NICE Technology Appraisal Submissions for Non-Small Cell Lung Cancer: Analysis and Insights

HTA256

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BACKGROUND

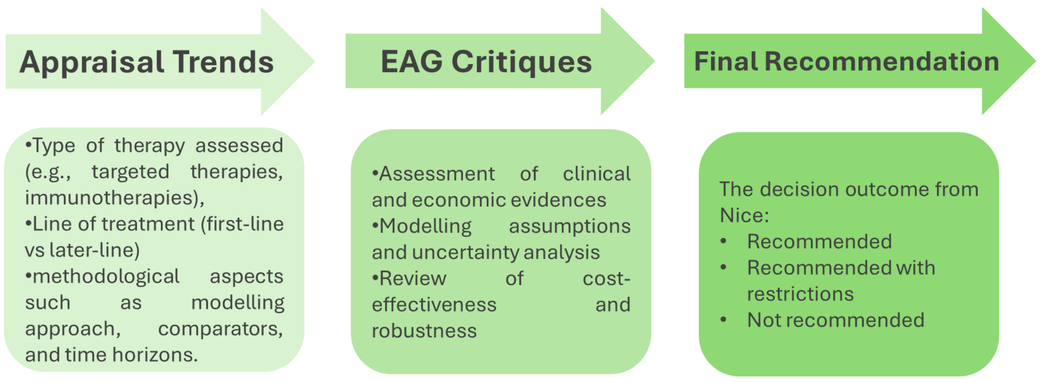
Context: Non-small cell lung cancer (NSCLC) is one of the leading causes of cancer-related mortality and morbidity globally, which is associated with high healthcare costs.[1,2] Over the past decade, the treatment landscape of NSCLC has rapidly evolved with the emergence of targeted therapies and immunotherapies leading to better management of NSCLC.[3]

Objective: This study aims to analyze and provide insights on technology appraisals (TAs) submitted to the UK's National Institute for Health and Care Excellence (NICE) for NSCLC therapies in recent years.

METHODS

- The website of NICE was searched to identify TA guidance of therapies for NSCLC published between January 2020 and April 2025.
- Search terms used were "non-small cell lung cancer" and "NSCLC".
- Only final guidance were considered for inclusion, while that in draft stage or terminated were excluded. Parameters extracted are shown in **Figure 1**.

Figure 1. Representation of focus area for data extraction



RESULTS

- Forty-three records were retrieved. Thirteen were excluded (8 terminated TAs; 5 others). **Thirty TAs** for NSCLC were analyzed.
- **Sixteen TAs (53%)** were of targeted therapies and **14 (47%)** of immunotherapies (**Figure 2**).
- The target therapy TAs were most frequent for ***ALK+* (n=4), *EGFR+* (n=4),** and *RET fusion+* mutations (n=3).
- **Most TAs (n=25; 83%)** were on locally advanced or metastatic NSCLC.
- For the recommendation decisions, at overall level, a large majority of TAs were **recommended with conditions** (**n=17; 57%; Figure 3**).
- The recommendations by targeted and immunotherapies are provided in **Figure 4** and by mutations status in **Figure 5**.
- Targeted therapies received full recommendations more versus immunotherapies (44% vs 29%; **Figure 4**).

Figure 2. All treatments for which TAs were submitted

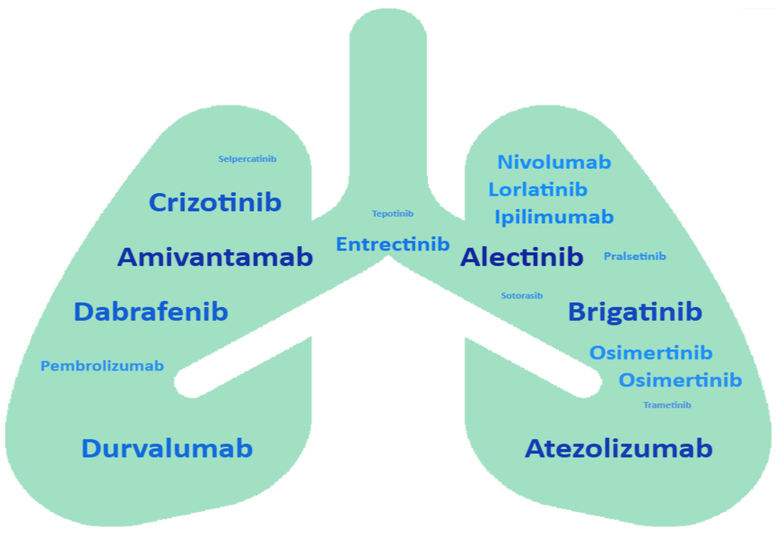
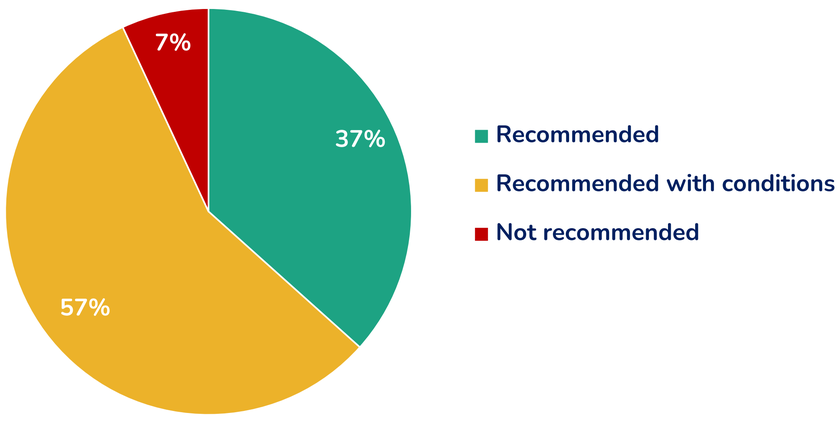


Figure 3. HTA decisions for all TAs



More than half of TAs submitted to NICE for NSCLC therapies received conditional recommendations. While innovative therapies are valued, the Evidence Assessment Group (EAG) prioritizes mature data, robust modelling, and robust comparative evidence to guide reimbursement decisions. Future appraisals must also address challenges related to uncertainty, comparator selection, and treatment sequencing in NSCLC care.

Figure 4. HTA recommendations for targeted and immunotherapies in NSCLC

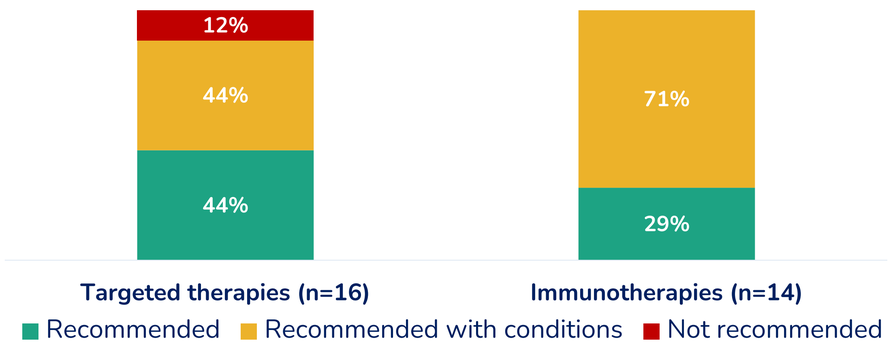
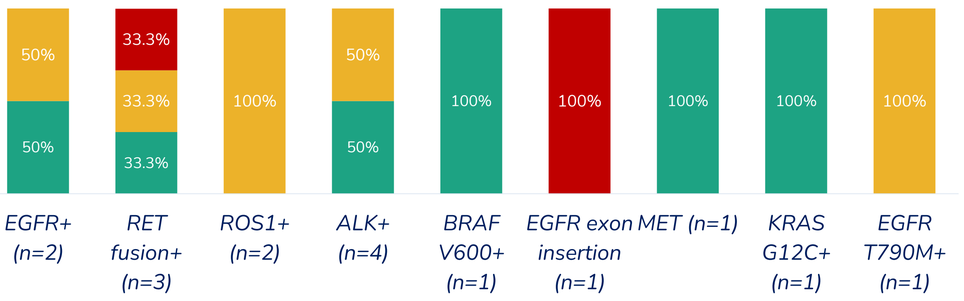


Figure 5. HTA recommendations for targeted therapies by mutation status



- For the clinical evidence submitted in HTA reports, most of the study designs of pivotal clinical trials were RCT (n= 17), followed by single-arm study (n=12) and SLR (n=1).
- Key critiques by EAG were inadequate model assumptions and structure (n=18), followed by uncertainty in clinical evidence (n=14) such as lack of head-to-head trials, immature primary outcome data (OS and PFS), selection of inappropriate comparator, small sample size, uncertainty regarding long-term clinical benefit, etc. (**Table 1**).
- The EAG also highlighted methodological uncertainty around indirect treatment comparisons (n=9).

Figure 5. Summary of the key criticisms shared by ERG group

Category	EAG Key Critique / Issue Identified
1. Model Assumptions and Structure (n=18)	• Inadequate model form and lack of flexibility • Overreliance on strong modelling assumptions • Inconsistent time horizon and duration of treatment effect
2. Clinical Evidence and Data Uncertainty (n=14)	• Lack of head-to-head trial data • Immature OS/PFS data • Inappropriate or missing comparators • Small trial sample sizes • Uncertainty in long-term clinical benefit
3. Indirect and Methodological Comparisons (n=9)	• Methodological uncertainty in indirect treatment comparisons (NMA/MAIC) • Unclear search and selection methods • Overlap and bias concerns
4. Utility, Cost-Effectiveness and Safety Inputs (n=2)	• Utility values not derived from target NSCLC population • ICER uncertainty due to modelling approach • Adverse event modelling limitations

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FINANCIAL DISCLOSURE

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