Evidence-based public health: improving the relevance of Cochrane Collaboration systematic reviews to global public health priorities

E. Waters, J. Doyle and N. Jackson

Background

The relevance and breadth of Cochrane systematic reviews and protocols to public health decision-makers in health promotion and public health has been increasing, particularly over the last 3 years (with 10 new reviews in 2001, 38 in 2002, to 59 in 2003).1 Notably, however, there has been a discernible differential in input and output between reviewers from developing countries compared with developed countries, with 12 per cent of systematic reviews of health promotion and public health originating from reviewers in developing countries (as classified by the World Bank: http://www.worldbank.org). For some areas of public health, the differential in terms of topic relevance has not been so great, for example, in areas such as HIV prevention or vaccine efficacy. However, in areas of concern to large geographical tracts of developing countries, topics that tackled important global health issues, such as effective interventions to curb urban growth, or resource distribution on health service access, systematic reviews of the research literature have not yet appeared, even with sometimes trivial incentives such as bursaries, etc. There are a number of important barriers that need particular development in order for progress to be made, such as information technology infrastructure, training in the conduct of systematic reviews, access to the necessary published and unpublished literature, adequate funding, and continuity so that reviews may be updated over time.2 Given this background, there has been a lack of capacity to collectively identify priority review topics of common importance to developing countries.

In light of these significant barriers, the Cochrane Health Promotion and Public Health Field has begun a programme of research to assist in improving the latter area of deficit: identification of global issues to be promoted as priority topics for Cochrane systematic reviews of the intervention research literature. The outcomes sought are a list of agreed global priority review topics that will assist decision-making in the short and long term. Through the engagement of organizations responsible for improving health in developing countries and developing education, community action and the development of healthy public policies, we also aim to identify funding opportunities that will allow conduct of Cochrane systematic reviews of the literature in these areas.

The overall aim of the programme is to increase the number of Cochrane reviews of health promotion and public health topics that are of global importance. The specific objectives are (1) to prioritize health promotion and public health intervention topics for review, (2) to identify and secure funding opportunities to support the production of prioritized reviews, and (3) to identify and gain the commitment of reviewers to undertake these reviews. The components of the research programme are:

1. establishment of a global organizational taskforce;
2. documenting and categorizing the evidence base of published systematic reviews in health promotion and public health;
3. gap analysis;
4. identifying and selecting criteria for systematic review priorities;
5. agreement on global priorities for topics of systematic review.

This paper reports on the first three component phases identified above. It is planned that the last two phases will be completed by mid-2003, with the output and methods available through the Field and in published format.

Methods

Establishment and composition of global organizational taskforce

Individuals representing organizations (and regional departments, where appropriate) (1) responsible for improving population health, (2) representing the health promotion and public health...
professinals, (3) with knowledge of decision-makers for health policies, or (4) with the ability to direct or influence research, in and for developing countries, were invited to participate. These organizations included the World Health Organization (non-communicable diseases and mental health, the Office of the Western Pacific and the Reproductive Health Group), the International Union of Health Promotion and Health Education, the Global Forum for Health Research, the Global Health Council (and subsequently the South African Medical Research Council), the MacFarlane Burnet Institute for Medical Research and Public Health, and the United States Centre for Disease Control. Each agreed to participate. The taskforce communicates via teleconferences and e-mail to achieve programme aims and objectives, which are outlined in Table 1.

### Documenting the evidence base

The timeframe for the overall programme limited us to identifying systematic reviews that had been conducted within the scope of large, or well-funded, projects that aimed to conduct systematic reviews of the health promotion and public health literature using explicit methods and criteria. This restricted scope, rather than systematically searching for all published and unpublished systematic reviews internationally, was chosen as we were aware of a funded project being conducted in Canada that was seeking to identify and describe all systematic reviews in health promotion and public health (Dobbins, M., personal communication) and it was therefore unnecessary to repeat this study. However, as the Canadian study was incomplete (and its completion time uncertain at commencement of our research) we decided to narrow the scope and thereby establish a mechanism for identifying priorities with the knowledge that the underlying evidence base of completed systematic reviews was going to remain dynamic. The Cochrane Library (http://www.cochrane.org), the Effective Public Health Practice Project (Canada) (http://www.city.hamilton.on.ca/sphs/EPHPP), The Community Guide to Preventive Services (United States) (http://www.thecommunityguide.org), the Health Development Agency Effectiveness reviews (United Kingdom) (http://www.hdas-online.org.uk/evidence), the Evidence for Policy and Practice Information and Coordinating (EPPI-) Centre (UK) (http://eppi.ioe.ac.uk/) and the National Health Service Research & Development Health Technology Programme (UK) (http://www.hta.nhsweb.nhs.uk) were included. Reviews of health promotion and public health interventions within the scope of the Field (see Table 2) were included. Although this scope has been identified for the purpose of limiting the Field’s scope, considering the scope of collaborative entities within the Cochrane Collaboration and thus narrower than most public health definitions, it provided a necessary confinement for topics. One exception was included (effectiveness of vaccines), as it is a particular area of priority for public health in low- to middle-income countries.

### Gap analysis

Identified systematic review topics were categorized under the risk factor subject areas identified by the recently published World Health Organization’s World Health Report 2002. This report was selected as a framework for mapping of the evidence as it provides the most comprehensive description of the amount of disease, disability and death in the world today that can be attributed to a small number of health risks, highlighting how health improvements could be achieved cheaply to benefit people in the poorest and most industrialized countries. The report notes that the top 10 global health risks account for more than one-third of all deaths, and the risk factors could be reversed relatively quickly, whilst also promoting sustainable development and reduction in inequities in society. The report concludes with recommendations that (1) governments play a stronger role in formulating risk prevention policies, including more support for scientific research, (2) priority is given to prevention of global risks to health, and (3) highest priority be given to those interventions that are cost effective and affordable. As such, it was

### Table 1 Aims and objectives of the HP&PH Reviews Priorities Taskforce

<table>
<thead>
<tr>
<th>Overall aim</th>
<th>To increase the number of Cochrane reviews of health promotion and public health topics of global importance</th>
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<tbody>
<tr>
<td>Objectives</td>
<td>(1) To prioritize health promotion and public health systematic review topics that are needed</td>
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<td></td>
<td>(a) Identify stakeholders to be consulted on intervention topics they perceive as necessary and appropriate for Cochrane systematic reviews</td>
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<td>(b) Engage stakeholders in topic settings</td>
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<td>(c) Develop criteria for assessing which topics should be prioritized for support</td>
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<td></td>
<td>(2) To identify and secure funding opportunities to support the production of prioritized systematic reviews</td>
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<td></td>
<td>(a) Identify potential organizations for funding</td>
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<td>(b) Align potential review topics with funding organizations</td>
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<td>(c) Broker funding partnerships for production of specific reviews</td>
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<td></td>
<td>(d) Encourage the development of local schemes to support local reviewers</td>
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<td>(3) To identify and gain the commitment of reviewers to undertake these reviews</td>
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<td></td>
<td>(a) Identify reviewers from current contacts on the Cochrane HP&amp;PH Field’s database</td>
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<td>(b) Encourage the development of local schemes to attract and train up local reviewers</td>
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Table 2 Scope of the Cochrane Health Promotion and Public Health Field

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<th>Topic Area</th>
<th>Percentage</th>
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<tr>
<td>Public policies influencing the effectiveness and equitable delivery of health services at a population level</td>
<td>3 per cent</td>
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<tr>
<td>Vaccinations at an individual, case-by-case level, e.g. tetanus vaccines post-injury</td>
<td>19 per cent</td>
</tr>
<tr>
<td>Medical, surgical, pharmacological or therapeutic interventions to treat an individual’s condition or symptom, e.g. Active Script programs</td>
<td>3 per cent</td>
</tr>
<tr>
<td>Drugs used to prevent a condition or symptom, or the exacerbation of an existing condition or symptom, e.g. anti-depressants for anxiety and depression</td>
<td>12 per cent</td>
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<tr>
<td>Evaluation of diagnostic procedures or of risk assessment tools, e.g. evaluating the effectiveness of mammography to detect malignant tumours</td>
<td>12 per cent</td>
</tr>
<tr>
<td>Rehabilitation techniques or interventions aimed at improving recovery for sick or injured individuals, e.g. physiotherapy, drug and alcohol rehabilitation</td>
<td>12 per cent</td>
</tr>
<tr>
<td>Vaccinations at an individual, case-by-case level, e.g. tetanus vaccines post-injury</td>
<td>12 per cent</td>
</tr>
</tbody>
</table>

It does not include systematic reviews that address:

- Medical, surgical, pharmacological or therapeutic interventions to treat an individual’s condition or symptom, e.g. Active Script programs
- Drugs used to prevent a condition or symptom, or the exacerbation of an existing condition or symptom, e.g. anti-depressants for anxiety and depression
- Evaluation of diagnostic procedures or of risk assessment tools, e.g. evaluating the effectiveness of mammography to detect malignant tumours
- Rehabilitation techniques or interventions aimed at improving recovery for sick or injured individuals, e.g. physiotherapy, drug and alcohol rehabilitation
- Vaccinations at an individual, case-by-case level, e.g. tetanus vaccines post-injury

Results

Documenting the evidence base and gap analysis

Three hundred and eighty-one systematic reviews were identified within the scope. Of these, just under half (186) were Cochrane reviews or protocols within which the majority addressed infectious diseases (mainly on the effectiveness of vaccinations), tobacco control and sexual health (including the prevention of HIV). Most of the reviews covered in The Community Guide also fell under these three topic areas.

When the systematic review topics were categorized by risk factors identified in the World Health Report 2002, 4 19 per cent (n = 75: Cochrane 35) covered interventions related to addictive substances, with the majority of these (18 per cent) in the area of tobacco control. Only one of the systematic reviews in this field addressed prevention of illicit drug use; however, ‘other addictive drug topics’ are planned to be covered by the Community Guide. 1 Sixteen per cent covered infectious diseases (primarily vaccine effectiveness), and 16 per cent covered diet-related risks and physical activity. Thirteen per cent addressed sexual health interventions including HIV prevention, and 4 per cent addressed child and maternal undernutrition. Areas not covered by the World Health Report, but addressed by identified systematic reviews, were mental health (11 per cent) and injury prevention and safety promotion (7 per cent). Areas highlighted by the World Health Report as important health risks but not addressed to any great extent by the identified systematic reviews (less than 3 per cent of total number of reviews) included prevention of health risks in areas of oral health; respiratory, environmental, occupational and selected risks to health; unsafe health care; and childhood sexual abuse.

Discussion

This project has identified that greater than 12 per cent of Cochrane reviews fall within the scope of health promotion and public health. 1 Further, the mapping of the systematic reviews against the WHO’s World Health Report 2002 of the small number of health risks that contribute to disease, disability and 30 per cent of deaths worldwide has provided insight into the utility of published systematic reviews being undertaken by primarily developed country research initiatives fail to address, as you would expect, issues of importance to developing countries. Sixty-eight per cent of the published reviews covered five of the identified health risks; however, less than 3 per cent of the reviews covered the remaining five risks. In particular, the relative absence of systematic reviews in topics of child and maternal undernutrition...
Behavioral interventions can reduce the risk of HIV infection in men who have sex with men, but more research is needed to identify the best intervention strategies. Children who brush their teeth at least once a day with toothpaste that contains fluoride will have less tooth decay.

**What's new in the Cochrane Library?**

This list is updated on a regular basis on the Field’s website (http://www.vichealth.vic.gov.au/cochrane). Recently published relevant public health reviews in the Cochrane Library and summarized by the Cochrane Consumer Network (http://www.cochraneconsumer.com) include the following.

**New Cochrane Reviews; Issue 1 and 2, 2003**

*Area-wide traffic calming for preventing traffic related injuries*

Area-wide traffic calming (such as introducing road/speed humps) may reduce death and injury from road traffic crashes but more research is needed.

*Fluoride toothpastes for preventing dental caries in children and adolescents*

Children who brush their teeth at least once a day with toothpaste that contains fluoride will have less tooth decay.

*Interventions to modify sexual risk behaviours for preventing HIV infection in men who have sex with men*

Behavioural interventions can reduce the risk of HIV infection in men who have sex with men, but more research is needed to identify the best intervention strategies.

*Personalized risk communication for informed decision making about entering screening programs*

Individualized risk information increases the rate of participation in screening programmes, but there is not enough evidence to show if it enhances informed decision-making.

*Reduced dietary salt for prevention of cardiovascular disease*

A review of long-term studies showed that low-salt diets for people with normal blood pressure do not effectively lower blood pressure, and are not a practical way to prevent hypertension.

*Effects of low sodium diet versus high sodium diet on blood pressure, renin, aldosterone, catecholamines, cholesterol and triglyceride*

A review of short-term studies showed that in people with elevated blood pressure low-salt diets lead to useful drops in blood pressure, but overall harms or benefits are not known.

*Workplace interventions for smoking cessation*

Workplace interventions such as counselling, nicotine replacement therapy and competitions might help smokers quit, but there is conflicting evidence about the effects on smokers of banning workplace smoking.

*Drugs for preventing lung cancer in healthy people*

Antioxidants do not reduce the risk of lung cancer, and may increase the risk in people who smoke. Diets high in fruits and vegetables are essential for health and can protect against cancer. It may be, though, that the health benefits do not come just from vitamins. Further, it might be possible that some harm is done when these substances are separated from the other constituents that occur naturally in healthy foods.

**Acknowledgements**

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**References**