

Methodological Quality Checklists in Systematic Literature Reviews of Health Economic Evaluations, 2022-2024

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Background

- Systematic literature reviews (SLRs) often use quality assessment (QA) tools to aid in the interpretation of the overall reliability and generalizability of the SLR’s findings. Using a QA tool helps to standardize the assessment of the certainty of a body of evidence, which can then inform better decision-making in clinical practice and in research.
- Various QA tools are available specifically for assessing the quality of health economic evaluations. For users of QA tools, it is crucial to differentiate between evaluating methodological quality—how well an economic evaluation was designed and conducted—and reporting quality, which evaluates how well the methods and findings of an economic evaluation are described.
- Tools for assessing reporting quality, such as the Consolidated Health Economic Evaluation Reporting Standards (CHEERS), are primarily intended for use by journal editors, peer reviewers, and authors of economic evaluations rather than by authors of SLRs. Authors of SLRs of economic evaluations, in turn, are expected to use tools that focus on assessing methodological quality, such as the Drummond checklist.¹
- A review published in 2019 highlighted inconsistencies in the use of checklists in SLRs of economic evaluations.² Furthermore, the authors of the CHEERS tool cited its inappropriate use in SLRs as part of the reason for updating the contents of CHEERS in 2022.³

Objective

- The objective of this study was to analyze the utilization of QA tools in recent SLRs focusing on economic evaluations.

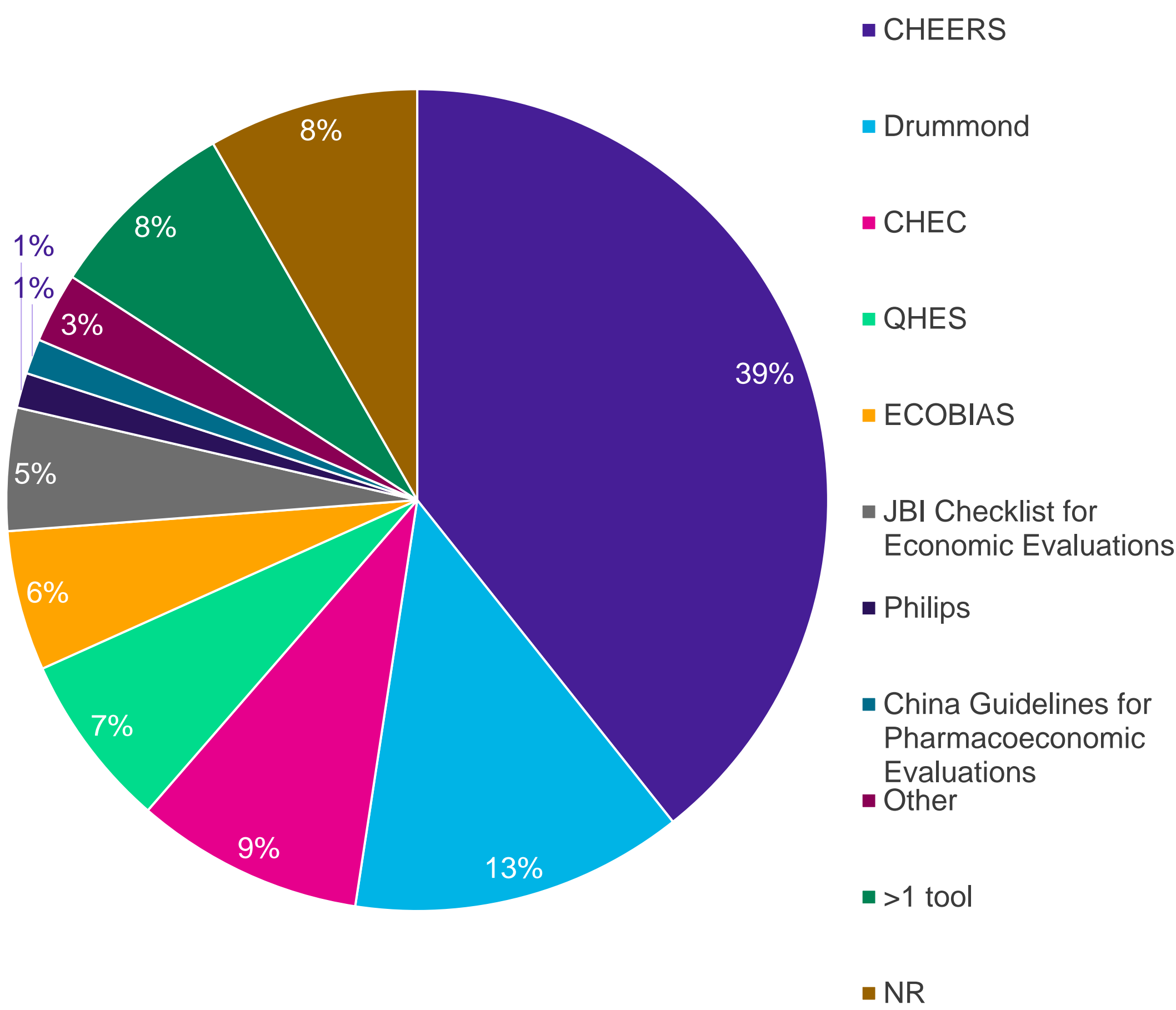
Methods

- A literature search was conducted in Embase and MEDLINE to identify SLRs of economic evaluations of health interventions published between January 2022 and June 2024.
- From the literature search, eligible studies were SLRs of economic evaluations in oncology, cardiovascular disease (CVD), vaccines and infectious diseases, diabetes, substance use disorder (SUD), and mental disorders and mental health.
- Conference abstracts, methodological studies, and studies involving solely children and adolescents were excluded.
- The QA tools and checklists used in each included SLR were collected.

Results

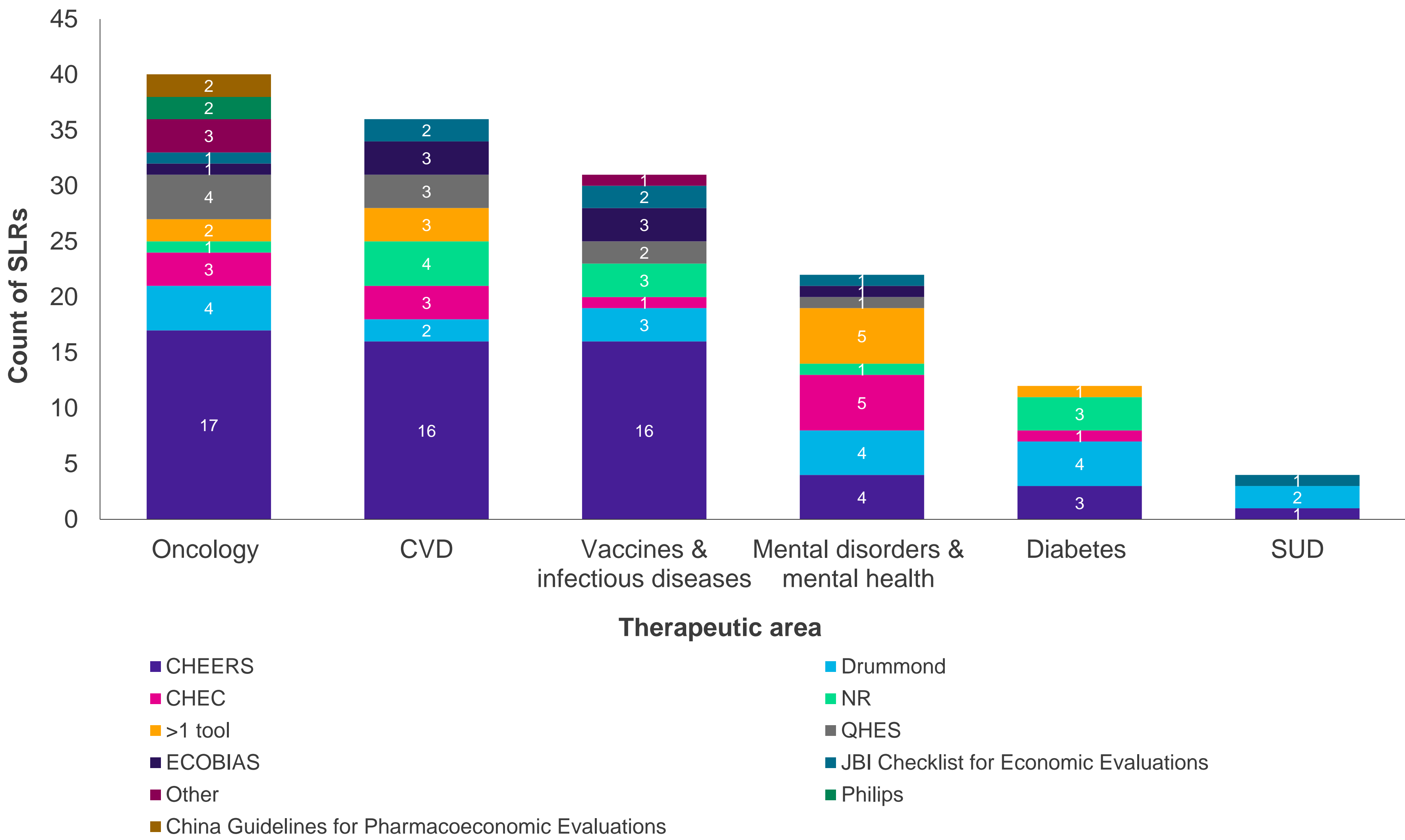
- Of 677 results identified in the literature search, 145 met our inclusion criteria. The numbers of SLRs of economic evaluations in each therapeutic area were as follows:
 - Oncology: 40
 - CVD: 36
 - Vaccines and infectious diseases: 31
 - Mental disorders and mental health: 22
 - Diabetes: 12
 - SUD: 4
- The most frequently reported QA tools were CHEERS (39.3%), Drummond checklist (13.1%), and Consensus Health Economic Criteria (CHEC) (9.0%). Twelve studies (8.3%) did not mention using any QA tool, while 11 (7.6%) used more than 1 tool (**Figure 1**).
- In 3 therapeutic areas (oncology, CVD, and vaccines/infectious diseases), CHEERS was by far the most frequently used tool in SLRs of economic evaluations, while in other therapeutic areas, the proportions QA tools were more evenly distributed (**Figure 2**).
- Of the 11 SLRs that reported using >1 tool, 2 described using CHEC for methodological quality assessment and CHEERS to guide data extraction,^{4,5} and 4 SLRs reported using CHEERS specifically for assessing reporting quality in addition to either Phillips,⁶ Drummond,^{7,8} or CHEC⁹ for assessing methodological quality. Of these 4 SLRs, 2 were in the area of mental disorders and mental health,^{6,9} 1 focused on oncology⁸ and the other focused on CVD.⁷ The other SLRs reporting the use of >1 tool did not explain the reasons behind their choice.

Figure 1. QA tools used in 145 SLRs of economic evaluations, 2022-2024



Key: CHEC – Consensus Health Economic Criteria; CHEERS – Consolidated Health Economic Evaluation Reporting Standards; ECOBIAS – Bias in Economic Evaluation; JBI – Joanna Briggs Institute; NR – not reported; QA – quality assessment; QHES – Quality of Health Economic Studies; SLR – systematic literature review.

Figure 2. QA tools used in SLRs of economic evaluations by therapeutic area



Key: CHEC – Consensus Health Economic Criteria; CHEERS – Consolidated Health Economic Evaluation Reporting Standards; CVD – cardiovascular disease; ECOBIAS – Bias in Economic Evaluation; JBI – Joanna Briggs Institute; NR – not reported; QA – quality assessment; QHES – Quality of Health Economic Studies; SLR – systematic literature review; SUD – substance use disorder.

Conclusions

- Despite caution from CHEERS authors about its unsuitability for assessing methodological quality and the potential misinterpretation of study findings, CHEERS remains the most widely employed QA tool in SLRs of economic evaluations.
- These findings are a partial update of the findings by Watts et al. where considerable variability was evident in the tools used and in the way they were used.² For example, the finding by Watts et al. that some SLR authors use CHEERS to guide data extraction was also evident in our results.
- Authors conducting SLRs of economic evaluations should be guided toward utilizing appropriate tools designed specifically for assessing methodological quality rather than relying solely on reporting standards like CHEERS.

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