than half the world's population will live in cities (already almost three quarters of people in developed countries live in cities) but, despite commitments to intersectoral collaboration, in only a few countries is there any substantial health input into development policy. Health policies should address not only traditional medical interests such as the organising and financing of health care but also issues such as housing, transport, agriculture, and education.^{2,3} Health advocates need to influence policymaking at all levels of society and in all sectors.

The second key issue to emerge from the conference related to the artificial divide that separates health from the environment. They are now perceived as totally distinct areas and are often interpreted according to their most narrow definitions. But when health is regarded as the state that allows the achievement of maximum human potential and the environment is taken to include its social and cultural dimensions then the distinction blurs. Promoting health for the woman at the city kerbside entails far more than educating her not to smoke; policies that influence air quality, social networks, and transport safety are also needed.

The third key issue concerned how these public health policies could contribute to the process of "governance." Dr Trevor Hancock, a Canadian public health consultant, pointed out that "governance is a process by which we collectively solve our problems and meet our society's needs" as distinct from "government", which is only one of the tools by which governance is achieved. A healthier

future for humanity should be the aim of economic policy and not its byproduct; health policies must address equity in its widest sense.

Common platforms for intersectoral activity are evident in certain areas in Britain—for example, in Glasgow and Liverpool. The symposium heard from Dr Leslie Alexander of Lancaster University and John Rice from the South East Institute of Public Health about their progress in developing and validating health related indicators, as opposed to health (usually disease) indicators. Examples of health related indicators might include specific estimates of air quality or measures as diverse and detailed as the length of cycle tracks, the cost of a food basket, or the availability of locally grown fresh produce.

Two major challenges face the British public health movement in advancing a programme that combines health and the environment. Firstly, the puzzle remains of how to bring together the many relevant disciplines within the statutory, private, and voluntary sectors so that they can develop policy on public health. Secondly, there is the challenge to formulate a method that marries "hard" and "soft" data⁴ and which can establish links between a mixture of environmental factors and people's health. Such a method would need to go far beyond "mere rhetoric"⁵ to provide an objective foundation for what most of us recognise intuitively.

Agenda 21 should result in health having a role in the development of policies affecting all aspects of society. Such a paradigm shift will require many influential advocates for health. As Dr Peter Draper from the Public Health Trust emphasised, recognising the connection between the environment and health requires a degree of lateral thinking. For both public health and medical professionals, making these connections need not detract from the pursuit of excellent and equitable health care but should complement it, thereby strengthening the pursuit of health for current and future generations.

ELINOR THOMPSON
Consultant in public health

Merton, Sutton and Wandsworth Health Authority,
London SW17 7DJ

1 United Nations. *Agenda 21: the United Nations programme of action from Rio*. New York: United Nations Department of Public Information, 1993.

2 McKeown T. *The role of medicine: dream, mirage or nemesis?* Oxford: Nuffield Provincial Hospitals Trust, 1976.

3 Ashton J. Sanitarian becomes ecologist: the new environmental health. *BMJ* 1991;**302**:189-90.

4 De Wildt GR. New public health. *BMJ* 1994;**309**:55.

5 Vandenbrouke JP. New public health and old rhetoric. *BMJ* 1994;**308**:994-5.

Please bypass the PORT

Observational studies of effectiveness run a poor second to randomised controlled trials

Struggling to contain health care costs, the United States has devoted considerable attention to health technology assessment, producing clinical guidelines and measures of appropriateness, organising consensus conferences, and carrying out studies of practice variation and "outcomes research." Serious reservations have been expressed about the scientific validity of some of these approaches. Controversy focuses particularly on the use of routine health records to assess the effectiveness of treatments. Such studies conflict with the British tradition of using randomised controlled trials. Last year the New York Academy of Sciences brought together the exponents of

different approaches to evaluating health care. The results have now been published in a book, which also provides edited accounts of the often heated discussion.¹

When Congress created the Agency for Health Care Policy and Research in 1989 it was anxious for quick results, assuming that analysis of databases would provide technical solutions to the United States' health care crisis.² Fifteen patient outcomes research teams (PORTs) with a planned budget of nearly \$200m were established in clinical areas such as ischaemic heart disease, acute myocardial infarction, diabetes mellitus, prostatic disease, and back pain. A team works principally by combining the

findings from a literature review with an analysis of routine observational data generated mainly from databases held by Medicare, insurance companies, and hospitals. Though many of the reviews and guidelines produced by the Agency for Health Care Policy and Research are excellent, the central element of the outcomes research teams' strategies is fundamentally flawed,³ and this book reveals the weak scientific foundations of the programme.

One of the most important methods for assessing whether treatments really do more good than harm is the randomised controlled trial, made famous by Bradford Hill half a century ago. As long as they are sufficiently large, such trials are valid methods of evaluating interventions because if patients are randomised to alternative treatment groups differences in outcome between the groups can be more confidently attributed to the difference in treatments received.⁴

In non-randomised observational studies, however, patients receiving different treatments may differ systematically with respect to any number of known and unknown factors that affect prognosis. These include the severity of the main and accompanying disease, clinical setting, and clinician. Although statistical adjustments may be made in an attempt to exclude the effects of these confounders (and thus isolate any differences due solely to the treatment), this assumes both a complete knowledge of the confounding variables and their comprehensive and accurate measurement. Neither is likely to be possible, and at least a moderate bias will remain.⁵ As most common treatments that interest us will probably have only moderately sized effects (though with a large absolute benefit in large populations) the ability to exclude even moderate effects of confounding is vital.

Despite its considerable cost the American programme does not seem to have made a substantial contribution to our knowledge of effectiveness in any field through the analysis of observational data. This is in stark contrast to the contribution made by large scale simple randomised controlled trials and properly conducted overviews of such trials. For example, in this book Peto and colleagues describe four major examples—the survival gains incurred with thrombolysis for acute myocardial infarction, use of aspirin for people at high risk of thrombotic events, adjuvant treatment for early breast cancer, and the evidence for a lack of benefit with infusions of magnesium

in suspected myocardial infarction. Some of the overviews in the Cochrane Pregnancy and Childbirth database have contributed to the quality of care for women using maternity services.⁶

In Britain the lack of routinely collected data on health care process and outcome, though a national disgrace, has largely protected us from the mirage of quick and easy answers from analyses of databases. The government's misuse of the limited data that it collects, such as school examination results and hospital waiting times, to produce crude and meaningless league tables for comparing institutions should sound a cautionary note.⁷

No short cuts exist for obtaining reliable information on effectiveness. Large multicentre simple randomised controlled trials and meta-analyses of trials can answer reliably a wide range of questions about the effectiveness of treatments. The challenges now are to design trials that provide answers to more clinically relevant questions, such as which patients stand to benefit most.⁸ We need to ensure that meta-analysis is used appropriately and incorporates analysis of adequate sensitivity⁹; we need to include the outcome measures that matter to patients; and we need to work harder to get the results of research into practice.

Last year the patient outcomes research teams seemed secure. In the face of the sort of criticism summarised in this book, however, a major shift was recently announced for the second phase, emphasising other methods such as clinical trials. This is a welcome change: diverting money from relatively cost effective trials to uninformative analyses of databases may do more harm than good.

TREVOR A SHELTON
Director

NHS Centre for Reviews and Dissemination,
University of York,
York YO1 5DD

1 Warren KS, Mosteller F, eds. Doing more good than harm: the evaluation of health care interventions. *Ann NY Acad Sci* 1993;703:1-341.

2 Anderson C. Measuring what works in health care. *Science* 1994;263:1080-1.

3 Frater C, Sheldon TA. The outcomes movement in the USA and the UK. In: Drummond MF, Maynard A, eds. *Purchasing and providing cost-effective health care*. Edinburgh: Churchill Livingstone, 1993:49-65.

4 Hill AB. Observation and experiment. *N Engl J Med* 1953;248:995-1001.

5 Jencks SF. Issues in the use of large databases for effectiveness research. In: Heithoff KA, Lohr KN, eds. *Effectiveness and outcomes in health care*. Washington: National Academy Press, 1990:94-104.

6 Lilford R. The Cochrane Pregnancy and Childbirth database (book review). *BMJ* 1994;308:1448.

7 Dillner L. League tables criticised as misleading. *BMJ* 1994;309:9-10.

8 Davey Smith G, Egger M. Who benefits from medical interventions? *BMJ* 1994;308:72-4.

9 Egger M, Davey Smith G. Magnetism and myocardial infarction. *Lancet* 1994;343:1285

Promoting research into peer review

An invitation to join in

One of the jobs of the editor of the *BMJ* is to sit on the editorial boards of the 18 special journals owned by the BMJ Publishing Group. At the meetings of these boards many questions are asked about the peer review process. What can be done to raise the standard of reviewing? How many reviewers should be used? How should they be selected? Should reviewers be blinded to the names of the authors? Or, in contrast, should the traditional anonymity of reviewers be abolished? Why are reviewers anonymous anyway? Should authors be encouraged to suggest reviewers for their own papers? Will this corrupt the peer review process? Should statistical reviewers be used? Should they be used for all papers, and should they be used

before or after clinical reviewers? The same questions arise at most meetings, and no doubt they arise at the editorial boards of all the many thousands of biomedical journals published around the world.

Many of the people on the boards have a long experience of reviewing papers, and many of them have strong opinions on the questions that arise. Many, indeed, are confident that they know the answers. Yet the members of the boards—most of whom are doctors and clinical researchers—usually make their statements without producing any systematic evidence whatsoever. People who increasingly in their clinical lives make decisions on the treatment of patients on the basis of scientifically