# What's Cost Got to Do With It? A Review of Key Issues Related to Costs in Health Technology Assessments in Non-Small Cell Lung Cancer

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## Introduction

In England, NICE make reimbursement recommendations based on the clinical and cost effectiveness of new and existing health technologies within the NHS (1). Health technologies that are likely to provide similar or greater health benefits at comparable or lower costs than existing treatments may be assessed under a cost-comparison framework (2). However, most new health technologies are evaluated under a cost-effectiveness (specifically cost-utility) framework.

In a cost-utility analysis, value is assessed by calculating the ratio of expected additional costs versus expected additional QALYS (the 'ICER'). In typical NICE reference case analyses within the single technology appraisal program, this ICER is compared to a decision-making threshold of £20,000–£30,000 per QALY gained to determine the cost effectiveness of the new intervention (2).

The NICE manual stipulates that a payer perspective on costs should be taken in reference case analyses (2). As such, a range of cost categories are captured in economic models submitted to NICE. These include costs associated with treatment acquisition and administration, subsequent lines of therapy, healthcare resource use and monitoring, management of adverse events, and terminal care.

As part of the NICE TA program, an EAG critically appraises each manufacturer submission and raises 'key issues' of potential importance for decision making. Although costs are a key driver of cost-effectiveness outcomes, they seldom receive as much focus as other components of the economic model (such as clinical effectiveness estimates and health-related quality of life). Furthermore, the methods, sources, and assumptions informing cost calculations within an economic model can vary between TAs, which may result in inconsistency amongst evaluations.

## Objectives

This review aimed to identify and assess the proportion of key issues related to the cost components of economic models within published NICE appraisals in NSCLC. The objectives were to 1) determine the cost-related key issues that are most frequently raised by EAGs, 2) explore areas where additional guidance on costing methods may be beneficial, and 3) identify themes where further research could improve consistency between economic evaluations.

## Methodology

A literature review was conducted to identify NICE TAs in NSCLC published in the past 5 years (01 December 2019 to 01 December 2024). Key issues were identified and recorded as related to 1) the decision problem, 2) the clinical effectiveness evidence, and 3) the cost-effectiveness evidence. The key issues associated with cost effectiveness were subsequently categorized as cost related or non-cost related. Key issues related to costs were reviewed and summarized into recurring themes.

## Results

30 NICE TAs in NSCLC published since December 2019 were identified. Of these, 5 were terminated, leaving 25 for inclusion in the analysis. Figure 1 illustrates the process of study selection.

**Figure 1: TAs identified in review**

| | |
|---|---|
| Identified TAs | 735 |
| NSCLC TAs | 55 |
| December 2019–2024 | 30 |
| Non-terminated TAs for inclusion | 25 |

In total, across the 25 included TAs, 234 key issues of potential importance to decision making were raised by EAGs. Of these, 20 were related to the decision problem, 76 to the clinical effectiveness evidence, 127 to the cost-effectiveness evidence, and 11 were categorized as 'other' key issues. Of the 127 key issues related to the cost-effectiveness evidence, 35 were directly related to cost components of the economic analysis. As such, despite representing the numerator in the ICER calculation, cost-related key issues comprised 28% of the key issues related to the cost-effectiveness evidence, and 15% of all identified key issues. Figure 2 summarizes the proportion of key issues by category.

**Figure 2: Key issues by category in NSCLC TAs**

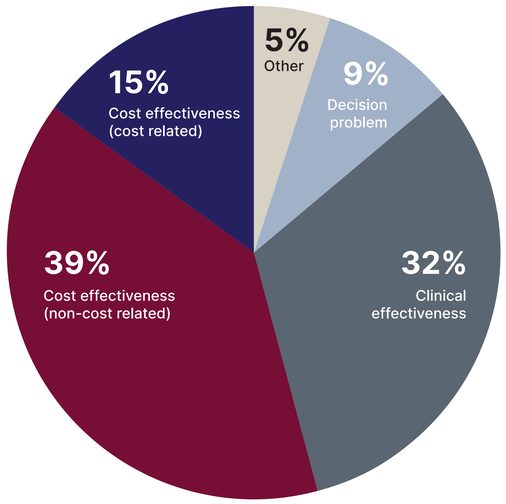


Figure 3 highlights the most frequent cost-related key issues that were identified in NSCLC appraisals. Of the key issues related to costs, the modeling of TTD, subsequent treatments, and RDI and wastage emerged as consistent themes across appraisals. Less common costing key issues were related to healthcare resource use, adverse events, terminal care, and genomic testing costs.

**Figure 3: Key themes of cost related issues identified in NSCLC TAs**

**Modeling of TTD**

In the context of TTD, EAG concerns ranged from the appropriateness of assuming TTD was equal to progression-free survival, the choice of parametric survival distribution chosen to model TTD, the application of stopping rules, and the choice of HR applied to model TTD – all of which relate to accurately reflecting treatment acquisition and administration costs.

**Subsequent treatment distributions and costs**

External reviewers highlighted a range of issues regarding the modeling of subsequent treatment costs, which related to the assumed duration of therapy, appropriate sources for distribution of subsequent therapies, and the proportion of patients who receive subsequent treatment.

**Application of RDI and wastage**

For RDI and wastage, concerns were raised regarding a lack of justification for assuming differential RDIs between treatment arms, and wastage not being accounted for (i.e., assuming that all missed doses and unfinished packs would result in fewer packs being used and cost savings).

## Conclusion

**Although costs are an important determinant of cost-effectiveness outcomes, they appear to receive less scrutiny in health technology assessments compared with other elements of the submission, based on a review of NSCLC appraisals. To improve the robustness of, and consistency between, economic evaluations, clearer guidance is required on the appropriate assumptions to make when modeling 1) TTD (particularly in the absence of reported data, as is often the case for comparator therapies), 2) subsequent treatments (especially within a partitioned survival modeling framework where it is challenging to track patients in intermediate health states), and 3) RDI and wastage (when calculating drug costs within an economic model).**

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References

1. National Institute for Health and Care Excellence. Technology appraisal guidance. Available from: https://www.nice.org.uk/about/what-we-do/our-programmes/nice-guidance/nice-technology-appraisal-guidance. Accessed: April 2025.
2. National Institute for Health and Care Excellence. NICE health technology evaluations: the manual. Available from: https://www.nice.org.uk/process/pmg36/resources/nice-health-technology-evaluations-the-manual-pdf-72286779244741. Accessed: April 2025.

Abbreviations

EAG, external assessment group
HR, hazard ratio
ICER, incremental cost-effectiveness ratio
NHS, National Health Service
NICE, National Institute for Health and Care Excellence
NSCLC, non-small cell lung cancer
QALY, quality-adjusted life year
RDI, relative dose intensity
TA, technology appraisal
TTD, time to treatment discontinuation