Identification of cost-effectiveness evidence in UK NICE single technology appraisal company submissions: databases, sources and currency of searching

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BACKGROUND

- Comprehensive systematic reviews (SRs) of clinical and cost-effectiveness evidence underpin company submissions to the UK National Institute for Health and Care Excellence (NICE) Single Technology Appraisal (STA) process for drug reimbursement. Independent Evidence Assessment groups (EAGs, previously called Evidence Review Groups: ERGs) critique company submissions and prepare EAG/ERG Reports to aid NICE Appraisal Committees' consideration of each topic.
- NICE mandate up-to-date, well-conducted and robust methods,[1] however STA approaches vary greatly between submissions.

OBJECTIVES

- To survey the databases and sources used to identify economic evidence in UK STA submissions to NICE.
- To examine the currency of search methods in relation to time to evidence submission.
- To assess application of language limits.
- To explore the transparency of economic evidence identification within STA submissions available in the public domain.[2]

METHODS

1. We conducted a survey of 50 randomly selected STA submissions included in committee papers for NICE STA submissions published between 10.1.18 and 6.12.23.
2. As NICE limit the content of technology appraisal committee papers in the public domain,[2] available data were extracted from company submissions, clarification responses and Evidence Assessment Group reports.
3. Terminated appraisals, Fast Track Appraisal (FTA), Multiple Technology Appraisal (MTA) and Cancer Drugs Fund (CDF) submissions were excluded. For each STA submission included in our analysis, characteristics relating to the disease area, ERG/EAG, databases and grey literature searched, date of last search and submission date, and language restrictions, were extracted.

RESULTS

- The majority of STAs in the sample (n=50) included indications in cancer (32), cardiovascular (5), neurology (3), and metabolic, endocrine and nutritional disorders (3) (**Figure 1**).
- In our sample, the majority of STA assessments were carried out by the KSR ERG (26%, 13/50). None of the assessed STA critiques were prepared by Warwick Evidence (**Figure 2**).
- The mean number of databases searched per topic was 6.3 (range: 1-13) (**Figure 3**).
- The top five databases searched were Embase (80%, 32/40), NHS EED (70%, 28/40), Medline (68%, 27/40), EconLit (65%, 26/40)and the HTA database (60%, 24/40) (**Figure 4**). Seven submissions ran a combined search of Embase and Medline (18%, 7/40).
- 60% of submissions included conferences (24/40) and only 40% searched grey literature, such as regulatory body websites (16/40) (**Figure 5**).
- The second most frequently searched database was NHS Economic Evaluation Database (NHS EED) (70%, **Figure 4**). Although NHS EED is an important archival source of economic evaluations, it ceased in March 2015 and is no longer current.
- Currency of searching was an issue; the mean time elapsed between search date and STA submission was 7.87 months (range: 6-731 days) (**Figure 6**). Searches for one submission were completed over two years before submission, which suggested more current evidence may have been omitted from inclusion.
- Of the 18 STAs that provided information about the application of language restrictions, 61% (11/18) applied language limits. This may potentially introduce language bias when identifying economic evidence. 64% of our sample (32/50) presented no information in the public domain to appraise language restrictions (**Figure 7**).
- Due to incomplete information available in STA committee papers in the public domain, it was not possible to conduct a meaningful analysis of how economic evidence was gathered for 10 STAs of our sample.
- For most of the selected STAs, there was information about how the economic evidence was identified within the submission, clarification response and ERG report (40/50).
- Although NICE no longer renders submission appendices accessible in the public domain, we were able to access full appendices (redacted) and search strategies for three STAs on the NICE website.

Figure 3. Number of databases searched by STAs in the sample

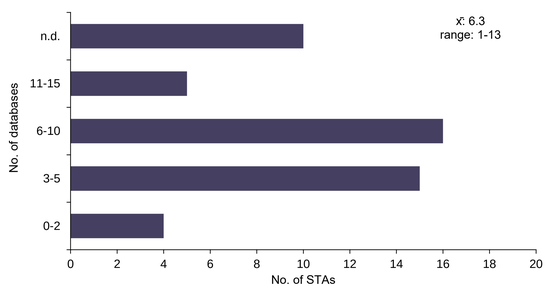
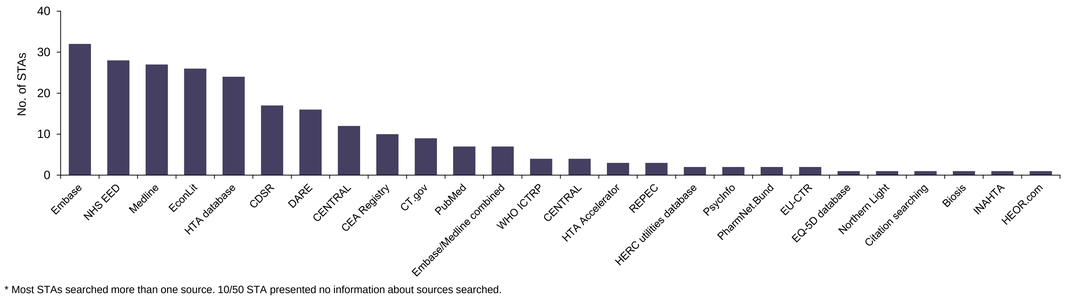


Figure 4. Sources searched for cost-effectiveness analyses*



* Most STAs searched more than one source. 10/50 STA presented no information about sources searched.

Figure 1. Number of STAs in each disease area

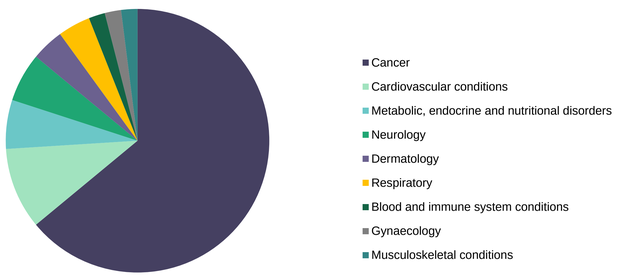


Figure 5. Grey literature inclusion

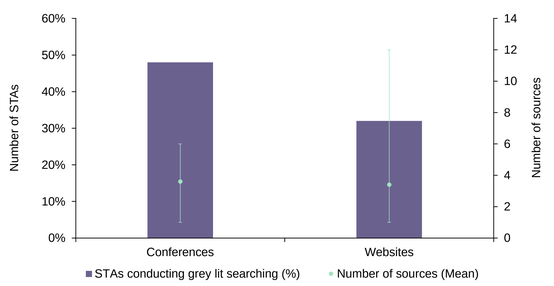


Figure 6. Currency: time elapsed between date of last search & submission date

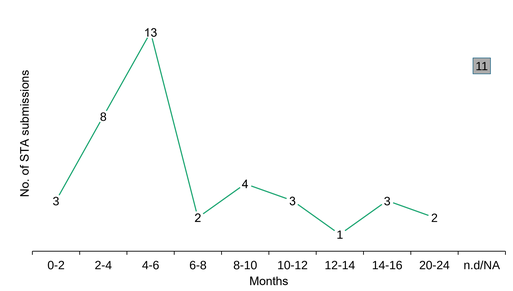


Figure 7. Were language limits applied to searches?

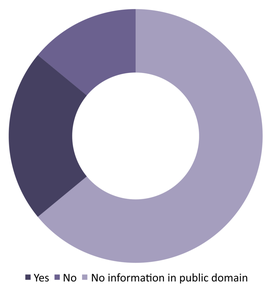
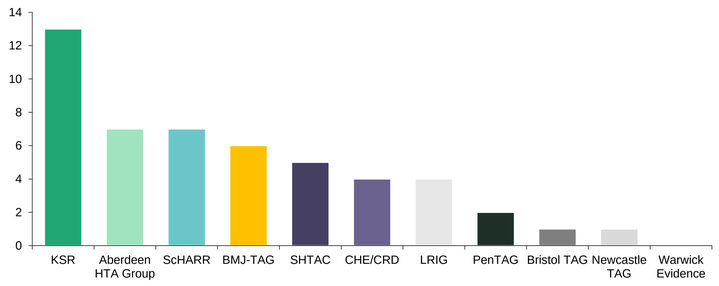


Figure 2. Number of STAs from each EAG/ERG (n=50)



DISCUSSION AND CONCLUSION

- Due to the lack of completeness in STA committee papers in the public domain,[2] many of the SR and cost-effectiveness methods informing NICE reimbursement decisions lack detail, transparency and reproducibility.
- Our small study showed that transparency of the economic work within company submissions, and completeness of information provided by NICE in the public domain, could be much improved.
- Application of language restrictions to economic searches may potentially introduce language bias.
- Currency of evidence searches could be improved, in line with best practice recommendations.[1, 3-4]
- Grey literature and conference abstracts are important sources to mitigate for publication bias,[3-4] however not all submissions include this type of supplementary searching.
- NHS EED's continued inclusion demonstrates a clear need for an alternative, specialist source of up-to-date, pre-screened and ready filtered economic studies to inform regulatory evidence submissions and dossiers.

References

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