

# Economic evaluation in quality improvement: a starter guide

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# What this guide is for

This guide is an introduction to health economics for those who are relatively new to the topic and interested in finding out more about some key concepts and how they might be applied to quality improvement initiatives. This is not a comprehensive “how to” guide.

## What can an economic evaluation tell us?

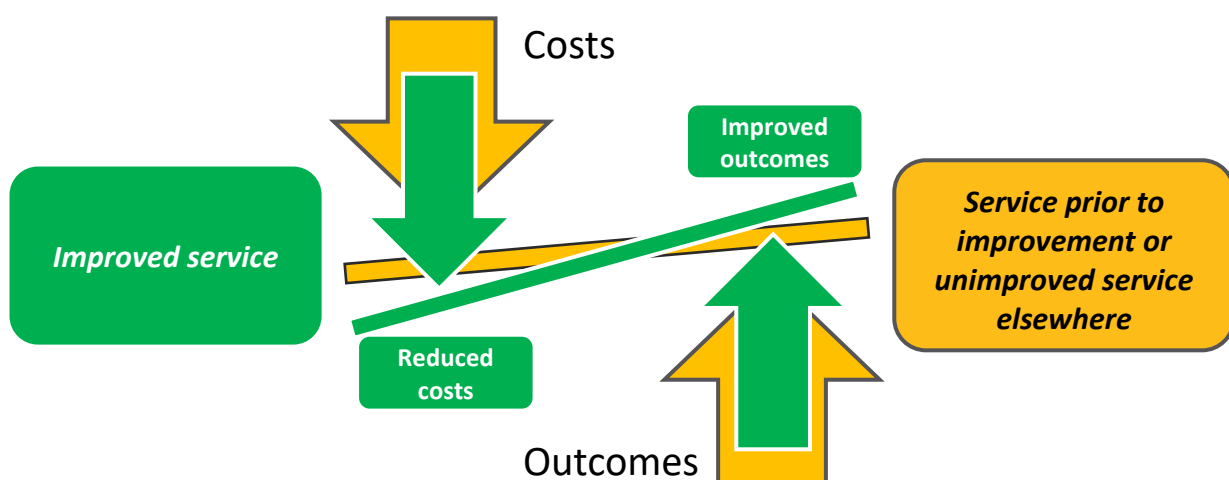
Health economics is concerned with the allocation of *scarce*, that is, finite healthcare resources.

Economic evaluation is a framework that helps us make (often difficult) decisions about how to spend the budget, or in other words, how to cut the (finite) cake. At a very basic level it is about weighing up costs and benefits resulting from alternative options, and is key to many areas of Healthcare Improvement Scotland’s work (including SMC, SHTG, SIGN)<sup>1</sup>.

Economic evaluation of quality improvement helps to answer the questions of what additional benefits and/ or costs or savings will result from implementing improvements to care when **compared** to the costs and benefits of the existing, unchanged way of delivering care.

In other words, economic evaluation helps to decide whether resource use has improved, either through:

- improving health outcomes using the same resources, or
- achieving the same health outcomes using reduced resources.



**Figure 1: Evaluating an improvement to a service**

In quality improvement, this will often be about comparing the costs and outcomes before and after improvements have been made to a service. Note that whilst this approach to comparison will often be the only practicable option, other approaches which may strengthen the evaluation should always be considered. This is discussed on the next page.

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<sup>1</sup> The basic description of economic evaluation applies equally across areas, but the specifics are likely to vary according to the purpose of the evaluation, available data, and indeed available resource. For this guide, our focus is economic evaluation for quality improvement (QI).

# Top tips for planning an economic evaluation

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## Strengthening the evaluation

*Who wants to know what?*

Think about economic evaluation *before* the improvement initiative starts, allowing you to plan.

Clarify what the aim of the economic evaluation is, including who it is for. This will help, for example, in deciding which economic question you wish to answer, such as identifying the least costly or the most cost-effective option (see later for more on this).

*Think ahead - consider whether to collect bespoke data before the intervention*

Identify appropriate measures and data collection as the initiative goes forward, especially where the data are not routinely collected. Plan the design, collection and analysis of measures carefully to minimise the risk of bias and other data errors.

It may be an option to carry out economic evaluation at a later date looking backwards through data. However, the required data may not be available risking the evaluation being either less robust or in some cases not possible at all.

*Consider if there is a comparable service or group.*

Where possible, think about comparisons other than before-and-after-comparisons, which can be misleading<sup>2</sup>.

Possibilities may include a comparison between similar services, or between matched groups of patients, one of which is not affected by the improvement initiative.

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## Perspective

*You will not be able to collect data on everything. Report the limitations.*

Think about perspective: whose costs and benefits are you evaluating? For example it could be costs to the NHS, the HSCP, local authority, benefits for patients, service users, or for staff.

Be aware that the more groups you want to include in your evaluation, the more data you will need and the more complex your evaluation will be, which may make it more difficult to conclude with robust findings.

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<sup>2</sup> A before-and-after comparison is at particular risk of a type of error known as “regression to the mean”. This is where, after an unusually high or low value, the next value will often be closer to the average (or the mean). So for instance, where patients are chosen to receive a service because they are considered to have a greater need for it, improvements detected after receiving the service may reflect normal (statistical) variation over time. This can be mistaken for improvement. See <https://www.health.org.uk/newsletter-feature/why-before-and-after-analyses-can-give-misleading-results>. The best ways of avoiding this error generally involve having a comparator group, and ideally, randomly selected, or failing that, matched participants in both groups. If this is not possible, one option when seeking to select high or low resource users, is to take multiple baseline / before measurements and base the selection on their average.

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## Benefits and consequences

*Consider all important costs and benefits even if they cannot be quantified*

Think about all the expected benefits and potential unintended consequences of the quality improvement initiative and of the 'status quo' or other comparator. In particular, identify who benefits and who incurs costs/dis-benefits so that you can detect any inequalities impacts. See "equity" in the Key Concepts section below.

Take care not to only focus on aspects *because* they can be quantified and/or costed.

It is unlikely that ALL costs and benefits can (or should) be captured. So, whilst you should take all reasonable steps to identify important costs and benefits (including unintended consequences), if some simplification of the analysis is necessary in light of missing data, state this in your report.

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## Existing knowledge

*Don't reinvent the wheel – consider existing literature (though with a critical eye)*

Aspects of what you are doing may have been done before or information relevant to an NHS setting already collected. Consider what can be learnt from existing published literature<sup>3</sup> (as well as unpublished sources you may be aware of).

Approaches to critical appraisal can support this, as well as providing prompts to improving the quality of your own evaluation. One example for QI is the Quality of Health Economic Studies (QHES) framework which provides a useful checklist<sup>4</sup>.

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<sup>3</sup> For instance, Roberts et al (2019): "Use of health economic evaluation in the implementation and improvement science fields: a systematic literature review <https://implementationscience.biomedcentral.com/articles/10.1186/s13012-019-0901-7>

<sup>4</sup> "Examining the Value and Quality of Health Economic Analyses: Implications of Utilizing the QHES" by Ofman et al (2003) <https://www.jmcp.org/doi/pdf/10.18553/jmcp.2003.9.1.53>

# Key concepts

When considering questions of resource use in relation to associated outcomes, the following economic concepts are important to understand as they can help to clarify what data need to be collected.

Concept	Description	Example	Notes
<b>Opportunity cost</b>	A key cost of a chosen action is not the resources spent on it, but the benefit given up by not choosing the next best alternative use of the resources.	If we choose to spend money on a new drug, equipment or service, in doing so we sacrifice any of the health benefits that we could have had if we had spent that money on something else.	This is important since, if opportunity cost exceeds health benefits delivered by what we chose to spend money on, the NHS has not spent money as wisely as it could have.
<b>Technical efficiency</b>	Achieving a set outcome using the least resource possible.  Can we achieve the same outcomes with reduced resource?	A quality improvement initiative to streamline paperwork aims to achieve the same health outcomes for patients whilst reducing the cost of GP time spent on administration.	
<b>Allocative efficiency</b>	Allocating a set resource to the intervention which achieves the most beneficial outcome(s)	Additional funding is allocated to a project that <i>prevents</i> hospital admissions in older people rather than a project that reduces older people's length of stay after hospital admission.	
<b>Equity</b>	Achieving an outcome where the distribution of benefits is considered fair and just for society.  The NHS should provide equal access to services, free at the point of need, but needs may vary for specific groups in the population.  If certain groups are benefiting from a service more than others, is this fair?	Some services may be relatively costly to provide to certain population groups, but the benefits of doing so may also be considerable.  Services which are designed for majorities e.g. day centres for older people, may inadvertently exclude minority groups for whom this is not culturally or linguistically appropriate.  If not carefully designed, resources spent on preventive services (such as screening) may disproportionately benefit those in least deprived areas and risk exacerbating health inequalities.	It is important to note that, whilst economic evaluation can help in understanding the distribution of costs and benefits among different groups, it cannot provide answers to questions of fairness and justice on its own.

## Key steps to take

The key concepts introduced above are important to understand before considering planning an economic evaluation. Guidance on this is given here, laid out in 5 “steps”. Step 1 explores how to address questions that you may wish to answer through economic evaluation and gives examples of different approaches you can take. Steps 2 -5 give guidance on how to carry out the evaluation. The steps are:

- Step 1: Clarify purpose, perspective and type of approach
- Step 2: Identify what resources the improved service may use
- Step 3: Cost the resource use
- Step 4: Identify what outcomes the improved service may achieve
- Step 5: Value the outcomes

Note that although the information is laid out in consecutive “steps” for clarity, steps 2-5 are likely to be overlapping. These are considered in turn below.

### Step 1: Clarify purpose, perspective and type of approach

In common with evaluation in general, it is important to clarify the purpose of the economic evaluation, including who will make use of the findings, what they will want to know and their priorities. Similarly, resource available for carrying out the evaluation should be established. One important aspect of this is clarifying the limits, or “perspective”, of the evaluation. In other words, whose costs and whose outcomes should be included.

This will have implications for scope and design. The table below gives examples of questions you might be asking and what type of economic evaluation might be appropriate in those circumstances.

Question you may wish to answer	Economic approach
Which approach is the least costly way of achieving the same outcome for patients?	Cost minimisation analysis
Which approach achieves improvements in a particular patient outcome for the least cost per unit of improvement (however measured)?	Cost effectiveness analysis
Which approach achieves improvements in a particular patient outcome measured in quality adjusted life years (QALY) for least cost per QALY gained?	Cost utility analysis (type of cost effectiveness analysis with QALY as unit of improvement)
Is an intervention impacting a number of outcomes (however measured) an effective use of resources compared to the current approach?	Cost consequence analysis
Comparing interventions (or different ways of delivering a service) in monetary terms, which provides the greatest benefit for the least cost?	Cost benefit analysis



Note that where efficiency cost savings are made, it may be important, in practice, to distinguish between cash-releasing savings (where the same service is provided for less money), and cost-avoidance savings (where demand for activity is reduced e.g. through reduced readmission rates, tighter referral criteria, etc)<sup>5</sup>.

## Examples of economic approaches

### *Cost minimisation analysis*

This compares the cost of different interventions which are expected to achieve identical outcomes, in order to identify the least costly approach.

For example, an NHS Board calculated the cost of standard hospital care compared with a cost for patients being discharged with a care package instead.

The assumption was that both services deliver the same outcomes for patients.

Total cost of homecare package 10 week duration £17,816	Total cost of hospital stay for similar group 10 week duration £283,360
Overall cost avoided = £265,544 (£283,360 - £17,816)	

Note that these 'savings' are not cash releasing and therefore should be considered as costs avoided.

### *Cost effectiveness analysis*

This compares different interventions which are expected to achieve the same type of outcome but to differing degrees (so can be compared using the same health outcome measure)<sup>6</sup>. Varying degrees of improvements in health then can be compared using the same outcome measure and can be used to track and compare different amounts of health benefit achieved through different interventions.<sup>7</sup>

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<sup>5</sup> Note that this is an accountancy matter. Economic evaluations do not typically distinguish at the outset between savings that could be cash-releasing or otherwise. If the evaluation identifies cost-efficiencies and the improvement project is to be rolled out, health economists can make the distinction when supporting local NHS managers/accountants with budget/resource impact analyses. The NICE costing tool (for Budget Impact Assessments) gives more guidance [https://www.nice.org.uk/Media/Default/About/what-we-do/Into-practice/Costing\\_Manual\\_update\\_050811.pdf](https://www.nice.org.uk/Media/Default/About/what-we-do/Into-practice/Costing_Manual_update_050811.pdf)

<sup>6</sup> This approach is likely to be useful for (but not limited to) questions comparing interventions within the same specialty, ward or team where health conditions treated are similar, and therefore health benefits achieved are of the same (or similar) type. The degree to which health benefits have been achieved are generally measured and expressed in their natural units depending on the service, the improvement initiative and the type of health benefit.

<sup>7</sup> Some outcomes can be measured in their natural units but in addition we may be able to apply a unit cost to these measures, allowing us to estimate the total or average costs avoided for a change in that outcome. The efficiency saving is calculated based on how much more the Improved service costs to provide compared to what you would otherwise do, and how much the improved service saves in terms of the outcome measure of interest, multiplied by the unit costs associated with that outcome measure for the outcome.

For example:

- a new screening programme, might be compared to the old using a measure of rates of new cases detected could include cost per additional case detected.
- An initiative introducing earlier intervention might be compared to the previous service using relative numbers of symptom-free days could include cost per symptom-free day gained and cost per percentage reduction in antibiotic use.

Note that the results of a cost effectiveness analysis can be reported as the incremental cost effectiveness ratio (ICER). See the appendix for how this is calculated.

### *Cost-utility analysis*

This is a type of cost-effectiveness analysis. The analysis (in health) uses an outcome measure called the quality adjusted life year (length of life in years, adjusted for quality of life in that period) to capture health benefits.

For example, these analyses are routinely conducted in Health Technology Assessment for medicines, but are less commonly seen in social care comparisons.

Historically in national decision-making for new treatments and technologies, those interventions or technologies which cost less than £20,000 per additional QALY gained have generally been considered value for money whilst those above £30,000 generally not considered as such<sup>8</sup>. There is no equivalent indicative figure yet for social care<sup>9</sup>.

### *Cost consequence analysis*

This approach to analysis presents the costs alongside consequences for a number of outcome indicators. Consequences (outcomes) are broadly defined and can include utility measures and other measures such as depression scores or social activity scores. Qualitative data can be incorporated into this type of analysis. This type of evaluation is often appropriate to quality improvement initiatives.

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<sup>8</sup> NICE (2015) Economic report: Appendix C3 of NICE Guideline NG22 “Older people with social care needs and multiple long-term conditions” <https://www.nice.org.uk/guidance/ng22/evidence/appendix-c3-economic-report-pdf-552742674>. Report by the Personal Social Services Research Unit at the London School of Economics and Political Science.

<sup>9</sup> Further information can be found in Johnson, Rebecca, David Jenkinson, Chris Stinton, Sian Taylor-Phillips, Jason Madan, Sarah Stewart-Brown, and Aileen Clarke (2016). Where’s WALY?: A proof of concept study of the ‘wellbeing adjusted life year’ using secondary analysis of cross-sectional survey data. Health and Quality of Life Outcomes 14: 126.

For example, a wellbeing service for people with long term conditions was introduced to Midlothian in 2017. Wellbeing practitioners used a conversational approach which involved talking, engaging, listening and advice.

Its aim was to improve outcomes for vulnerable groups of people whose needs were not being met by primary care services. The evaluation examined resource utilisation (Nurse and GP contacts) by 187 patients, comparing their use 6 months before and 6 months after introducing the service.

	Pre-attendance	Post-attendance	Change	p-value
Nurse contacts	204 (1.1; 0)	184 (0.98; 0)	- 9.8%	0.30
GP contacts	2108 (11.3; 9)	1824 (9.8; 8)	- 13.5%	<0.01
Prescriptions	2748 (14.7; 10)	2847 (15.2; 9)	+ 3.6%	0.20

**Figure 3: Resource utilisation before and after introducing the new service**

A longer term evaluation would have been required to identify whether regression to the mean ('where, after an unusually high or low value, the next value will often be closer to the average'<sup>1</sup>) was an issue in this case. This analysis did not attribute costs to the consequences, but it would have been feasible to do so.

### Cost Benefit Analysis

This analysis is time-consuming and complex and aims to compare all the costs and benefits of an intervention where the treatment and health outcomes can both be measured in, or translated into, monetary terms.

It typically considers known or anticipated patient benefits beyond health gains, such as differences in healthcare processes that people may have preferences for (beyond any quantifiable QALY gains).

For example:

- What are the costs and benefits of being able to have your treatment within your local NHS Board area?
- What is the best way of designing a screening service to maximise uptake?

Like other evaluations, cost-benefit analysis provides evidence on which to base judgements, helping weigh up quantitative and qualitative information about costs and benefits. Rarely will it provide conclusive answers in itself, particularly as benefits are often unquantifiable.

## Step 2: Identify what resources the improved service may use

The goal of this is to answer the question: how much more or less will the improved service cost to provide, compared to what otherwise would have been done?

Resource use included in the evaluation should reflect the specific aim of the QI project<sup>10</sup>.

**Consider:**

- **perspective** - who might be spending the resources, such as the NHS, social care or third sector services or patients, and whether they should be included in your evaluation,
- **what types of resources** might be used, such as medication, staff, rent, or new buildings etc.
- what resource use will be **avoided**, because the new approach doesn't need some or all of the same resources of the previous approach, and
- how to value those resources by **applying a price to each**, such as staff time salary equivalents, bank staff costs, or equipment costs from the online payments system, PECOS<sup>11</sup>.

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<sup>10</sup> For example an evaluation which aims to assess the impact of a new acute care treatment pathway (compared to current treatment pathway), may need to highlight the differences in nurse/staff time associated with the pathways. Also be mindful that if a QI project was funded by a special one-off grant, for example from the third sector, consider whether your evaluation needs to quantify the resources that will be incurred if the NHS or social care take on the cost of continuing, or rolling out the work in the longer term.

<sup>11</sup> PECOS is the online purchase and payment system available to all Scottish public sector bodies. See: <https://www.gov.scot/publications/pecos-purchase-to-pay-system-guide/>

## Perspective

Some examples of resources from the NHS perspective:

- Staff costs, such as training or time<sup>12</sup>
- Capital costs, such as when an additional venue or facility needs to be used or built
- Equipment costs, including maintenance and repair
- Rent costs
- Treatment costs, such as medication or inpatient stay
- Consumables costs, such as wound dressings
- Overheads costs, such as cleaning services and lighting and electricity

Quality improvement may impact on other services as well as health and so you may have identified a need for a **wider** perspective.

For instance:

- a quality improvement initiative about timely hospital discharge may impact on social care services.
- a project where the location of a service is moved may impact on travel, especially for people who live in rural areas.

However, it is important to remember the practical implications of including wider groups and keep the focus on priorities.

## Step 3: Cost the resource use

There are two main ways of costing the improved service and comparator(s).

Approach	Description	Notes
<b>Bottom up/ Microcosting</b>	Gathering information on direct costs	Direct costs and expenditure are known and provided by a finance department or project lead
<b>Top down/ Estimation</b>	Using cost information that is already known for both the new service and the comparator  This might include health board data such as number of GP visits or percentage of hospitalisations, or published literature such as data from a scientific trial.	Where cost information is unavailable, cost will need to be estimated, based on assumptions. This could increase uncertainty regarding the conclusions.  Assumptions need to be made clear in reporting and note it may be appropriate to carry out sensitivity analysis to assess the likely impact of varying the assumptions.

The bottom up and top down/estimation approaches may also be combined if there are no alternative costs available, but it is better to try to use the same approach throughout where possible.

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<sup>12</sup> Note that from an NHS perspective where there are staff absence or shortage, it is still usually assumed that a nurse or a doctor would see the patient. However, if there is a particular staff shortage in a specialty role and likely therefore to be filled by more costly locum or bank/agency staff, an uplift could be applied to the cost of the resource use of nurse or doctor time (with a justification recorded in the method).

## Sources for cost data

Typically, resources used are translated into monetary terms using sources which are applicable to (or can be adapted for) a Scottish context. The following sources are commonly used in economic evaluations:

Organisation	Source example	Notes
Personal Social Services Research Unit (PSSRU)	Unit Costs of Health and Social Care <a href="https://www.pssru.ac.uk/project-pages/unit-costs/">https://www.pssru.ac.uk/project-pages/unit-costs/</a>	Staff costs may need to be modified to account for differences in pay scales in Scotland but the methodology used is made explicit in this publication
ISD Scotland	Annual Cost Book data <a href="https://www.isdscotland.org/Health-Topics/Finance/Costs/">https://www.isdscotland.org/Health-Topics/Finance/Costs/</a>	
SMC <sup>13</sup> guidance SIGN guidance SHTG evaluations NICE guidance	Evidence cited in guidance and SHTG economic evaluations <sup>14</sup> . See organisation websites <sup>15</sup>	You can also conduct a literature search of the wider evidence base to find relevant studies
NHS	NHS Journals library produce reports of large NHS grant funded research projects, particularly the HTA programme. These often have chapters on economic evaluations that have been conducted which will show care pathways, assumptions made and cost sources etc. See website <sup>16</sup>  Clinicians' estimates of staff time and training implications of an initiative  Clinicians' description of the previous service	

<sup>13</sup> Note that guidance from SMC (which gives advice on medicines) is usually confidential in terms of costs, but some of the clinical information may be of use.

<sup>14</sup> [http://www.healthcareimprovementscotland.org/our\\_work/technologies\\_and\\_medicines/shtg.aspx](http://www.healthcareimprovementscotland.org/our_work/technologies_and_medicines/shtg.aspx)

<sup>15</sup> SMC - <https://www.scottishmedicines.org.uk/>, SIGN - <https://www.sign.ac.uk/>, NICE - <https://www.nice.org.uk/guidance>

<sup>16</sup> <https://www.journalslibrary.nihr.ac.uk/#/>

## Cost over time

Consider whether the costs are **fixed** or if they **change** over time. For example:

- nurse time costs could increase or decrease as a quality improvement intervention is **established**, or if there is a **learning curve** for performing a new procedure.
- **seasonality** may skew data – in winter the percentage of hospital admissions due to falls is likely to go up because of poor weather, for example
- the **time horizon** for the evaluation should be long enough to capture all of the patient care costs and outcomes associated with the quality improvement initiative<sup>17</sup>

## Step 4: Identify what outcomes the improved service may achieve

The outcomes included in an evaluation will depend on the perspective of the analysis and what data are available.

Outcomes should be included in the evaluation even if they can't be expressed in monetary terms, as this will make the analysis stronger. By thinking about this at the start, you can decide whether or not to collect additional data.

Identify, as a result of the quality improvement initiative:

- what outcomes are expected to change
- who will be affected
- what other consequences may occur, including unintended consequences such as re-admissions or delayed discharge

Some examples of outcome measures commonly used to track improvements include:

- Number of hospitalisations
- Primary care service use, such as GP visits
- Length of hospital stay
- Patient reported benefits such as quality of life and satisfaction with the service

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<sup>17</sup> Note that where costs and benefits occur in the future, they are generally considered of lower value than those which occur in the present. So, in order to make comparisons in present day terms, the quantified values of all costs and benefits occurring after one year are subject to a discount rate set by government. At present, this is 3.5% per year for both costs and benefits, but may be subject to change. Note if there are issues about capital spending (such as spikes in spend over a longer time period, or questions of % use of shared facilities) it is likely best to consult an economist.

## Step 5: Value the outcomes

If the intended outcome can be measured in terms of a change in cost such as reduced occupied bed days, think about how much the intervention saves in terms of the costs avoided.

Where outcomes cannot be fully represented in terms of cost change, health outcomes and other additional outcomes should also be included.

### *Approach to collecting outcome data*

Approach	Source
Bottom up	Data collected from sites
Estimation	Data collected from published literature, routinely publicly available data sources Assumptions based on clinical opinion such as success or complication rates) if no other data are available

### *Measuring benefits for patients*

Always consider measurable benefits for patients, including those which may not have an associated monetary value, such as quality of life.

A range of measures exist that can compare utility associated with well-being and different health conditions<sup>18</sup>. See overleaf for examples and useful links.

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<sup>18</sup> For example, you can map well-being scores or confidence scores onto health questionnaires that estimate utility or use them directly to calculate quality-adjusted life years (QALYs) for a particular health outcome(s) such as a knee condition. Note that other measures around well-being may need to be used alongside QALYs, particularly if a return to full health is not likely.



Source	Measures
<b>EuroQol for EQ-5D</b>	A standardised measure of health-related quality of life that can be used to compare a wide range of health conditions and treatments. Note that Other generic measures of health related quality of life are available that can be used to derive QALYs, but the EQ-5D is free for NHS staff to use even outwith a research context <sup>19</sup>
<b>The Patient Reported Outcome Measurement Group</b>	Patient Reported Outcome Measures and Patient Reported Experience Measures Resources available at: <a href="http://phi.uhce.ox.ac.uk/home.php">http://phi.uhce.ox.ac.uk/home.php</a>
<b>PROQOLID™</b>	An online database of 2000+ Clinical Outcome Assessments Available at: <a href="https://eprovide.mapi-trust.org/about/about-proqolid">https://eprovide.mapi-trust.org/about/about-proqolid</a>
<b>ICECAP</b>	A measure of attributes of capability found to be important to people in the UK
<b>Warwick-Edinburgh Mental Wellbeing Scale and General Health Questionnaire (GHQ-12)</b>	Measures of wellbeing used in the Scottish Government Health Survey and National Performance Framework

## Further information

As said, this guide is an introduction to health economics for those who are relatively new to the topic and not a comprehensive “how to” guide.

If, after reading this guide you would like more information, or are considering how economic evaluation could be carried out in your area then please do contact the Evidence for Evaluation and Improvement team.

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<sup>19</sup> Although there is still a registration process and there will be administrative costs, Euroqol no longer charge for use of EQ-5D for non-research purposes. See announcement January 2019: <https://euroqol.org/euroqol-extends-free-use-of-eq-5d-for-non-commercial-users/>. Of note is that SMC have said they would prefer company submissions to use the same method of deriving QALYs and that EQ-5D is the most widely used measure, but note that “it would be inappropriate to require the use of the EQ-5D to the exclusion of any other valid generic utility measures” <https://www.scottishmedicines.org.uk/media/4527/20190626-guidance-on-npaf.pdf>

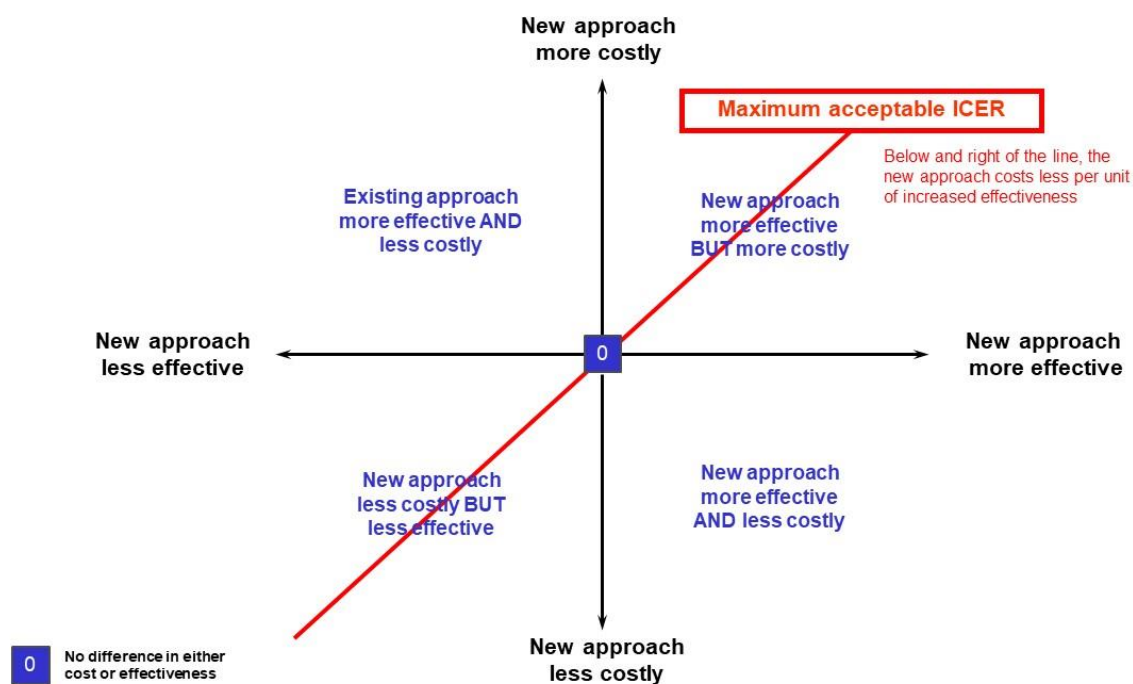
# Technical appendix: Incremental Cost Effectiveness Ratio

The results of a cost effectiveness analysis can be reported as the incremental cost effectiveness ratio (ICER), which is a calculation of the extra cost per extra unit of health effect.

For example, to assess the cost-effectiveness of a new approach, for example, the ICER would be calculated as follows:

$$ICER = \frac{\text{costs with new approach} - \text{costs of previous approach}}{\text{health benefit with new approach} - \text{health benefit of previous}}$$

The figure below shows a diagrammatic representation of this calculation.



Cost effectiveness: new approach vs existing approach

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