A SCOPING REVIEW OF HEALTH TECHNOLOGY ASSESSMENT AGENCY AND HEALTH ECONOMIC MODELLING GUIDELINES FOR IDENTIFICATION OF HEALTH ECONOMIC MODEL INPUTS

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Objectives

- In evidence-based medicine, systematic literature review (SLR) methods have been developed to answer a single, carefully formulated research question, whereas health economic models have multiple, and often, evolving information needs.
- There is very little guidance on how to search for evidence to inform health economic (HE) model inputs.
- The aim of this literature review is to determine which information retrieval techniques are recommended in health technology assessment (HTA) agency and HE modelling guidelines, and whether these vary by model input type.

Methods

- A web search was conducted in May 2023.
- This literature review includes guidelines from HTA agencies that set out requirements for the conduct of HTA, as well as other good practice guidelines for modelling closely associated with specific HTA agencies, such as the NICE Decision Support Unit Technical Support Documents.
- A data extraction grid was developed in Microsoft Excel to extract relevant information on:
  - Bibliographic details
  - Requirements for identification of model parameters by parameter type
  - Other general information (e.g., any other searching recommendations)
- A pilot test of three documents was carried out to test the extraction grid.

Results

- In total, 59 publications were identified, out of which 42 were finally included (Figure 1).
- One publication was excluded as it was not available online.
- Sixteen publications were removed as they were not available in English.
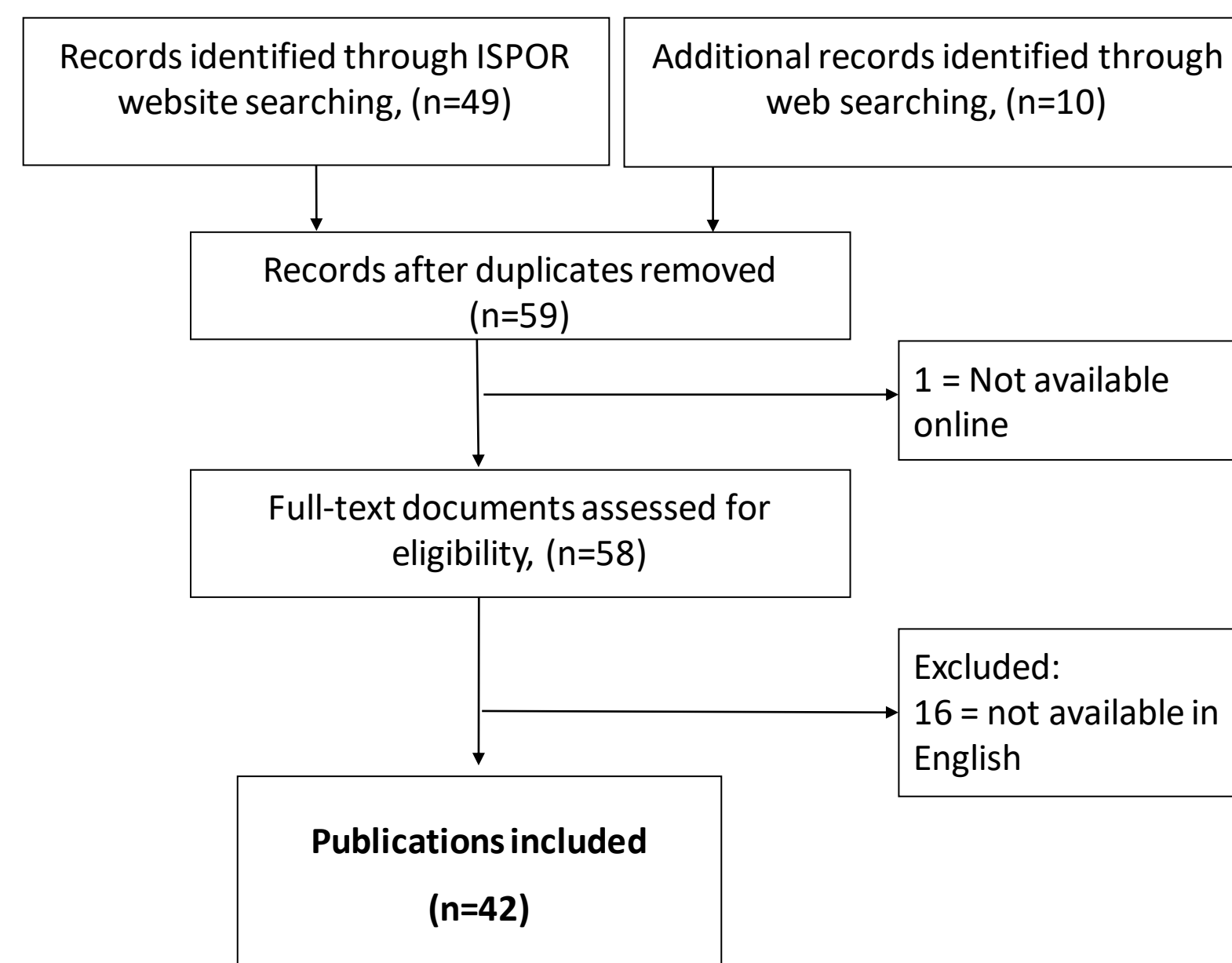
Figure 1. Search findings

Records identified through ISPOR website searching, (n=49)

Additional records identified through web searching, (n=10)

Records after duplicates removed (n=59)

1 = Not available online

Full-text documents assessed for eligibility, (n=58)

Excluded: 16 = not available in English

Publications included (n=42)

Table 1. Type of HE model input associated with search recommendations

Type of HE model input	Number of publications associated with search recommendations
Treatment effect	30
Treatment effect: Comparators	15
Adverse events	3
Utilities and utility decrements	10
Cost and resource use	10
Baseline risk of clinical events	3

Results

- Identification of treatment effect was associated with the highest frequency of search recommendations, and they were the most detailed recommendations (Table 1).
- Search method recommendations were largely based on publications that provide methods for comprehensive searching (e.g., Cochrane or CRD guidance).
- Methods recommended by HTA guidelines for searching for adverse events also varied from no explicit recommendations to comprehensive search methods that are focused on sensitivity over precision (e.g., Polish guidelines).

Table 2. Literature Review Method Publications

External guidance on search retrieval	Guideline where mentioned
Agency for Health Care Research and Quality (AHRQ). Methods guide for effectiveness and comparative effectiveness reviews, 2014.	AMCP US
Centre for Reviews and Dissemination University of York. Centre for Reviews and Dissemination. Systematic reviews: CDR's guidance for undertaking reviews in health care. York, 2009.	Belgium
	NICE England
	Kaltenthaler et al. 2011
	Ireland
EUnetHTA. HTA Core Model® EUnetHTA Domain 4 - Clinical effectiveness 2016: Where to find information? p. 146.	Poland
Higgins J, Green S. Highly sensitive search strategies for identifying reports of randomized controlled trials in MEDLINE. Cochrane Handbook for Systematic Reviews of Interventions 4.2. 5. The Cochrane Library 2005;(3).	PBAC Australia
	Croatia
	Kaltenthaler 2011
	Taiwan
	Thailand
Hoaglin DC, Hawkins N, Jansen JP, et al. Conducting indirect-treatment-comparison and network-meta-analysis studies: report of the ISPOR Task Force on Indirect Treatment Comparisons Good Research Practices: part 2. Value in health. 2011;14(4): 429-37	AMCP US
Institute of Medicine Committee on Standards for Systematic Reviews of Comparative Effectiveness R. In: Eden J, Levit L, Berg A, Morton S, eds. Finding What Works in Health Care: Standards for Systematic Reviews. Washington (DC): National Academies Press (US). 2011.	AMCP US
McDonagh MS, Jonas DE, Gartlehner G, et al. Methods for the drug effectiveness review project. BMC Med Res Methodol 2012; 12: 140.	AMCP US

Abbreviations: AMCP – American Managed Care Pharmacy, NICE - National Institute for Health and Care Excellence, Pharmaceutical Benefits Advisory Committee (PBAC)

Results

- For the identification of health state utility values, some HTA agencies, such as NICE, require a 'systematic and transparent' literature review. No specific information retrieval guideline is referred to in the NICE Methods Guide.
- The ISPOR Task Force report was published relatively recently (2019), and not many of the HTA guidelines have been updated since, which could a reason that it is not yet cited.
- All methods described in detail were referring to systematic literature review method publications, that are detailed in Table 2.
- Methodological advice was rarely given regarding the identification of evidence on costs, resource use and baseline event risks.

Discussion

- Few information retrieval method publications associated with modelling are available, and none is referenced in any of the identified HTA guidelines. Paisley (2016) provides advice on minimum search criteria for HE models, but also notes the lack of empirical research in this area.
- Researchers may have a tendency to rely on the traditional search approaches rather than an approach that might be better-suited for HE model evidence requirements.

Conclusion

- Overall, a limited number of search method publications are referenced in the HTA and HE modelling guidelines.
- These tend to focus on comprehensive identification of treatment effects in the manner of full systematic literature reviews, and not on other model parameters.
- Specific search methods for most model parameters do not exist, although researchers could benefit from search methods that have been tested empirically for specific, HE model input type.