Living SLRs for HTA

Marius Sauca, Ranita Tarchand, Kevin Kallmes;
Nested Knowledge, St. Paul, MN, USA.
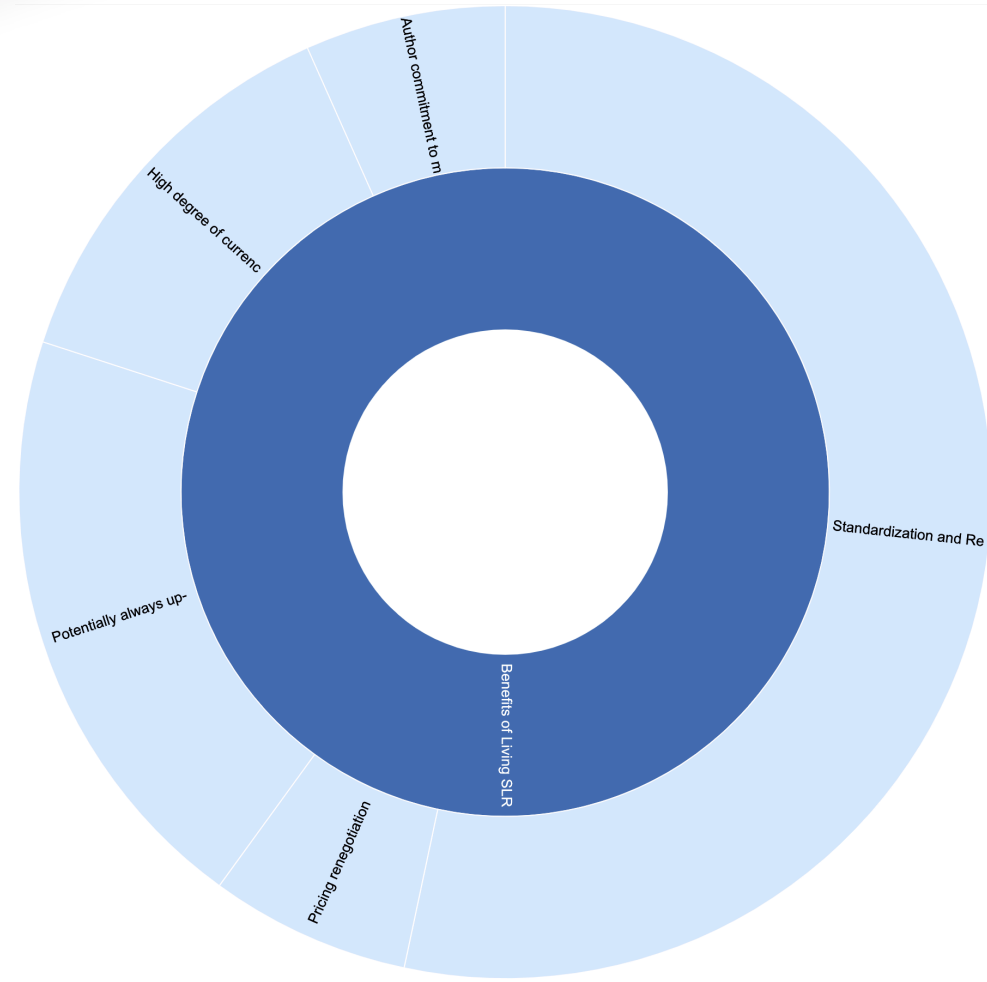
Background & Objectives

Traditional systematic literature reviews (SLRs) in health technology assessments (HTAs) quickly become outdated, failing to incorporate new evidence. The emerging concept of Living HTA, allowing continuous updates, offers a promising solution. Despite recognized benefits, adoption remains limited. This study delves into Living SLR methods, focusing on triggers and timing of updates, challenges, benefits, and available guidance. Current practices reveal gaps in adapting to evolving healthcare landscapes. Our research aims to bridge these gaps, exploring agile approaches that can enhance the relevance and responsiveness of HTAs, ensuring they remain aligned with the dynamic nature of medical evidence.

Methods

This review of guidance, challenges, benefits, and timing of Living SLR for HTA was completed using a Living SLR approach, and the contents of underlying publications as well as the living PRISMA diagram are available publicly in this review's Qualitative Synthesis.

Search Strategy

We performed a literature review on PubMed and Google Scholar of publications and grey literature reporting challenges, benefits, or methods for living SLR in HTA. Sources of interest were also bibliomined to identify relevant studies. The full search strategy is available in the Search portion of the Living PRISMA Diagram.

Screening

Records were included if they reported methods, challenges, or potential benefits of living SLR or living evidence approaches within the field of HTA.

Content Extraction

Resulting records were tagged with all relevant statements under the general concepts of:

- *HTA Processes and Software approaches,*
- *Challenges and Benefits of Living SLR, or*
- *Guidance and Recommendations for Living SLR.*

Tagging was performed in the AutoLit software, and sub-topics were created under each general concept based on the reporting of underlying records. Tags were applied based on full-text review, with direct excerpts attached to each tag. Findings were visualised in Qualitative Synthesis (Nested Knowledge).

Results

A total of 13 studies were included in this review.

Living SLR Challenges

The main challenge of living SLR in HTA is labour-intensive processes. Continuous monitoring, screening, data extraction, and analysis require significant resources and time commitment. Concerns regarding whether automation can provide reliability and credibility of living SLR outputs may hold back labour-saving technologies.

Challenges related to LSR in HTA extracted from literature:

- *Technology aversion (Sarri G, 2023)*
- *Lack of understanding of interactivity (Thokala P, 2023)*
- *Continued ownership of the research topic (Thokala P, 2023)*
- *Confidential pricing data (Thokala P, 2023)*
- *Complex copyright and IP (Thokala P, 2023)*
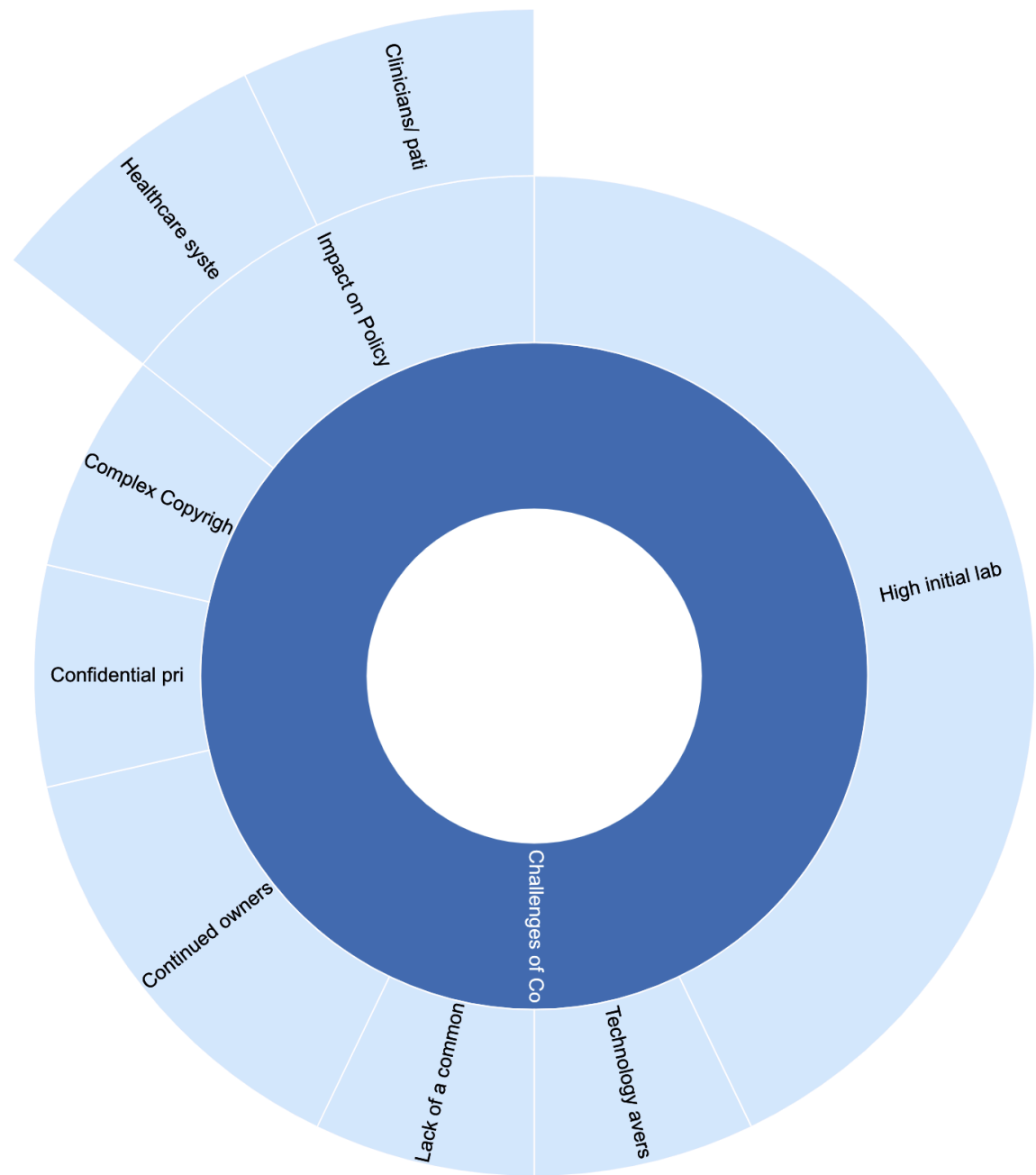- *Complexity for healthcare system and patients (Thokala P, 2023)*

Fig 1. Sunburst diagram of Challenges related to LSR in HTA reported in the included studies.

Living SLR Benefits

Living SLR in HTA enhances standardization and replicability of the review process, ensuring consistent and transparent methods across assessments. The prompt incorporation of new evidence improves decision-making by providing up-to-date and informed recommendations.

Benefits related to LSR in HTA reported in literature:

- *Standardization and Removal of Duplicate Efforts (Thokala P, 2023) (Sarri G, 2023)*
- *Pricing renegotiation (Thokala P, 2023) (Sarri G, 2023)*
- *Potentially always Up to Date HTA (Thokala P, 2023) (Sarri G, 2023)*
- *Minimizing Duplication Effort and Research Waste (S. M. Kim J, 2022)*

Fig 1. Sunburst diagram of benefits related to LSR in HTA reported in the included studies.

Living SLR Guidance and Methods

Existing literature indicates a lack of specific methodological guidance for implementing living SLR in HTA. Operationalized methods--or even "starter guides"--are needed to assist researchers and practitioners in effectively conducting living SLRs. Only two of the records included in this review offered some considerations, rather than exact rules, regarding. when to update Living SLRs for HTA. (S. M. Kim J, 2022) (Goodman, 2019)

When is a living SLR needed?

- *New Technological Area (Thokala P, 2023) (Sarri G, 2023) (Auladell-Rispau A, 2022)*
- *Healthcare Areas with Interim Analysis-Based Decisions (Thokala P, 2023) (Kirwin E, 2022) (Garritty C, 2010)*
- *Significant Changes in Scientific Understanding (Thokala P, 2023) (Goodman, 2019)*
- *Uncertainty in Existing Evidence (Thokala P, 2023) (Kirwin E, 2022) (Auladell-Rispau A, 2022)*
- *Emerging Evidence Impacting SLR Conclusions (Thokala P, 2023) (Brooker J, 2019) (Ravaud P, 2020)*

What are the Recommendations for implementation?

- *Transparent Processes of Digital Integration (Sarri G, 2023)*
- *Presentation of Updated LSR and Model Results (Sarri G, 2023)*
- *Updated Reporting Guidance (Sarri G, 2023)*
- *Harmonizing Workflows, Reducing Duplicative Efforts (Sarri G, 2023) (Garritty C, 2010)*
- *Establishing a living HTA maintenance Period (Thokala P, 2023)*
- *Collaboration with External Stakeholders (Brooker J, 2019)*

Living SLR starter guide

The authors propose that the basic steps necessary to operationalize Living SLR are:

1. Build an SLR protocol, most commonly around the PICO framework,
2. Determine whether a living approach is warranted,
3. Determine the triggers and timing of future updates,
4. Determine the resources available and balance against the timing and review goals,
5. Construct a search strategy that is amenable to expansion,
6. Set up an automatic search or literature scanning protocol,
7. Build or use a replicable screening workflow (using an SLR software, if appropriate),
8. Build a data extraction template, hierarchy, or grid that is amenable to expansion,
9. Set up replicable analyses of the extracted data,
10. As relevant, publish the methods, timing/triggers, and initial findings,
11. Follow your Living protocol!
12. At discrete intervals, following your triggers or timing, make a non-living output available.

Discussion and conclusion

Living Systematic Literature Review (SLR) holds tremendous potential for Health Technology Assessment (HTA) but faces significant barriers that need to be addressed. The review has shed light on both the advantages and challenges associated with implementing living SLR in HTA.

On the positive side, living SLR offers several benefits. It allows for continuous evidence synthesis, ensuring that HTA assessments remain up-to-date in the rapidly evolving healthcare landscape. By enabling the timely identification of new evidence, living SLR can enhance decision-making processes, support the generation of more robust recommendations, and improve the overall quality of HTA outputs. Furthermore, the use of automated approaches, such as scripting languages, can streamline the update process and increase efficiency.

However, certain barriers impede the widespread adoption of living SLR in HTA. Ethical considerations arise regarding the use of automation, as automated processes may introduce errors or overlook critical aspects of evidence synthesis. Currently, HTA agencies do not accept automated systematic reviews, posing a challenge for integrating living SLR outputs into HTA submissions. Moreover, the lack of comprehensive guidance and a clear operationalization strategy hinders the implementation of living SLR in practice.

Despite these challenges, it is crucial to address the barriers and promote the adoption of living SLR in HTA. The ability to continuously update HTA assessments in response to emerging evidence is of utmost importance in healthcare decision-making. Living SLR provides a dynamic and iterative approach, ensuring that HTA recommendations align with the most current evidence available. By overcoming the ethical and operational hurdles, living SLR can enhance the relevance, accuracy, and timeliness of HTA processes.

To achieve this, it is imperative to develop practical guidance and "starter guides" that offer step-by-step instructions for operationalizing living SLR in HTA. Such guidance should address issues related to ethics, automation, resource allocation, search strategies, screening workflows, data extraction, and replicable analyses. Additionally, fostering dialogue and collaboration among stakeholders, including HTA agencies, researchers, and policymakers, is crucial for advancing the adoption and scalability of living SLR workflows.

Living SLR has the potential to revolutionize HTA by enabling continuous evidence synthesis and improving decision-making processes. However, overcoming the barriers associated with automation, ethical considerations, and the lack of operational guidance is vital for realizing these benefits. By addressing these challenges, the healthcare community can harness the power of living SLR to ensure that HTA assessments remain relevant, reliable, and responsive to the ever-evolving healthcare landscape.

Bibliography

Auladell-Rispau A, B. J. (2022). Methodological approaches for developing and reporting living evidence synthesis: a study protocol. Open Res Europe(1), 1-13.

Brooker J, S. A. (2019). Guidance for the production and publication of Cochrane living systematic reviews: Cochrane Reviews in living mode. 19-60.

Garritty C, T. A. (2010). Updating Systematic Reviews: An International Survey. PLoS ONE(5).

Goodman. (2019). Retrieved from www.nlm.nih.gov: https://www.nlm.nih.gov/nichsr/hta101/ta10108.html

Kirwin E, R. J. (2022). A Conceptual Framework for Life-Cycle Health Technology Assessment. Value Health(25), 1116-1123.

Ravaud P, C. P. (2020). Future of evidence ecosystem series: 3. From an evidence synthesis ecosystem to an evidence ecosystem. J Clin Epidemiol(123), 153-161.

S. M. Kim J, P. M. (2022). Guidance on review type selection for health technology assessments: key factors and considerations for deciding when to conduct a de novo systematic review, an update of a systematic review, or an overview of systematic reviews. Kim. Systematic Reviews(11).

Sarri G, F. A. (2023). Living health technology assessments: how close to living reality? BMJ EBM.

Thokala P, S. T. (2023). Living Health Technology Assessment: Issues, Challenges and Opportunities. Pharmacoeconomics(41), 227- 237.

Scan the QR code below to see the figures in more detail.

{NESTED} KNOWLEDGE®