

Celebration and innovation

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After two years of editorship, we feel a quiet pride in this Journal. The variety of research reported during 2002 is considerable and there have been contributions from researchers addressing methodological issues and engaging in conceptual debates.

In this issue, we name and thank some 400 reviewers for their unpaid contributions to supporting other people's research and maintaining the Journal's quality. Without good reviewers we would be lost. We also remain deeply indebted to Substitution and the excellent production processes that they have set in place.

In this last in our series of editorial on methodological issues, we address one of the most difficult, and one of the most rewarding aspects of the research task: methodological innovation.

Methodological Issues VI: Innovation

The charm of working in a laboratory is that it is relatively easy to get control over variables. Even there challenges arise. Measurements have to be exact and reagents and equipment must be free from contaminants – but only to the degree required by the specific experiment being performed. The informed judgment that goes into devising proper and appropriate controls in the laboratory is often taken for granted by those working in other settings.

Only rarely is it possible for the public health researcher to achieve the degree of control sustainable in the laboratory. In dealing with the variety of problems encountered in the field, public health researchers are innovative in many ways, three of which we outline here. The first involves adapting the research method to the setting in which it is going to be used, keeping as much control as possible over variables, but sacrificing methodological purity in the interests of opening up an area for research. The second involves methods that set out to adapt method to context by collecting 'slices of life' with analysis depending on what is found in the data. The third adaptation involves altering aspects of the research setting to ensure that there is as little intrusion as possible into the predetermined methods planned for the study.

All three approaches have a role in public health research and all three require researchers to be insightful and innovative in ways that can often not be anticipated when the research starts.

We believe that the way in which researchers go about this task of methodological innovation is well worth reporting in any Journal. Reports on the success or failure of innovative ways of fitting method to context, helps to build up the capacity of public health researchers to make properly informed judgments of what is worth trying in a particular area. In addition, if a research study is published with full acknowledgement of weaknesses and achievements, it allows researchers to be strategic about subsequent studies, perhaps probing or clarifying aspects of a study about which there are important doubts.

Let us start with those settings in which it is necessary to make methodological compromises if research is to be done at all. This is typically the case in areas of research involving behaviour that is illegal or socially proscribed. The most carefully planned study may only be able to provide a rough guide to what happens and even this may only be possible by working closely with relevant communities, especially with key informants. There is then the risk that such research may lack objectivity and misrepresent what is actually happening. The trade-off here is a 'warts-and-all' description of limitations followed by a cautious report of what we have learned that is new and trustworthy.

When a new health hazard is identified, as in the case of HIV/AIDS, the first studies are often case series or cross-sectional surveys using a number of different approaches to enroll participants. While we may not be confident of some of the conclusions drawn, such studies can also identify areas or population groups that are particularly vulnerable or important for further research. This allows other, or the same, researchers to focus subsequent research on the most significant problems in an area. If we require a more detailed understanding of a group of people identified in the survey as having particular importance, the next study might well be a qualitative study.

Qualitative research method is one of the least constrained by context. The data collected and the analysis conducted depends on what is found in the research setting. Researchers are expected to think in innovative ways about procedures for diversifying both data and analysis. If qualitative researchers celebrate innovation as an essential feature of their method, the bite comes when the diversity of data produced by this method has to be analysed to produce a rigorous analysis and trustworthy answer. The typically small samples in qualitative research do not indicate that analysis is easy!

Again, if the limitations and achievements of a detailed analysis of context are properly described, other researchers can judge whether the information produced has clarified doubts so that a further stage of the research becomes possible. This may involve a more focused survey. Eventually, we may be able to devise appropriate health interventions and test them in a randomised controlled trial.

To the outsider it seems that there is little in the way of innovation possible in a randomised trial. Certainly, the essential design features of a trial are rigid in comparison with other research methods but what it loses in flexibility it makes up for in terms of ensuring a rigorous result. This does not mean that trials are not responsive to context. Rather, the challenge here is to be innovative in the ways in which researchers ensure that context does not invalidate the method. One strength of this design is that there needs to be consensus among the researchers, the practitioners, and any institutions involved on the importance of the question, the uncertainty of the answer and the nature of the alternatives being compared, before a trial is designed. The process for developing such a consensus and making modifications at that stage is one crucial part of getting the context right. This can be especially important in community-based interventions.

Innovations in randomised trial design can broaden participation taking account of people's current ways of life, preferences and health concerns. The Women's Health Initiative, brought to public attention a few months ago (1) has three intervention comparisons and women are invited to participate in any or all of the three dimensions for which they are eligible. Those who do not want to try dietary modification or those who are already eating a very low fat diet would opt out of that comparison: those with strong feelings for or against hormone replacement therapy, or vitamin and calcium supplementation would be invited to consider participation in one or both of the other comparisons

Unless potential participants agree with the relevance of the alternatives being compared in a randomised trial – unless they are part of the consensus too – they will not agree to recruitment or they will agree but then drop out. A recent article describes these experiences in a trial comparing treatments for prostate cancer. The innovation here was to listen more directly and critically to the processes of recruitment, and to explore men's views about the meaning of the alternatives and the exact language used. This resulted in radical changes in the way the trial was discussed.²

Unforeseen external events such as publication of data from other studies, early 'stopping' of a similar trial or changes to the price or accessibility of 'experimental' interventions, raise difficult ethical and practical issues for trials in progress. An extended discussion of how these were dealt with in a Zidovudine trial shows how the data monitoring committee and the research team, with external advisors including community members, discussed the external findings and their implications for current participants. The extended research and community group worked out ways of informing participants about the findings and discussing the reasons why their trial was to continue. They also prepared a new consent form and offered options to remain in the study or to receive open-label treatment at no expense. Almost three-quarters chose to continue.³ Flexible, ethical and innovative solutions are possible, even within supposedly rigid designs.

In this issue

The brief leading article by Joan Cunningham demonstrates the importance of critical thinking, and understanding of data quality, in providing informed and informative advice to government. Her example shows that the apparent difference in Indigenous mortality in remote areas, compared with urban areas, is of a magnitude that could readily be explained by small differences in data quality – and that such differences are known to exist.

The other methodology papers are very diverse. Stephen Duckett and Paul Agius apply diagnosis-based risk adjustment to data from the 'co-ordinated care' trials to assess how good the adjustment is in predicting current and future costs of service use. The bad news is that prediction for future service use is low, so that competitive funding models based on these models could have adverse effects. Gavin Andrews describes a modification to scoring the SF-12 health status measure, in data from community and clinical groups. The aim is to make the SF-12 easier for use as a rapid

outcome measure in primary care. Finally, Fiona Blyth and colleagues describe the use of a computer-assisted telephone interview (CATI) with random digit dialling in a population-based prevalence study of people with chronic pain. They identified differences between those with listed and unlisted numbers and draw attention to the importance of blocks of unassigned and business numbers and fax numbers. Future studies could be compromised by the existence of multiple service providers and the increasingly ubiquitous mobile phone.

Heather Yeatman's account of the challenges to public health advocacy in making an effective contribution to Australia's food regulations will strike a chord with readers from many disciplines. Dorota Gertig and colleagues' work is probably less familiar territory, but their illuminating discussion of the public health aspects of genetic screening for hereditary haemochromatosis is essential reading for future dilemmas. Thomson and colleagues look for evidence on the negative effects of social and economic policy changes in New Zealand in the early 1990s 'embodied' in children's teeth. In the final paper in the policy group, Rae Walker discusses the North East Health Promotion Centre and the way it operationalised the key principles of independence, member support, power and trust relations in the pursuit of joint goals in public health.

The gaps identified between policy and practice which the next three papers deal with are Raoul Walsh and colleagues' account of community attitudes and practices around reducing exposure of children to environmental tobacco smoke, Julie Smith and colleagues' estimates of the hospital system costs attributable to not increasing breastfeeding, and Cate Kelly and Katherine Conigrave's brief overview of the reported public health impact of supervised injecting facilities on the harms of injecting drug use.

Maria Donald and Jo Dower describe depressive symptoms, Gita Mishra and colleagues describe menopausal symptoms but both papers focus on the protective factors as well as the risk factors for symptoms in their studies of the life transitions through adolescence and menopause. Please read the letters – and this month's books cover a broad band of public health, too.

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