

INTRODUCTION

- The Cancer Drug Fund (CDF) in England was established with the aim to provide access to promising treatments while further evidence is collected to address issues of clinical uncertainty (1). Additional evidence must be provided in the shortest timeframe possible, normally up to two years. Once these data are available, the drug undergoes a second appraisal by the National Institute for Health and Care Excellence (NICE) (2).
- Value of information (VOI) analysis offers a methodological framework to assess the value of collecting additional evidence to inform decision making (3).

OBJECTIVES

- This study aimed to document the extent of the use of VOI methods in projects commissioned by the National Institute for Health Research (NIHR) in England and Wales in the last years (2017-2022).
- The focus was put on research projects given the fact that VOI is not required as part of manufacturer submissions in the UK.

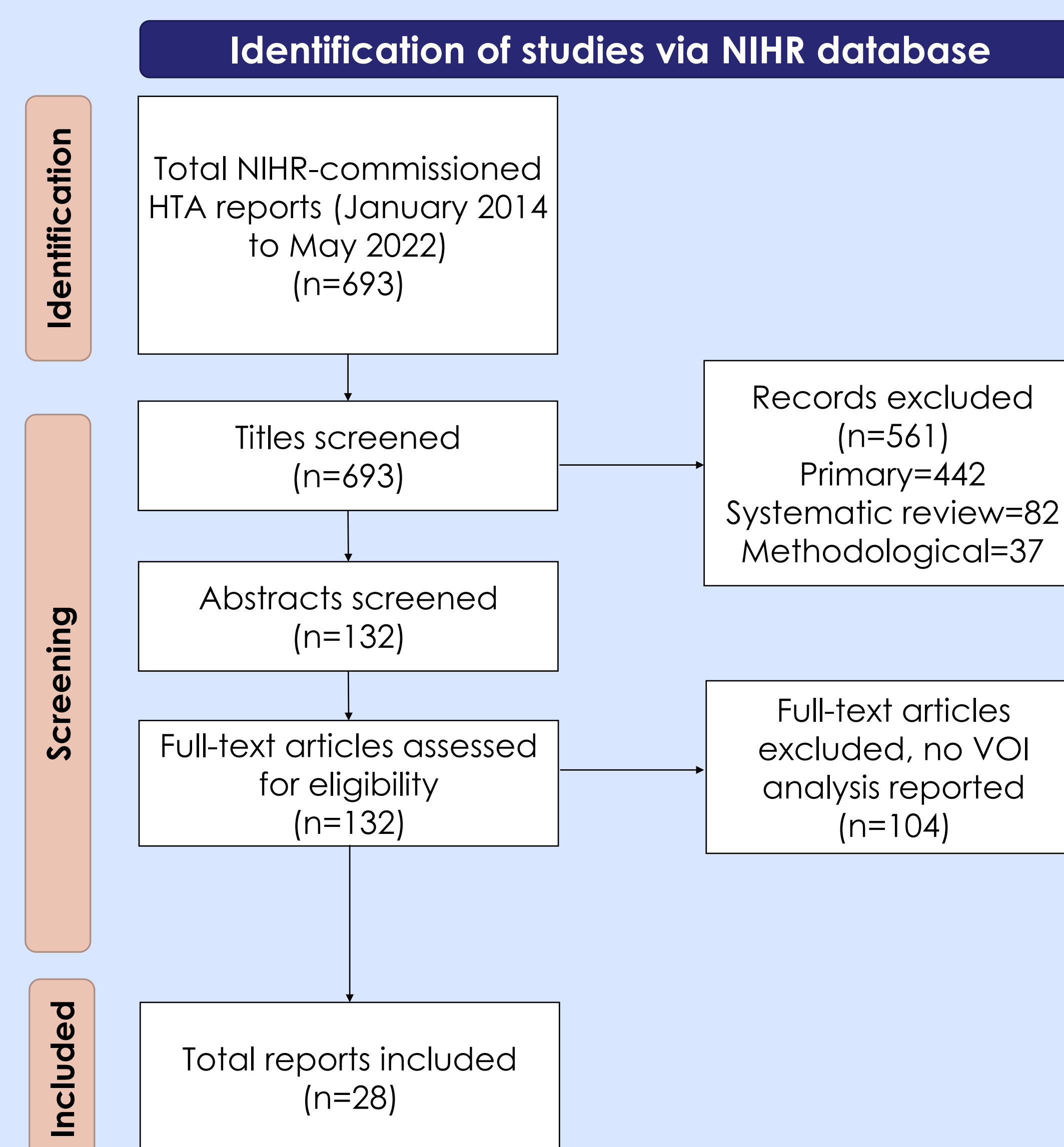
METHODS

- An electronic search of published reports in the NIHR database (www.journalslibrary.nihr.ac.uk/hta/#/) was conducted to identify decision analytic models that have included a formal VOI analysis, published between January 2014 and May 2022.
- This period was selected to identify studies undertaken after the most recent SLR published on the use of VOI in health technology assessments (HTA) in the UK (January 2004 and December 2013) (5).
- A structured search using the terms "value of information", "expected net benefit of sampling", "VOI", "EVI", "EVPI", "EVPPI", "PEVPI", "EVS", and "ENBS" was conducted.
- Reports where the status was in progress or unpublished were excluded. Relevant reports were identified as primary studies, methodological studies, systematic reviews studies, systematic review and economic evaluation studies, and model-based economic evaluation studies. Appraisal documents were incorporated in the review when reporting a VOI analysis.

RESULTS

- A total of 693 NIHR-commissioned HTA reports were identified between January 2014 and May 2022. Of these, 442 described primary studies, 37 informed methodological studies, 82 systematic literature reviews, 114 systematic review and evaluation studies, and 17 model-based economic evaluations. Of the 17 model-based economic evaluations, 5 included some form of VOI analysis. From the 114 systematic review and economic evaluation studies, 23 were identified as relevant for its inclusion of VOI analysis in this review. Therefore, 28 studies met the inclusion criteria (Figure 1).
- Within this study, the most common types of VOI methods explored were EVPI and EVPPI. Only two reports included EVSI, which may be explained by the additional level of challenge to implement this analysis. Regarding the use of VOI, 14 studies conducted an EVPI analysis, 10 studies conducted an EVPI and EVPPI and only two studies conducted an EVPI, EVPPI and EVSI analyses.
- The use of VOI methods was not attributed to a specific area disease or intervention. The studies that included VOI methods implemented it as another measure of uncertainty or as a tool to quantify the expected benefits of further research.
- The studies did not always provide detailed information regarding the assumptions and methodology necessary to undertake the VOI method. For example, the size of the population eligible to the health technology and the time horizon considered were rarely reported, thereby limiting the interpretation of results.

Figure 1. PRISMA flow diagram of NIHR-commissioned HTA reports



CONCLUSIONS

- This review shows that VOI methods remain scarcely employed in HTA reports within model-based economic evaluations in line with Mohiuddin 2014 (5).
- Considering HTA publishes research information for those who use, manage, and provide care in the National Health Service (NHS), it provides an insight on the available inputs to make decisions. Our research points the limited use of VOI methods as a decision rule to obtaining further research.
- Morrell et al. analysed previous appraisals recommended for the CDF, in which there was also little evidence identified of the use of VOI analyses for decision making. It also suggests that NICE committees might consider the question of value of additional evidence implicitly rather than use the formal VOI framework (6). In fact, the specification for CDF data collection arrangements (DCA) (7) requires the company to present the criteria for a robust analysis (in terms of sample size, comparators, endpoints) to address the issues of uncertainty. EVSI could provide important quantitative information to support this assessment.
- The use of VOI analysis could further quantify the expected value of additional research and therefore provide additional evidence to support decision making by institutions like the CDF.

REFERENCES

1. National Audit Office (2015) Investigation into the Cancer Drugs Fund. Available at: <https://www.nao.org.uk/reports/investigation-into-the-cancer-drugs-fund/>
2. NICE (2016e) Rapid re-consideration of drugs currently funded through the Cancer Drugs Fund. Available at: <https://www.nice.org.uk/Media/Default/About/what-we-do/NICE-guidance/NICE-technology-appraisals/TA-CDF-reconsideration-process-March-2016-FINAL.pdf>
3. Briggs, A.H., Weinstein, M.C., Fenwick, E.A.L., et al. Model parameter estimation and uncertainty analysis: a report of the ISPOR-SMDM modeling good research practices task force working group-6. Med Decis Mak. 2012;32(5):722-32. <https://doi.org/10.1177/0272989X12458348>
4. NICE. Guide to the methods of technology appraisal 2022. www.nice.org.uk/process/pmg9/chapter/foreword
5. Mohiuddin, S., Fenwick, E., Payne, K. Use of Value of Information in UK Health Technology Assessments. Int J Technol Assess Health Care. 2014;30(6):553-570. <https://doi.org/10.1017/S0266462314000701>
6. Morrell, L., Wordsworth, S., Schuh, A. et al. Will the reformed Cancer Drugs Fund address the most common types of uncertainty? An analysis of NICE cancer drug appraisals. BMC Health Serv Res. 2018;18:393. <https://doi.org/10.1186/s12913-018-3162-2>
7. NICE (2016f) Specification for Cancer Drugs Fund data collection arrangements. Available at: <https://www.nice.org.uk/Media/Default/About/what-we-do/NICE-guidance/NICE-technology-appraisal-guidance/cancer-drugs-fund/data-collection-specification.pdf>