

A Review of NICE Technology Appraisals of Oncology Treatments in the Past 2 Years

Model Approaches, End-of-Life Status, and Recommendation Decisions

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Objectives

- Oncology is one of the most important therapeutic areas for reviews by the National Institute for Health and Care Excellence (NICE).
- Our aim was to understand the commonly used model approaches in this therapy area, the impact of end-of-life (EoL) criteria, and the alignment between cost-effectiveness estimates and recommendation decisions.

Methods

- Technical appraisals (TAs) of oncology drugs published by NICE were reviewed and analysed.
- The review captured products with a final decision date between 1st June 2021 and 31st May 2023.

Results

- Target indications (Figure 1)**
 - Information was extracted from 66 oncology TAs that met the inclusion criteria.
 - Non-small-cell lung cancer was the most common indication submitted (14 TAs), followed by breast cancer (10 TAs) and lymphoma (6 TAs).
- Analysis types and model approaches used (Figure 2)**
 - 64 TAs used cost-effectiveness analysis (CEA) or cost-utility analysis (CUA), while the other 2 TAs used cost-minimization analysis (CMA).
 - Partitioned survival models (PSMs) were the most commonly used model approach (39 TAs, 61%), followed by Markov and semi-Markov models (12 TAs, 18%).
- Recommendation decisions (Figure 3)**
 - No drug met the highly specialized technologies (HST) criteria¹.
 - 30 drugs (45%) met the EoL criteria², in which:
 - 22 drugs (73%) were recommended with all incremental cost-effectiveness ratios (ICERs) under £50,000 per quality-adjusted life year (QALY) gained threshold.
 - For the other 36 drugs (55%) not meeting the EoL criteria:
 - 31 drugs (86%) were recommended with all ICERs under £20,000 to £30,000 per QALY gained threshold³.
 - ICERs of the drugs that were not recommended under either criteria (13 TAs, 20%) were either above the threshold or very uncertain: 6 drugs were not recommended; 6 drugs were recommended in the Cancer Drugs Fund; and 1 drug was recommended with managed access.

Conclusions

- PSM is the most commonly used model approach in oncology health economic models in the past 2 years.
- Nearly half of the oncology drugs met EoL criteria and were judged against the £50,000 per QALY gained threshold.
- NICE recommendation decisions of the oncology TAs were fully aligned with published ICER thresholds, suggesting an important role for value-based pricing.

Abbreviations

CEA: cost-effectiveness analysis; CMA: cost-minimization analysis; CUA: cost-utility analysis; EoL: end-of-life; HST: highly specialized technologies; ICER: incremental cost-effectiveness ratio; NICE: National Institute for Health and Care Excellence; PSM: partitioned survival model; QALY: quality-adjusted life year; TA: technical appraisal

References

- National Institute for Health and Clinical Excellence, 2017. Interim Process and Methods of the Highly Specialised Technologies Programme Updated to reflect 2017 changes. Available at: <https://www.nice.org.uk/media/default/about/what-we-do/nice-guidance/nice-highly-specialised-technologies-guidance/hst-interim-methods-process-guide-may-17.pdf>. Accessed October 2023.
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Figure 1. Target indications.

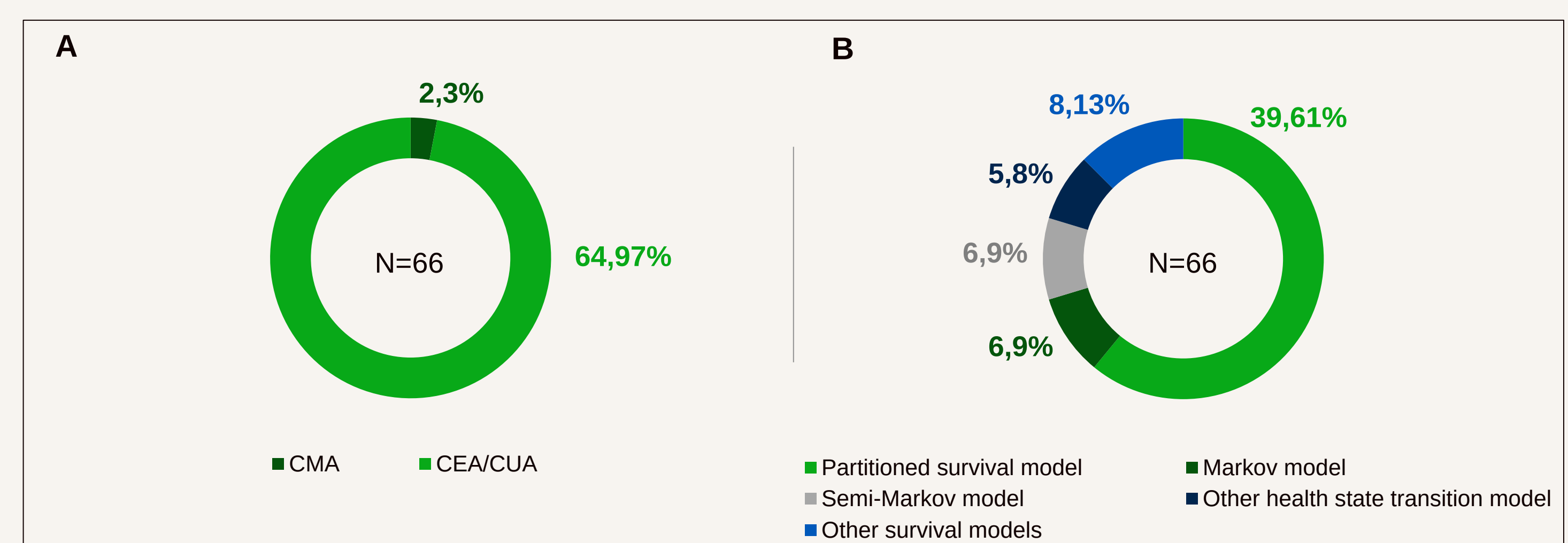


Figure 2. A) Analysis types used, and B) Model approaches used.

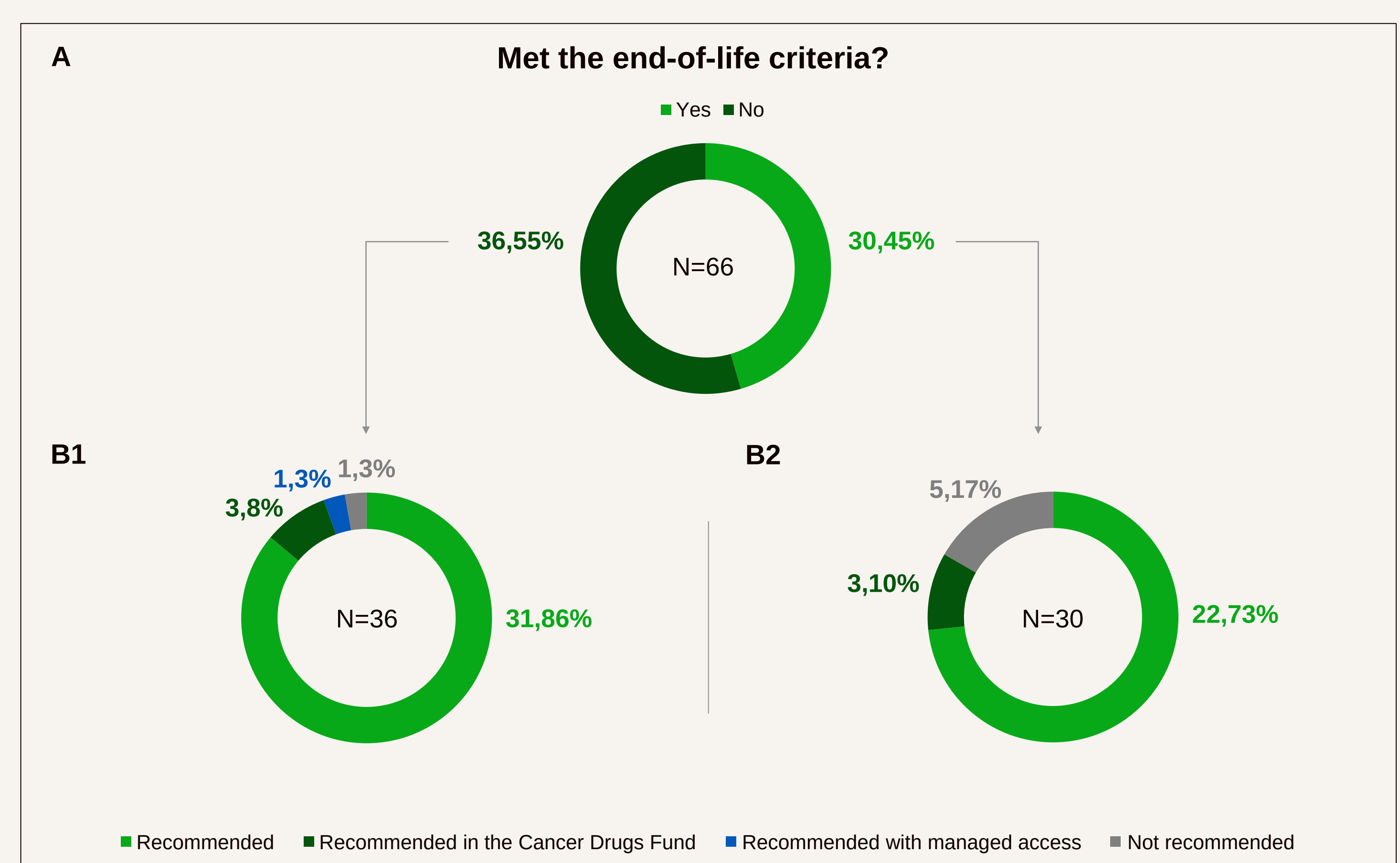


Figure 3. A) The number and proportion of submissions met the end-of-life criteria, B1) Recommendation decisions of submissions did not meet the end-of-life criteria, and B2) Recommendation decisions of submissions met the end-of-life criteria.