Cochrane Update

Strengthening evaluation to capture the breadth of public health practice: ideal vs. real

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Introduction

In a context of a limited, albeit growing evidence base for public health initiatives, the need for evaluation of public health practice remains crucial. However, the most rigorous evidence available to inform public health policy and interventions, in particular from systematic reviews, is often dominated by relatively large, tightly controlled intervention trials conducted by universities and other research organizations. Such research evidence tends to raise questions regarding the applicability and transferability of research to ‘real world’ practice.

Many public health agencies and funding bodies require evaluations of practice, often dedicating up to 15% of the funding for this purpose. While results from evaluations of smaller-scale community-based initiatives are useful for local decision-making, findings are rarely published,1 and seldom meet the rigorous inclusion criteria of systematic reviews. As a result, this evidence does not gain wider exposure in the more accessible and acceptable evidence base. For example, two Cochrane systematic reviews of programmes to promote healthy behaviour participation in sporting organizations yielded no rigorous evidence,2,3 in the context of significant funding for these activities globally. However, the ‘empty’ reviews highlighted an opportunity to contribute to the evidence with rigorous evaluations.4,5

There is an important role for practice-based evidence in informing public health, and local evaluations can be strengthened in order to contribute to the wider evidence base through systematic reviews. This paper will outline steps that can be taken in order for a broader spectrum of evaluations to be more commonly included in systematic reviews and to maximize their potential for influence.

Generating evidence from practice: conducting rigorous evaluations of interventions

The importance of evaluation in public health,6 the need for flexible evaluation designs7,8 and associated challenges9,8 have been argued extensively over the years. Regardless, without sufficient evaluation, the effectiveness of interventions cannot be assured.6 The goal of evaluating public health practice is to provide information—about whether a programme or policy works or does not work, under what circumstances and for whom; and to identify unintended harms and benefits.10 Local evaluations often focus on meeting accountability requirements (i.e. service delivery, resource expenditure), and may not be designed to demonstrate overall impact of the intervention on population health. This is often due to project resources, scope and expectations for deliverables or timelines. Evaluations are often expected to be completed as the intervention itself is ending, leaving limited time to investigate impacts or outcomes, particularly over the longer term.
Descriptions of implementation processes are frequently omitted, as are cost-effectiveness data, yet these components of an evaluation are important and are often sought and synthesized in systematic reviews. In order to be most useful to decision-making outside of the local context. In recent years, documentation of community-based health interventions has provided opportunities to share evidence generated from practice, including online repositories (e.g. http://www.qipps.com, http://www.thecaptureplatform.ca). Although these registries present opportunities for dissemination among practitioners and other decision-makers, the content is often of variable quality and a lack of critical appraisal makes it difficult for end-users to determine risk of bias. As a result, many evaluations included in these repositories are often not included in systematic reviews.

We also acknowledge that a range of new systems and data modelling techniques are available for evaluating population health impact of complex interventions. It is important that the same hallmarks of primary research and reviews are applied to such new evaluation techniques, for example, acknowledging and appropriately investigating the impact of confounders. We need to understand and be transparent about the quality, rigour and assumption of new techniques. This is becoming more important as intervention context is increasingly recognized as a mediating factor of the intervention impact—for this, methods need to continue to be developed, and in the meantime, we must use the most rigorous methods available.

Given the resource intensity and investment involved in conducting, monitoring, evaluation and documenting practice, it seems there is much to be gained in encouraging stronger evaluations and as a result maximizing the potential utility of such information.

**Strengthening practice-based evidence: what does it take?**

How do we improve the quality of evaluations, to increase the likelihood that they will be included in a systematic review? We present some of the key components for evaluation, for those conducting evaluations of public health interventions, but with limited research resources and capacity.

**Resources: how much do we allocate?**

Depending on project scope and funding, the amount allocated to evaluation will vary substantially. Most evaluations of public health interventions are funded by government agencies or non-government organizations (NGOs) where implementation may be the primary focus, or by universities and other research organizations, where evidence generation is primary. We suggest that at least 15% of a project budget is allocated to monitoring and evaluation—this is more likely to result in a thorough evaluation, which is sufficiently resourced to collect the necessary data required for rigorous analysis of process, impacts and/or outcomes. Including evaluation as a budget item also ensures planning begins early, as opposed to an add-on, or afterthought.

**Evaluation questions: what do we want to find out?**

Formulating clear evaluation questions, with a clear population, intervention, comparison and outcomes must be considered at the outset, as these will determine the evaluation scope, design and methods and selection of measures. A logic or conceptual model may help to identify anticipated links between strategies and outcomes, considering the time lag between implementation and measurable effects, and therefore help frame realistic evaluation questions.

**Design: what should a public health evaluation look like?**

Deciding upon a suitable evaluation design can be a challenging task. The challenges associated with using randomized controlled trials and other experimental designs utilizing comparators in practice evaluation have been argued extensively. An evaluation with a comparison group (non-intervention) or pre- and post-test design (when randomization is impossible or unethical for example), should bring us closer to understanding the true impact of an intervention—this is due to the provision of information (from the comparison group) about what occurs in the absence of the intervention.

Evaluating intervention effects using quasi-experimental designs, with selected matched comparison groups or populations, may be sufficient and can yield useful results. For this reason, they are often included in systematic reviews of public health interventions. For example, a recent project evaluated this way is ‘eat well be active Community programmes’, a 5-year multi-component intervention implemented by health services through children’s settings. Comparison populations were utilized to account for secular changes within communities, matched on socio-demographic factors, and the pre- and post-intervention survey design demonstrated that the investment had resulted in a reduction...
in unhealthy weight gain in children and improvement in associated policies and environments. The evaluation was also identified in a recent Cochrane review.

Levels of data collection: how and what to measure?

Having chosen an evaluation design, the next step is to decide what measures would provide the information required to answer the evaluation questions. Collecting information on implementation processes, as well as impacts and outcomes, is optimal and would increase the information available for a systematic review. However, we acknowledge that it may not always be financially feasible to collect data at multiple levels.

Process data

Ideally, process evaluation will include a range of factors important for illuminating mechanisms of interventions that link to outcomes, as well as contextual factors that may have influenced implementation. Typically this will include ‘outputs’ such as how the intervention was delivered; who received the intervention (i.e. reach); what funding/resources were allocated; organizational and political context; the theoretical basis for the intervention and the extent to which the intervention was delivered as planned and what facilitators or barriers were encountered during delivery. Process data collection should capture the ‘how to’s’ of public health, which are less tangible, thus may also include processes used to support intervention implementation such as advocacy, partnerships and coalition building. Such information is likely to be captured qualitatively (e.g. interviews, reflective diaries, images) but could also be quantitative (e.g. counts of stakeholder interactions).

Systematic reviews of public health interventions are increasingly including process information from primary research/evaluations, helping to provide explanatory information about how and why an intervention works or achieves intended outcomes. Process information also aids in the assessment of applicability and transferability by review end-users, i.e. to determine whether or not it might be possible to implement the interventions in their local setting and whether they could expect to see similar results. For example, a recent Cochrane review update synthesized numerous process indicators from the included interventions, such as the theoretical basis for the intervention, resources for implementation, who delivered the intervention, whether strategies were included to address diversity/disadvantage and whether or not economic evaluations were conducted. More evidence of this kind is needed to inform local implementation. Guidance is available to assist in planning what information to collect systematically in a public health evaluation, for example, RE-AIM and other research/evaluation planning guides.

Impact and outcome data

Ideally, impact evaluation will aim to find differences in the target group, environment or population before and after the intervention, and compare this with a group that did not receive the intervention where possible. Quantitative measures are appropriate to identify changes in the conditions that support health (e.g. environments, policies, skills, behaviors), however, sample size must be considered in order to be sure of detecting meaningful changes. Small changes in large population-level interventions can be meaningful. The need for evaluation methods to go beyond a scientific ‘efficacy’ paradigm (whereby an effect is produced by, and attributable to, the intervention) is also acknowledged. Accepting that public health interventions take place within a long causal chain means that we can acknowledge the important contextual and implementation-related factors, which may mediate outcomes. Objective measurement of health outcomes may not always be feasible or appropriate, therefore impact can be measured by subjective methods of data collection, such as self-report (e.g. surveys of organizations or individuals), and will be strengthened by using validated, reliable data collection instruments.

Dissemination: sharing the learnings and contributing to the evidence

Dissemination beyond one’s own funding or jurisdiction obligations is a critical but often neglected aspect of public health practice. Obviously the nature of evaluation reports will vary depending on the audience; however, we implore that evaluation results be submitted to a professional or academic journal, posted online on a website or evidence repository or presented at conferences. It is important to document not only what works, but what does not work: information on unsuccessful initiatives is equally crucial for guiding future practice. Journal editors (and other publishers of evaluations) need to be lobbied to include negative or null findings and to value the publication of process information alongside or as complementary publications to articles reporting intervention outcomes.

Building capacity: workforce development and partnerships for research and evaluation

Although there is often limited capacity to generate evidence in some public health settings, capacity can be
built through a commitment to workforce development, as well as research–practice partnerships. Workforce development can be useful to develop skills in using evidence, evaluations and research rigour. Short courses are an inexpensive and accessible option for individual professional development. These can be effective, and the learnings can be applied within an organization to build further capacity, but may require an organizational change in order for practice to be embedded into organizations and for practitioners to be supported.23

Partnerships between practitioners and policy organizations with researchers can ensure that quality evaluations are carried out and findings are disseminated and utilized widely. Through forward planning, jointly developed grants can be obtained to support a rigorous evaluation of a planned intervention. For example, a research-practice partnership led fun n healthy in Moreland!, a long-term school-based obesity prevention intervention in an Australian disadvantaged community which was developed, implemented and evaluated in partnership—involving a community health service and local schools with a university. Not only has this partnership allowed for evidence-informed planning but for a robust evaluation, which has also contributed to a Cochrane review.18 Other positive outcomes have been improvements in capacity for ongoing evaluation, for example research skill development among partner organizations.

Conclusions

Despite limited resources for public health globally, there is a significant effort by governments, NGOs and universities to undertake action to improve health outcomes, an investment to be capitalized on. Rigorous evaluation need not gloss over the components of public health interventions we know to be important: process, cost and equity. However, it is crucial that investment in rigorous evaluation be strengthened. Improving the quality of evaluation will lead to systematic reviews that include a broader spectrum of public health interventions. Supporting public health professionals to undertake this work and to advocate for evaluation resources from funders will help to build a culture for evidence-informed public health.

New Cochrane protocols and reviews of interest to health promotion and public health stakeholders from Issues 11–12, 2011 and Issue 1, 2012 of The Cochrane Library

(*denotes CPHG review/protocol)

Reviews

- Mentoring adolescents to prevent drug and alcohol use.
- Modification of the home environment for the reduction of injuries.
- Written information about individual medicines for consumers.
- Antenatal breastfeeding education for increasing breastfeeding duration.
- Behavioral interventions to reduce the transmission of HIV infection among sex workers and their clients in high-income countries.
- Personalised risk communication for informed decision-making about taking screening tests.
- Psychological and educational interventions for preventing depression in children and adolescents.
- Interventions for smoking cessation in indigenous populations.
- Non-pharmacological interventions for preventing venous insufficiency in a standing worker population.
- Exercise interventions for smoking cessation (updated).
- Interventions for preventing obesity in children (updated).

Protocols

- Behavioural interventions for preventing HIV infection in homeless or unstably housed adults.
- Clinical effectiveness of school and mixed school and community-based interventions for STI and HIV prevention in adolescents.
- *Incentive-based interventions for increasing physical activity and fitness.
- *Later school start times for supporting the education, health and well-being of high school students.
- Male involvement for increasing the effectiveness of prevention of mother-to-child HIV transmission programmes.
- Social connectedness interventions for preventing suicide in young and middle-aged adults.
- Structural and community-level interventions for increasing condom use to prevent HIV and other sexually transmitted infections.
- Effectiveness of systematic screening for the detection of atrial fibrillation.
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References