Seeing the wood and the trees: using outcomes frameworks to inform planning, monitoring and evaluation in public health

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ABSTRACT

Background It has been suggested that to meet information needs of multiple stakeholders, evaluation of public health interventions should specify a broader range of outcomes, evaluate a wider range of interventions and use more varied methods, in particular for dealing with complexity. Current outcomes approaches in public policy are potentially fertile ground for addressing these challenges and embedding evaluation in processes for reporting on public health outcomes. This paper describes work by NHS Health Scotland to realize this potential.

Methods Development of outcomes frameworks containing logic models which link actions to outcomes and specify outcome indicators for monitoring progress. Group processes to inform and help create shared ownership of models across key stakeholders. Creation of web-based resources to host outcomes frameworks with hyperlinks connecting logic models to evidence and outcome indicators.

Results The outcomes frameworks have been used in various ways by policy-makers and practitioners to shape policy, planning and monitoring and evaluation. A range of additional challenges that need to be overcome in developing and using the outcomes frameworks has been identified.

Conclusions Logic model-based outcomes frameworks are useful tools for supporting outcome-based planning and evaluation of public health interventions.

Keywords management and policy, public health

Introduction

Many public health problems require macro-level interventions involving multiple partners, within and beyond the health arena, addressing the social and economic determinants of health. In 2010, Smith and Petticrew argued that although policy increasingly recognizes this, public health practice does not. Interventions, they argued, are typically planned, implemented and evaluated using micro-level analysis of the impact of interventions on behaviours and outcomes for individuals.

Smith and Petticrew posed three challenges for evaluation:

- Specify a broader range of outcomes and evaluate the broader range of interventions, including social interventions, needed to achieve these outcomes.
- Use a broader range of evaluative methods, in particular methods for dealing with complexity.
- Carry out multi-sector evaluation to meet demands for information from multiple stakeholders.

This article describes ongoing work by NHS Health Scotland (‘Health Scotland’ in the rest of the paper) to address these challenges.

The article briefly describes the current outcomes approach in Scotland, before describing the work Health Scotland has carried out to support an outcomes approach to planning and evaluation. The article illustrates how this
work addresses the challenges for evaluation laid down by Smith and Petticrew before discussing three additional challenges that need to be addressed.

The outcomes approach in Scotland

In its 2007 National Spending Review the Scottish Government introduced an outcomes approach to planning for outcomes and managing performance. The outcomes approach aims to encourage:

- a clear focus on outcomes in planning and managing performance;
- community planning partners to work in partnership to agree, plan and deliver services that will achieve intended outcomes.

To drive this shift, Scottish Government introduced the National Performance Framework. A key element of this is single outcome agreements between community planning partnerships and the Scottish Government (http://www.improvementservice.org.uk/community-planning-and-single-outcome-agreements/). These set out strategic priorities for the local area, expressed as outcomes to be delivered by community planning partners and show how the outcomes they include should contribute to the Scottish Government National Outcomes in the National Performance Framework.

Scottish Government’s intention is that the framework, through the single outcome agreements, should encourage community planning partners to:

- articulate links between what they do, the outcomes they are trying to achieve and the government’s objectives
- report on whether they are achieving these outcomes.

These changes have created potentially fertile ground for growing the models of public health evaluation advocated by Smith and Petticrew. To realize this potential, Health Scotland has worked with partners to develop and encourage the use of ‘outcomes frameworks’. Health Scotland is the national agency for improving health in the Scottish population. It is a special health board within the NHS in Scotland.

What are outcomes frameworks?

Outcomes frameworks comprise a set of resources to help partners plan, monitor and evaluate their health improvement activities in an outcome-focused way. The frameworks comprise the following:

- ‘Strategic’ (Fig. 1) and ‘nested’ (Fig. 2) logic models and simple visual representations (outcomes triangles and multiple results chains) of the links between particular interventions/activities and the outcomes they aim to achieve in the shorter, medium and longer term.

![Fig. 1 The strategic logic model from alcohol outcomes framework.](https://academic.oup.com/jpubhealth/article-abstract/35/3/467/1568228/1568228)
The logic models contain health and non-health outcomes. They set out multiple pathways by which partners may contribute to achieving these outcomes, including pathways that lead via the social determinants of health.\(^1\)

Health Scotland has developed outcomes frameworks for:

- reducing harms associated with alcohol,
- reducing exposure to tobacco smoke,
- mental health improvement,
- promoting healthy weight,
- improving outcomes related to healthy working lives.

The outcomes frameworks are available on a website including hyperlinks in the logic models to the evidence on which they are based (http://www.healthscotland.com/OFHI/).

The remainder of the paper explains how outcomes frameworks address the three challenges set out by Smith and Petticrew before discussing some additional challenges encountered in developing this approach.

**Specifying a wider range of outcomes**

In each framework the logic models specify non-health sector interventions and outcomes. For example, the mental health improvement outcomes framework includes the role of social networks and social support, financial security, inequality and the environment in influencing population mental health.\(^1\)

Likewise, alcohol logic models in the alcohol outcomes framework highlight multi-partner interventions and health and non-health outcomes. These include the creation of safer drinking and wider environments, changing attitudes to alcohol and knowledge of alcohol-related harms, reducing the availability and affordability of alcohol and providing timely and appropriate support for people with alcohol problems (http://www.healthscotland.com/OFHI/alcohol/logicmodels/lm_01.html).

**Complexity**

Smith and Petticrew argued that many public health interventions are complex, not just because they have multiple components, outcomes and externalities, but also because they typically have emergent properties and non-linear phase transitions that characterize complex systems. They argued that public health evaluation often does not acknowledge
these layers of complexity, modelling causal pathways as short, straight and narrow.

Debate continues about how to deal with complexity in evaluations of public health interventions. Theory of change-based approaches, such as the logic models in the Health Scotland outcomes frameworks, do not formally model complexity but they can model long causal pathways. For example, all the Health Scotland logic models specify short-, medium- and long-term outcomes, with many of the latter only likely to be achieved over years or decades. All define multiple pathways that start with activities delivered by a range of partners. Many also include cross-overs between pathways. For example, the alcohol models include actions on price and availability expected to reduce consumption in the medium term, but also to have an effect on cultures and attitudes that promote high levels of consumption and binge drinking. These are simultaneously targeted by measures to change knowledge and attitudes.

Some authors question whether theory of change-based approaches can deal with the complexity of multi-component health improvement interventions that seek to tackle health inequalities by tackling the socio-economic determinants of health. The Health Scotland logic models do not seek to describe the complexity of, for example, the multiple determinants of obesity in the population, in the same way as the Foresight reports. Rather they seek to identify key pathways, on the basis of evidence or other criteria, to make tractable the planning and evaluation of complex outcomes generated by complex processes. They provide a basis for assessing whether anticipated intended outcomes, or unintended consequences, occur and for amending programmes in light of the evidence that comes out of the monitoring and evaluation process.

The outcomes observed may still be the result of other causes. However, in many circumstances, there are limits on the range of other potential causes that can be monitored (or controlled for). Where this is the case, the outcomes frameworks provide a structure for assessing whether the planned outcomes were achieved, whether the interventions designed to achieve them were implemented as planned and whether there may be other explanations for the outcomes observed. This provides a basis for assessing the potential contribution of an intervention or programme to the outcomes observed, even where robust causal inferences cannot be made.

**Demands for information from multiple stakeholders**

The purpose of the outcomes frameworks is to provide support in the form of evidence-informed guidance and resources that partners may use or amend for local planning. Evidence suggests that a range of stakeholders are finding them useful. The outcomes frameworks or the logic models that underpin them have been used in various ways by different stakeholders. For example, the alcohol logic models informed the consultation document and framework for action setting out the Scottish Government’s alcohol strategy. The models have also shaped a monitoring and evaluation programme assessing a range of health and non-health outcomes identified in the strategy.

Scottish Government has highlighted the way in which the outcomes framework for mental health improvement has enabled planning in local areas to be more systematic and evidence informed. NHS boards have developed local health improvement plans based on local adaptations of the mental health and tobacco outcomes frameworks. These include monitoring frameworks for assessing progress in delivering these plans.

The healthy weight outcomes framework (http://www.healthscotland.com/OFHI/Obesity/content/obesitytools.html) is being used by local health and local government partners as the starting point in planning their responses to the Scottish Government’s plan for preventing overweight and obesity. It has also informed the development of a set of indicators for local partners to monitor progress against the actions set out in the plan and it has informed the obesity research strategy. Logic models underpinned by evidence have also informed the development of the Scottish Government’s Maternal and Infant Nutrition Framework for Action.

Although these examples suggest that the outcomes frameworks are meeting demands for information from a range of stakeholders, and that they have influenced planning and monitoring, developing and using them faces a number of challenges discussed below.

### Further challenges 1: availability and use of evidence

The first challenge is achieving an appropriate balance between using good quality, authoritative evidence, where available, and the typically short timescales available to do the work. Highly processed evidence and guidelines have been used, such as NICE public health guidance (http://guidance.nice.org.uk/PHG), the recent Foresight reports on mental health improvement and obesity, and internal reviews such as the work that informed the adult mental health indicators developed by Health Scotland.

The frameworks developed in each topic area have presented different problems. For example, our understanding
of the determinants of the health outcomes of interest and the evidence on effective interventions are better developed in areas such as tobacco control than in areas such as mental health improvement.

The process of synthesizing the available evidence has involved input from evidence experts within Health Scotland and deliberative processes engaging cross-sectoral groups providing both academic and practice-based expertise. Involving groups in the process of identifying outcomes and synthesizing evidence has promoted a degree of engagement and ownership across sectors.

However, this approach has potential risks. Highly processed evidence is often based on particular types of study of particular types of intervention, i.e. controlled studies of discrete, non-complex interventions. As such, it may exclude important parts of the evidence base relating to complex public health interventions, which are often multi-faceted, context dependent and delivered in multiple settings. The risk is that the conclusions drawn from outcomes frameworks reflect the narrow scope of the highly processed evidence base, rather than what may work to improve health.

In addition, deliberative processes need to be carefully managed to avoid particular individuals dominating discussion such that the summary view of the evidence derived favours certain sectoral interests. The group process can become one of marshaling the evidence to justify existing practice or policy decisions rather than challenging current practice and policy.

Two strategies have been used to counter these risks. The first is to make explicit in the evidence reviews the rationale for including particular interventions in the logic models. The rationale may be evidence based or it may reflect logical or ethical arguments for including particular interventions, even where the evidence base is weak. This work was guided by a ‘decision-making triangle’ developed by Health Scotland.26 The decision-making triangle provides a framework for using evidence and theory to inform decisions that satisfy 10 ethical principles. The ethical principles and decision-making triangle reduce the risks associated with a narrow evidence base by helping make decisions when evidence is absent and/or limited by the narrow scope of highly processed evidence.

The second strategy has been to stress that the logic models in the outcomes frameworks are not prescriptive. Users are encouraged to use them critically and decide whether the arguments are plausible enough in light of the available evidence and in light of local circumstances. Users are encouraged to test the theory underpinning the links between activities and outcomes using available evidence and, subsequently, information from monitoring or evaluating the programme.

The development of outcomes frameworks in this way reflects Sanderson’s recent notion of ‘intelligent policy-making’, which has three key elements:

- Application of robust knowledge.
- Experimentation and evaluation as a basis for learning.
- Open dialogue and deliberation to identify interventions addressing social and economic problems that are reasonable from both technical and ethical standpoints.27

Sanderson suggests that, because the evidence base does not allow us to say with any degree of confidence what the outcome of complex programmes will be, programmes need to be designed in light of the best available evidence, and implemented and evaluated in ways that enable us to learn about what works in what circumstances. The Health Scotland outcomes frameworks seek to link evidence, planning and evaluation in this way.

Sanderson also stressed that in a world of uncertainty and legitimate differences in values, it has to be acknowledged that policy-making is, and should be:

- a deliberative process to derive ‘appropriate’ courses of action on the basis of ‘intelligence’, comprising the best available scientific evidence together with other forms of valid knowledge – the practical wisdom and tacit knowledge of practitioners, the views of interest groups and citizens – which combine to inform wise political judgement’ (p71).

The outcomes frameworks developed by Health Scotland have, in varying ways, combined use of the best available evidence with deliberative processes for synthesizing evidence and arriving at consensus about what the evidence says.

Further challenges 2: wider development of outcomes approaches

A second challenge is that effective use of the outcomes frameworks potentially contributes to, but also depends on, the wider development of outcomes approaches. Evidence suggests that at a local level this poses ‘technical’ and ‘organizational development’ questions.28 Technical questions include: What evidence and data are needed to plan for and measure outcomes? How good are available data? Can they be used to attribute outcomes to interventions? Organizational development questions include: Is there the leadership and commitment to
support outcomes approaches? Do community planning partners have the skills needed to support outcomes approaches? Do accountability processes encourage community planning partners to become more outcome focused?

These issues have been highlighted in an evaluation of whether and how the mental health improvement outcomes framework has been used in four areas in Scotland. Three had translated or were translating the framework into local strategies. The fourth did not use the outcomes framework as a basis for their local mental health improvement strategy. All used it as an evidence base to inform local decision-making. Those using it said that it helped to reinforce and re-align the work of community planning partnerships.

Influences on the extent to which it was used included time constraints, the presence or absence of local champions to promote use of the framework, perceptions of the complexity of the framework and the availability of support from Health Scotland to help people interpret and implement the framework. The study also highlighted the importance of contextual factors in influencing whether and how outcomes frameworks can be applied, including how much organizations had embraced outcomes planning more generally and the strength of partnership working in each area. Progress in Scotland on addressing these contextual factors has been variable but proposals have been put forward to strengthen community planning and single outcome agreements.

Further challenges 3: addressing inequalities in developing outcomes frameworks

The third challenge is how to address health inequalities in the outcomes frameworks. To date, this has been done by:

- including inequality-related outcomes explicitly in the logic models
- identifying evidence available on the effectiveness of interventions in tackling inequalities
- encouraging explicit consideration of the reach required for programmes to address inequalities.

In practice, however, addressing inequalities has been difficult. Evidence is limited on the differential impact of potential interventions across different groups. Likewise, there is often limited information available for monitoring the reach of interventions and changes in outcomes across different groups.

Discussion

Main findings of this study

Outcomes frameworks comprising logic models, links to the evidence or rationale on which the models are based, and information on sources of data to measure the outcomes in the models can be useful tools for addressing the challenges for public health evaluation identified by Smith and Petticrew. Partners appear to find the approach helpful in clarifying the outcomes they aim to achieve and in providing a structure to meet the demands of multiple stakeholders for information about the progress they have made.

What is already known on this topic

The use of logic models in public health outcomes planning and evaluation is not new. Previous authors have noted that they offer partners a useful way of examining the complex relationships between interventions, health determinants and outcomes by providing a framework for synthesizing diverse forms of evidence on the effectiveness of public health interventions. The evaluation field more generally, within and beyond public health, is already grappling with many of the issues raised by Smith and Petticrew.

What this study adds

This study provides practical examples of the use of outcomes frameworks to link planning and evaluation in ways that make use of available evidence, focus monitoring and evaluation on planned outcomes and engage a range of stakeholders. It highlights some of the uses to which this approach has been put and some of the practical issues that need to be addressed. It has shown how the approach fits into the current outcomes approach to planning and performance that is evolving in Scotland.

Limitations of this study

Health Scotland monitors the impact of using the frameworks where it is involved in work with partners to support their use and methods are being developed for monitoring use of the outcomes frameworks website. However, the main limitation of this study is that evidence is not yet available on the longer term impacts of using the outcomes frameworks on spending priorities, on the types of services delivered, on intermediate outcomes such as behaviour change or on longer term health outcomes.

Conclusions

Smith and Petticrew laid down an agenda for developing public health evaluation. Addressing this agenda raises issues
relevant to the wider development of outcomes approaches to planning and evaluation. Health Scotland's work developing outcomes frameworks seeks to address both of these agendas.

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