

# Are QALYs An Appropriate Measure To Use When Evaluating Public Health Interventions in the UK?



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## BACKGROUND

Quality-adjusted life years (QALYs) are commonly used in health technology appraisals, including those by NICE in the UK. However, QALYs only include 'health-related' quality of life (QOL) which may not apply to interventions that have benefits and costs that fall outside of the NHS. NICE recommends that public health economic evaluations take a cost consequence or cost benefit approach and present a public sector or societal perspective [1]. However, it is not clear how or if the costs and benefits that fall outside the NHS should be incorporated into this threshold for cost-effectiveness.

The objective of this research was to:

- Investigate the methodology used in public health modelling;
- Make recommendations about the most appropriate methods to use.

## METHODS

A review of recent public health guidance identified on the NICE website was undertaken (from 2014 to 2015). Each guidance, economic evaluation report and final scope document was reviewed and data extracted.

## RESULTS

Eleven studies were selected for inclusion based on their publication date. Two were excluded. One of these studies was excluded because it referred to the same economic model used in another guidance that was reviewed. The second study was excluded because it included only a review of existing cost-effectiveness models which identified over 100 relevant economic analyses. An overview of all nine studies is provided in Table 1.

Table 1 shows that a range of methods of economic evaluation were used in the evaluation of public health interventions. The NICE Public Health methods manual recommends that a public sector or societal perspective should be taken. Table 1 demonstrates that in some cases other perspectives were used. Table 1 shows that there are multiple cases in which the body that benefits from the intervention differs from the body that pays for the intervention.

## DISCUSSION

Unlike economic evaluations for drugs, there are a wide range of payers of public health interventions, such as employers, the individual, local government and central government. This is partially due to the NHS reform, transferring responsibility for public health to local authorities [2]. In addition, the body who pays for the intervention is not always the one to benefit from it. Therefore, using QALYs to calculate an ICER to represent opportunity costs is rarely appropriate in public health evaluations (though providing QALYs to quantify health gains can still be informative). Cost per QALY is only a true measure of opportunity cost when the NHS pays for the intervention. However, the data extraction shows that cost-effectiveness evaluations using cost per QALY are still regularly used. This may be due to the recommendation to do so in the NICE Public Health methods manual.

In addition, many evaluations reported a lack of data. The nature of public health interventions means that good quality experimental data can rarely be collected [2, 3, 4]. The intervention is often a step earlier than in clinical evaluations. For example in the vitamin D guidance (PH56), the intervention is to try and increase uptake rather than the vitamin D supplements directly. Furthermore, there are often non-health benefits associated with the intervention (such as, a reduction in crime) that are difficult to quantify. Due to the lack of good quality data, many economic evaluations reported considerable uncertainty. For these reasons, the economic evaluations of public health interventions appear to take a lesser role in shaping guidance recommendations than in clinical guidelines.

It is recommended that a more pragmatic approach be taken to modelling public health interventions in which the method of evaluation and the model perspective is not recommended *a priori*. The economic model should be relevant and useful to decision makers, focusing on those paying for the intervention because the decision to adopt an intervention typically rests with those paying. Figure 1 provides a tool to show which type of economic evaluation is recommended. It is recognised that there are some interventions which may be an exception to this diagram. In these cases the diagram should be used alongside discussions with relevant stakeholders to decide the most appropriate measure. Making a decision on the most appropriate methods of economic evaluation should be part of the model scoping period and discussions with the public health advisory committee.

**Table 1: Summary of included studies**

Guidance	Type of evaluation	Perspective stated	Does the body who pays for the intervention also benefit?
Workplace policy and management practices to improve the health and wellbeing of employees (NG13)	Cost analysis	Employer perspective	Yes
Excess winter deaths and morbidity and the health risks associated with cold homes (NG6)	Cost-utility	NHS, government (incl. NHS and LA's), householder, combined (government + householder)	No
Vitamin D: increasing supplement use among at-risk groups (PH56)	Cost-consequence	Public sector	No
Oral health: approaches for local authorities and their partners to improve the oral health of their communities (PH55)	Cost-utility and 'what-if?' analysis	Public sector	No
Exercise referral schemes to promote physical activity (PH54)	Cost-utility	NHS and PSS	Sometimes (if NHS pays)
Managing overweight and obesity in adults – lifestyle weight management services (PH47)	Cost-utility	NHS	No
Contraceptive services with a focus on young people up to the age of 25 (PH51)	Cost-effectiveness (no QALYs)	Public sector and NHS + PSS	Yes
Needle and syringe programme (PH52)	Cost-utility	Societal (NHS and costs of crime)	Yes
Domestic violence and abuse: how health services, social care and the organisations they work with can respond effectively (PH50)	Cost-utility and cost-consequence	Societal (NHS, crime, social services, government benefits, productivity)	Some benefits but not all (e.g. reduction in crime)

## REFERENCES

1. NICE. Methods for the development of NICE public health guidance (third edition). 2012. Available from: <http://www.nice.org.uk/article/pmg4/chapter/1%20introduction>.
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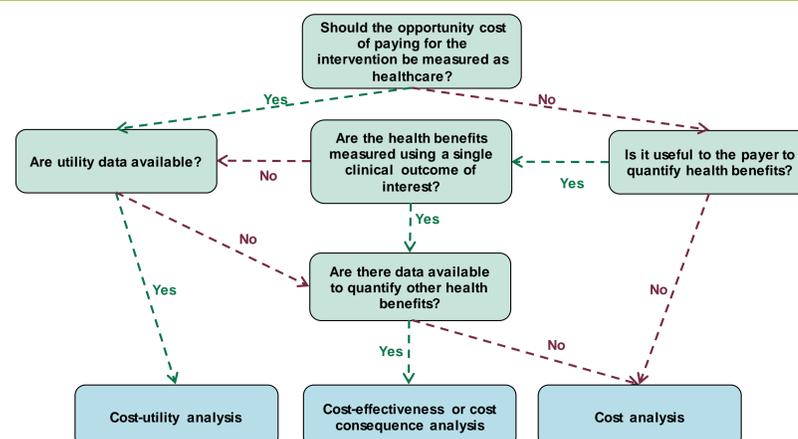
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**Figure 1: Algorithm to determine relevant outcomes**



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