A Systematic Literature Review of Published Economic Evaluations for Medical Devices in Cardiovascular Disease

MT8

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Objectives

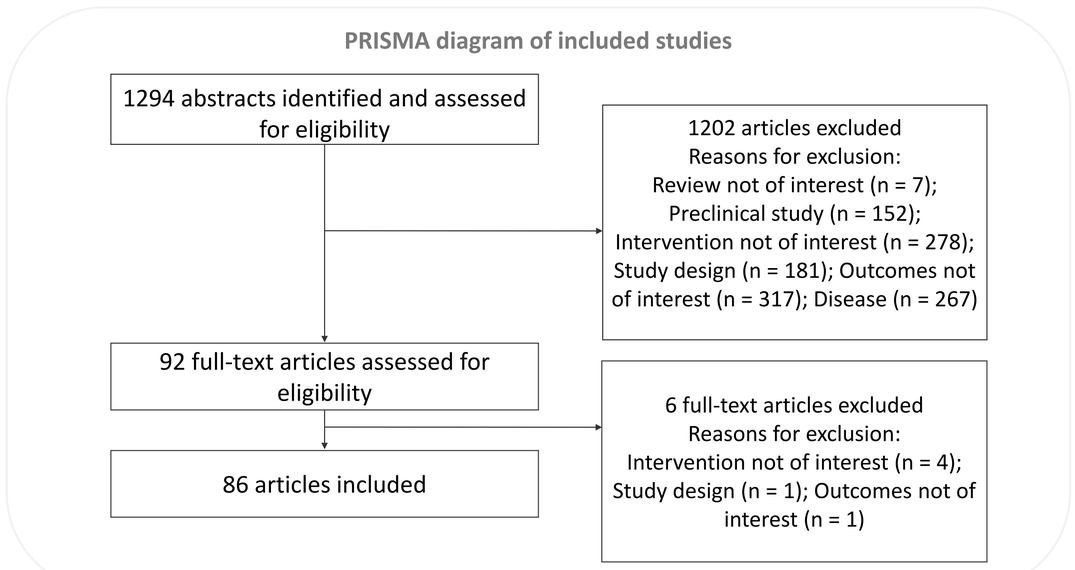
- Medical devices are increasingly relying on economic evaluations whether through peer-reviewed publications or reimbursement dossiers for HTA bodies
- Objective: to comprehend the key aspects of economic evaluation of medical devices following a previous publication from the EU MedtecHTA Project[1]

Methods

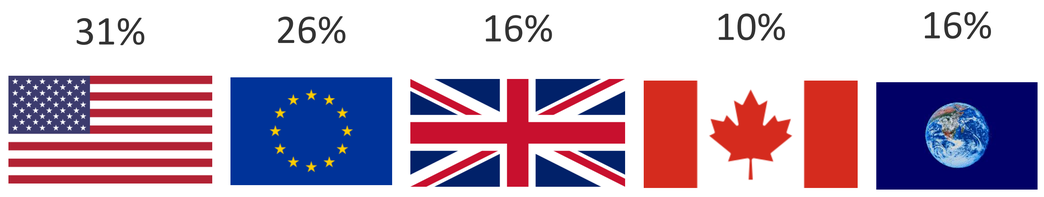
- A systematic literature review of economic analyses of medical devices was performed in accordance with the PRISMA guidelines
- Review focused on cardiovascular diseases and all economic analyses published in MEDLINE (Pubmed) since 1st January 2017 were included

Results

86 studies met the selection criteria

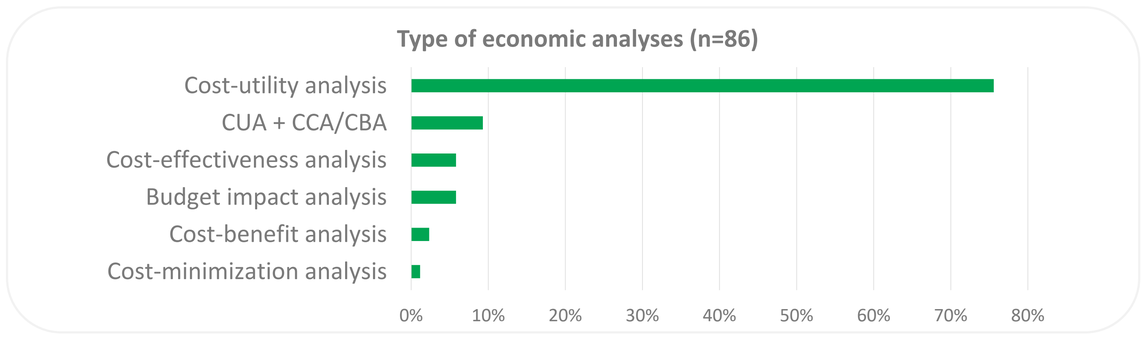


- Study geography:

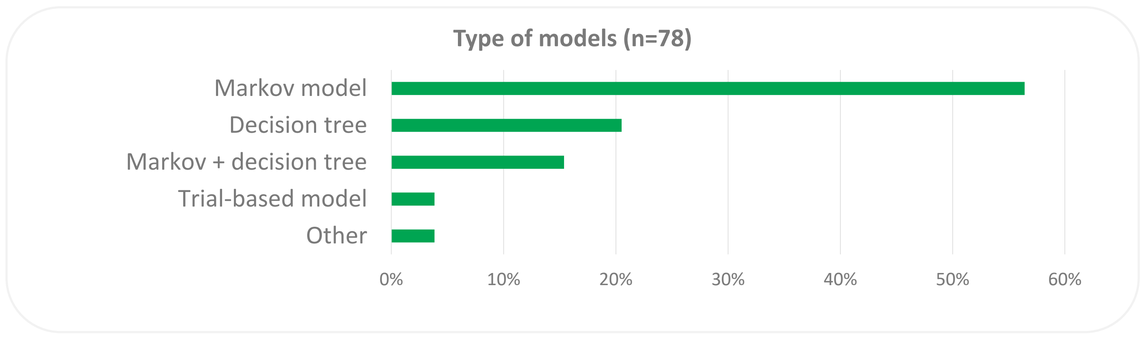


- 84% of economic analyses used a healthcare perspective and remaining 16% used a societal perspective
- Most of the analyses came from published studies with only 8% coming from HTA materials

Most analyses included cost utility analyses (85%) with 76% being pure cost utility analyses

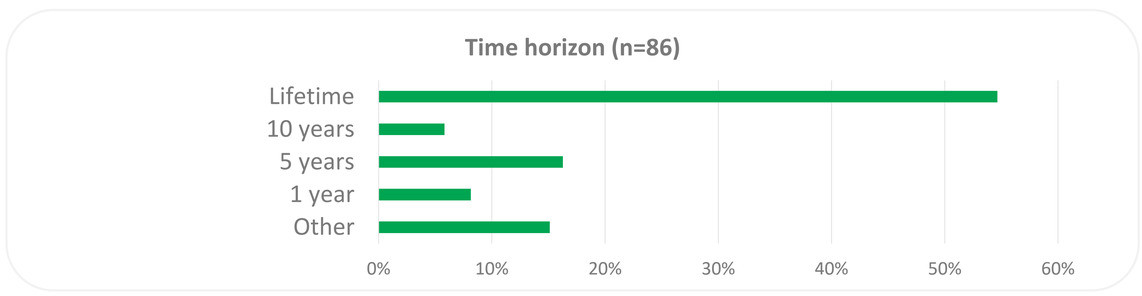


The majority of models included a Markov element (72%)

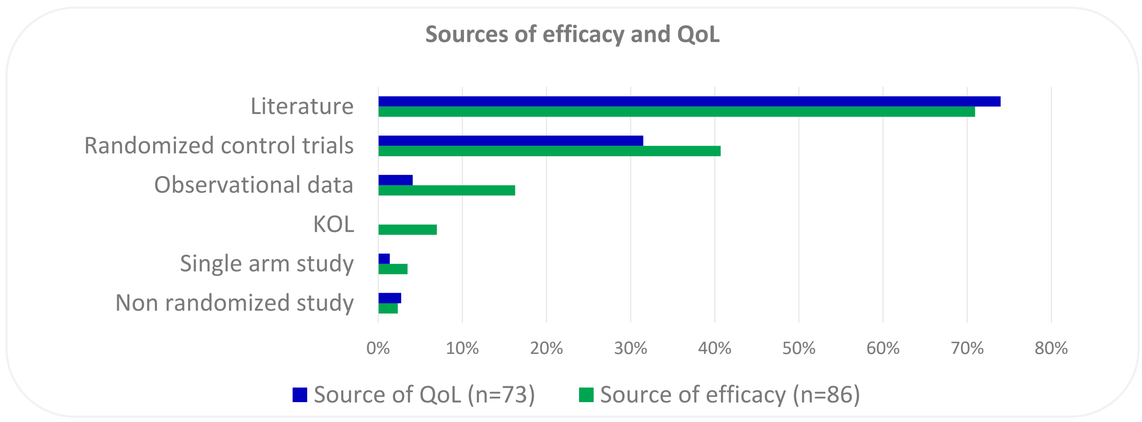


Note: Budget impact, cost benefit and cost minimization analyses were excluded from this analysis

Lifetime was the most common time horizon (55%)

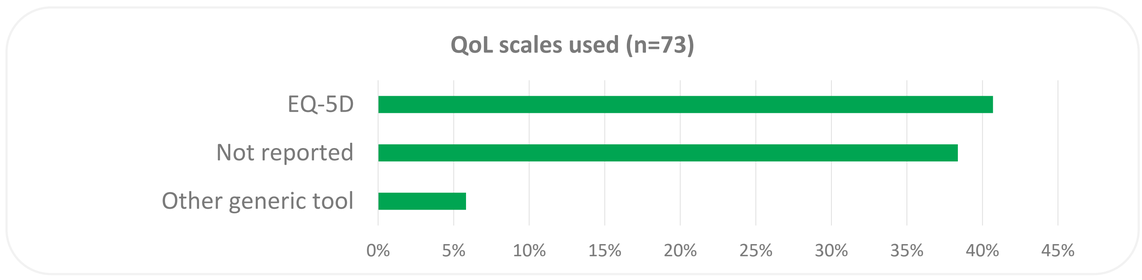


Efficacy and QoL data came mainly from the literature, with RCTs as the second most used source



Note: QoL sources were only collected for studies that were Cost-utility analyses (CUA)

Most of the analyses used EQ-5D (41%) but many did not report the scale used to elicit QoL



- No disease specific scales were used for QoL elicitation
- Majority of studies used both DSA and PSA (74%) to report on uncertainty, with 20% only reporting DSA 20% or PSA (6%)
- 55% of authors reported a relationship with the manufacturer

Conclusions

- Most of the analyses included cost-utility analysis with a healthcare perspective, a lifetime horizon, and literature as well as RCTs as the predominant sources of efficacy and QoL data (mostly measured using EQ-5D)
- There was heterogeneity in modeling approaches chosen to better reflect the different decision problems
- The most common approaches were similar to those used for the evaluation of pharmaceutical products

Abbreviations: CBA: Cost-benefit analysis; CCA: Cost-consequence analysis; CUA: Cost-utility analysis; DSA: Deterministic sensitivity analysis; KOL: Key opinion leader; PSA: Probabilistic sensitivity analysis; PRISMA: Preferred Reporting Items for Systematic Reviews and Meta-Analyses

References: [1]Tarricone R, Torbica A, Drummond M. Challenges in the Assessment of Medical Devices: The MedtecHTA Project. Health Econ. 2017 Feb;26 Suppl 1:5-12. PMID: 28139084.

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