NICE National Institute for Health and Care Excellence

Support document: Health inequalities

Implementation support
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Contents

This health inequalities methods support document should be read alongside NICE health technology evaluations: the manual.

Evidence on health inequalities

Health inequalities can occur throughout the course of disease and treatment and can be measured in many ways. In economic evaluations, health inequalities can be defined by the impact of health technologies on the quality-adjusted life years (QALYs) experienced by groups in the general population with different social characteristics. Social characteristics related to health inequalities include socioeconomic status, level of deprivation and ethnicity. Distributional cost-effectiveness analysis (DCEA) is a method for estimating this effect.

The overall impact of a health technology on health inequalities in QALYs is determined by a range of factors. These include inequalities in disease prevalence, treatment uptake and treatment success. These factors can vary in importance depending on the disease area and the relevant social characteristics. It is important that DCEAs reflect the sources of variation that have the biggest impact overall on health inequality. Not doing so could result in bias. If variation in potentially influential parameters has not been accounted for, this should be justified.

The preferred source of robust health inequalities data will depend on the condition and whether it is mainly treated in primary or secondary care. Datasets such as the Clinical Practice Research Datalink and Hospital Episode Statistics can give an estimate of diagnosed prevalence by social characteristics in primary and secondary care, respectively. Other data sources may be appropriate for specific disease areas. For guidance on using datasets and registries see NICE's real-world evidence framework (PDF).

Evidence on health inequalities should stratify populations using the appropriate social characteristics, supported by a strong rationale (see the section on stratification of social groups). Using an inappropriate stratification technique to analyse health inequalities can lower the validity and relevance of a DCEA.

NHS England's CORE20PLUS5 approach, which defines a target population and identifies 5 clinical areas of national priority, could also be used as a guide to identify relevant health inequalities.

High-quality evidence on health inequalities should be gathered for the eligible population in the scope. When data is taken from a different population, for example a more broadly

defined disease group, it should be accompanied by a description of the differences. Justification of its use, supported by evidence and expert opinion, should also be provided.

Differences in treatment benefit across social groups should be shown with the best available evidence. This could include data from trials, real-world evidence or simulation modelling, depending on the population and technology being considered.

There may be social and structural barriers, as well as exclusion criteria, that prevent people from engaging in research. This can potentially lead to bias in evidence on health inequalities and should be documented so the committee can take it into account in its deliberations.

Distributional cost-effectiveness analysis methods

Table 1 Summary of key components of DCEA and NICE's preferred approach

Component of DCEA	NICE's preferred approach
Stratification of social groups	Based on IMD. This should be supported by rationale
Uncertainty	Select sensitivity analyses. Full probabilistic analysis can be done but is not required
Uptake	Equal uptake across groups should be assumed No change in uptake should be assumed, unless supported by robust evidence
Health inequality aversion weights	Health inequality aversion weights should not be applied to QALYs
Health opportunity cost	Equally distributed across social groups with scenario analyses provided for alternative gradients
Discounting	The same annual rate of 3.5% for both costs and health effects
Outputs	Net health benefit, total health benefit, and health opportunity costs should be presented for each IMD quintile

Abbreviations: DCEA, distributional cost-effectiveness analysis; IMD, Index of Multiple Deprivation; QALYs, quality-adjusted life years.

Stratification of social groups

Social groups should be stratified by the Index of Multiple Deprivation (IMD). The IMD reflects different aspects of deprivation, is widely collected in research studies, and is often used to estimate health inequalities. A rationale for the appropriateness of IMD to the health inequalities relating to a disease or health technology should be provided.

Some inequalities may be concentrated in specific social groups. For example, certain ethnic or inclusion health groups (see NHS England's Equality, diversity and health

inequalities section on inclusion health groups). In these cases, other approaches to stratification may be considered if there is an evidence-based rationale. In some circumstances, it may be appropriate for a condition to be stratified by 2 characteristics. But, this can lower the quality and interpretability of the data.

Supplementary indices of the IMD, such as for children or older people, should not be used. The IMD can be used for these groups.

Uncertainty

A full probabilistic sensitivity analysis is not needed for the health inequality analysis. But, committees should consider it to be the best approach to quantifying uncertainty in health inequality impacts. Deterministic sensitivity and scenario analyses should be done for the main sources of uncertainty that determine the health inequality impacts. These will likely include the distributions of disease prevalence and incremental health benefits. Sources of uncertainty should be specified in the submission, whether or not they are measured.

Uptake

Health inequalities can occur because of differences in access to care or in health-seeking behaviour. Equal uptake should be assumed across all groups, unless there is evidence to support a different distribution. Differences in uptake across groups or technologies should be justified. This should be based on the best available evidence on the technology under evaluation or on similar treatments for the same condition. All data sources must be explicitly stated, quality assessed and justified.

DCEAs should assume that the new technology has no impact on uptake, unless evidence comparing it with existing treatment suggests it would improve access or adherence for certain groups. Impact on uptake should be justified by robust evidence, for example, from prescribing data for similar treatments or conditions.

Health inequality aversion weights

The results of the DCEA should not weight the costs or benefits of a technology differently based on the social characteristics of the people affected by the recommendation. This includes using mathematical functions that use health inequality aversion parameters to reflect social preferences around health inequalities.

Health opportunity cost

Committees can use a range of values when deliberating on the maximum acceptable incremental cost-effectiveness ratio above which a technology is not cost effective or below which it is. DCEAs require a value to be specified to determine net health benefit for each social group. So results should be based on multiple values within the ranges specified in sections 6.3.4 to 6.3.8 of the health technology evaluations manual. Where this range is between £20,000 and £30,000 per QALY gained, DCEAs should present results using £20,000 and £30,000 per QALY gained.

To calculate the distribution of net health benefit, an estimate of the distribution of health opportunity cost is needed. This shows the differences between social groups of:

- forgone health benefits from displaced interventions when a technology or test is cost incurring, or
- health benefits from freed-up resources when a technology or test is cost saving.

Health opportunity costs should be equally distributed between social groups in the base-case analysis. This should be accompanied by scenario analyses of light and moderate gradients that reflect a higher proportion of displacement in more disadvantaged groups to show how changing assumptions impacts the results. Alternative gradients should be justified with evidence where possible. The opportunity costs used for all gradients should be expressed in QALYs and presented in a summary table.

Table 2 outlines the recommended scenarios for modelling the share of health opportunity costs across 5 IMD groups. When a different approach to stratification is used, the appropriate scenarios may differ based on:

- the relative size of the groups being considered
- the burden of disease across the groups and
- the use of health services across the groups.

Rationale for why different distributions of health opportunity cost have been used should be provided, supported by evidence.

Table 2 Scenarios for modelling the share of health opportunity costs across 5 IMD groups

Scenario	IMD1 (most deprivation)	IMD2	IMD3	IMD4	IMD5 (least deprivation)
Equally distributed	20%	20%	20%	20%	20%
Slight gradient	22%	21%	20%	19%	18%
Moderate gradient	24%	22%	20%	18%	16%

Abbreviation: IMD, Index of Multiple Deprivation.

Outputs

The following outputs should be presented:

- The distribution of the technology's population health benefits across social groups, excluding any health opportunity costs. Evidence on cost-effectiveness for individual subgroups defined by social characteristics will not be considered.
- The distribution of the health opportunity costs across social groups, showing the differences in QALYs forgone in each of the scenarios described in table 2.
- Net health benefit, which shows the distribution of health benefits across social groups taking into account health opportunity costs. Net health benefit can be either:
  - negative, which suggests that a technology's health benefits do not outweigh the health losses caused by displacing other healthcare to fund the technology, or
  - positive, which suggests that the new technology will increase population health
- Descriptive inequality metrics. These can include simple gaps and ratios between the top and bottom of the distribution, or the results of simple regressions that can incorporate information on the net health benefit of groups in the middle of the distribution.