

Characterizing Patterns of Application and Determining Optimal Contexts for Conducting Equity Informative Cost-effectiveness Analysis: A Systematic Literature Review

Chanthawat Patikorn^{1,2}, Ratthanon Prasitwarachot^{1,3}, Khanh Duong¹, Waritakorn Katekeaw¹, Chia Jie Tan¹, Sajesh Veetil¹, Nathorn Chaiyakunapruk^{1,4}

¹Department of Pharmacotherapy, College of Pharmacy, University of Utah; ² Department of Social and Administrative Pharmacy, Faculty of Pharmaceutical Sciences, Chulalongkorn University, Bangkok, Thailand; ³Department of Pharmacy Technicians, Sirindhorn College of Public Health Suphanburi, Suphanburi, Thailand; ⁴IDEAS center, Veterans Affairs Salt Lake City Healthcare System, Salt Lake City, UT, USA

EE334

BACKGROUND

- Healthcare equity evaluation is the measurement of how health-related outcomes and healthcare resource utilization is distributed within a population to establish whether or not patients have equal opportunity to attain their full potential for health and well-being [1]
- The number of studies investigating equity consequences of a healthcare policy, such as equity-informative cost-effectiveness analyses, has been increasing. [2]
- Extended-cost effectiveness analysis (ECEA) [3] and distributional cost-effectiveness analysis (DCEA)[4] are equity-informative cost-effectiveness analysis approaches built on conventional cost-effectiveness analysis (CEA)
- Systematic reviews regarding methodological solutions and applications of equity-informative cost-effectiveness analyses have been published [2, 5-9]
- There is a lack of guidance on the context or characteristics healthcare policies that should be formally evaluated utilizing the ECEA or DCEA technique to support policy decisions
- The results of our study are expected to assist researchers in deciding whether or not an individual healthcare policy is worth performing an ECEA or DCEA

OBJECTIVES

- To summarize patterns of applications of ECEA and DCEA
- To identify rationales and optimal conditions for conducting ECEA or DCEA

METHODS

Search strategy

- Search terms: based on the previous systematic review by Thomas Ward [10]
- Searching period: Based on Thomas Ward [10] study which searched databases up to February 2021, we then updated search from January 2021 to August 2022
- Databases: PubMed, Embase, and EconLit + citation tracking of the eligible studies
- Three reviewers independently performed all screening processes (R.P., K.D., and W.K.)
- Any discrepancies in screening were resolved by consensus or consulted with the other reviewers (C.P. or C.J.T.)

Eligibility criteria

- Original studies explicitly defining or stating that ECEA and/or DCEA is utilized in the published articles

METHODS

Data extraction

- Information extracted: study title, aim(s) of the study, type of economic evaluations (i.e., DCEA or ECEA), study setting (country, region), intervention(s), comparator(s), health outcome(s), non-health outcome(s), disease of interest, availability of previous economic evaluation study, the conclusion of the study, and rationales for conducting the study

Data synthesis and analysis

- Narrative summary: to examine the characteristics and patterns of the included studies
- Thematic analysis: to determine the rationales for conducting the study
- Content analysis: to identify optimal conditions for conducting ECEA or DCEA

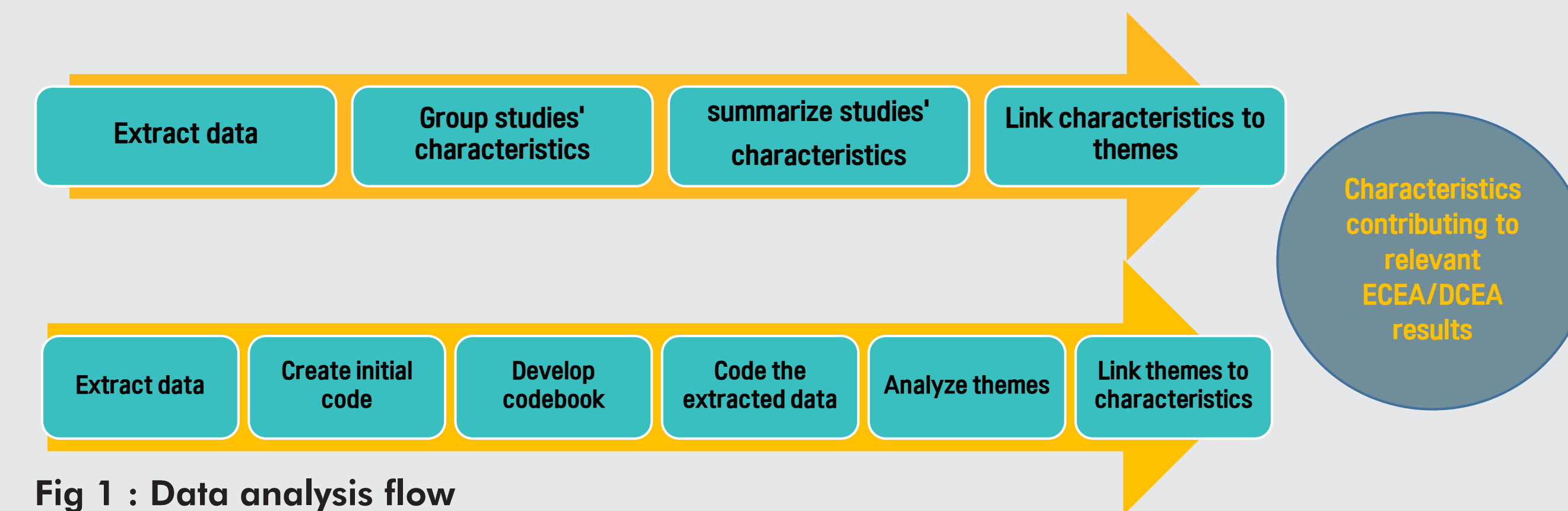


Fig 1 : Data analysis flow

RESULTS

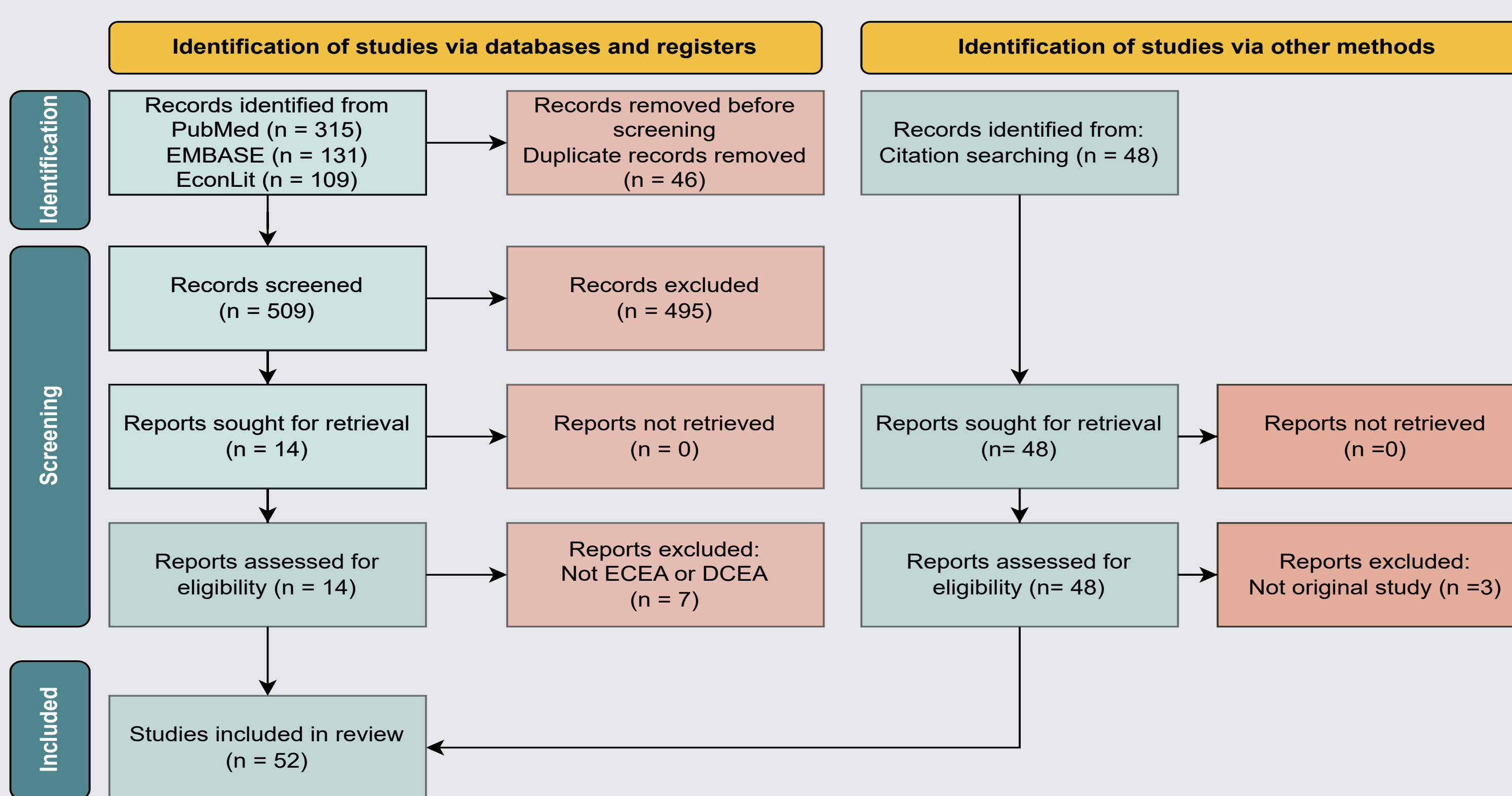


Fig 2 : PRISMA flow diagram

Study characteristics

- 35 studies were ECEAs and 17 studies were DCEAs
- Ethiopia was the most frequent setting, followed by India and China
- Most of DCEAs were conducted in high-income countries
- ECEAs were performed in low- and middle-income countries
- Public health interventions were study the most
- Infectious disease was most focused

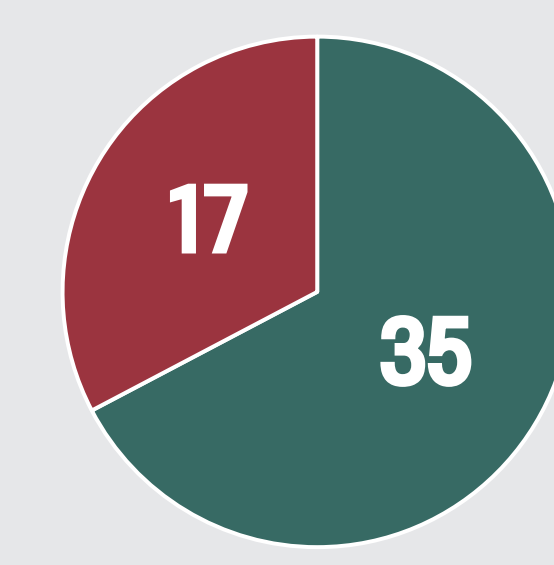


Fig 3 : Number of ECEA and DCEA studies

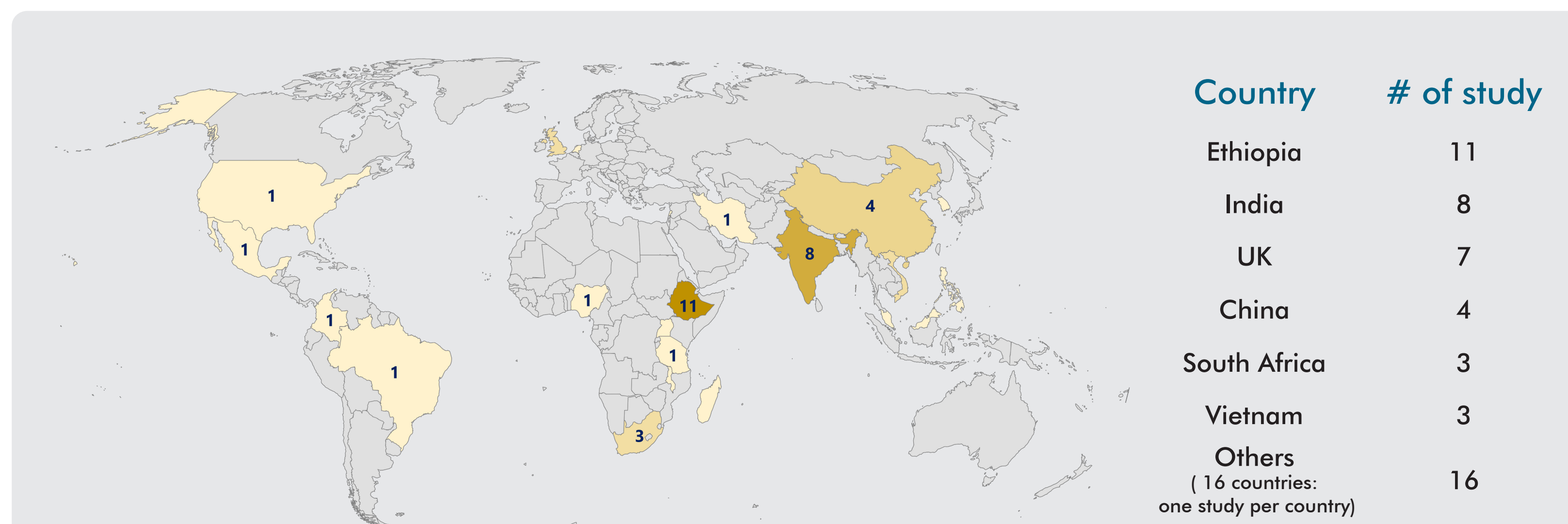


Fig 4 : Distribution of studies by country

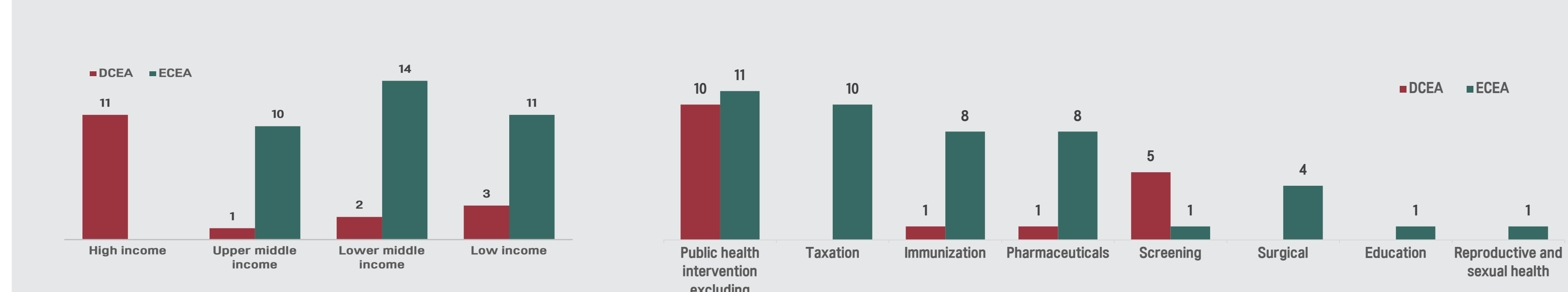


Fig 5 : Distribution of studies by analyses and country income level*

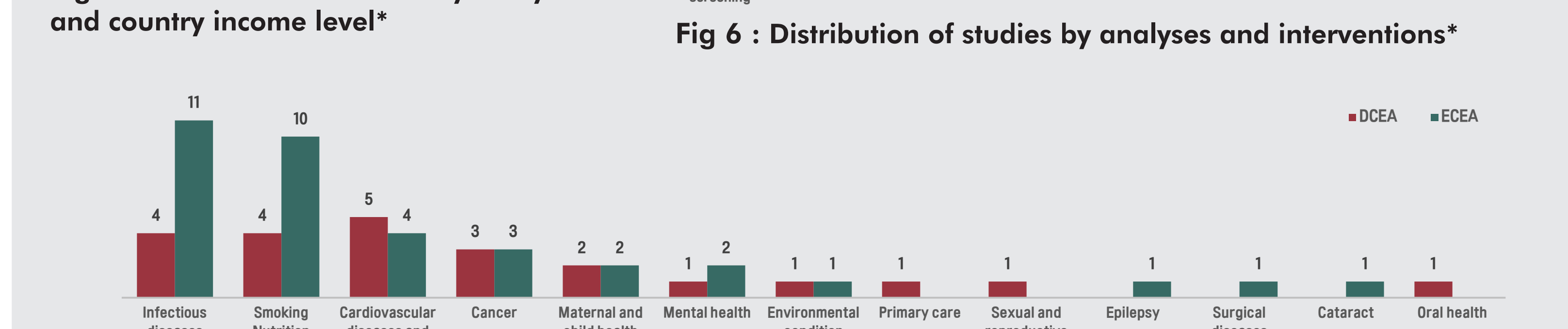


Fig 6 : Distribution of studies by analyses and interventions*



Fig 7 : Distribution of studies by analyses and area of interest*

*some studies include more than one theme

Patterns of application

- Providing evidence on the health inequality impact of health interventions
- Providing value-added to existing CEAs
- Addressing existing health inequalities, such as disease burden and financial risk
- Providing quantitative estimates of the trade-off between efficiency and equity
- Estimating health inequality impact of health interventions to achieve the health systems' goals

Characteristics contributing to relevancy of equity-informative CEAs

- Awareness of stakeholders on the existence of health inequalities and their need to address the problems
- Existence of health inequalities in populations
- Effectiveness of health interventions in reducing health inequalities

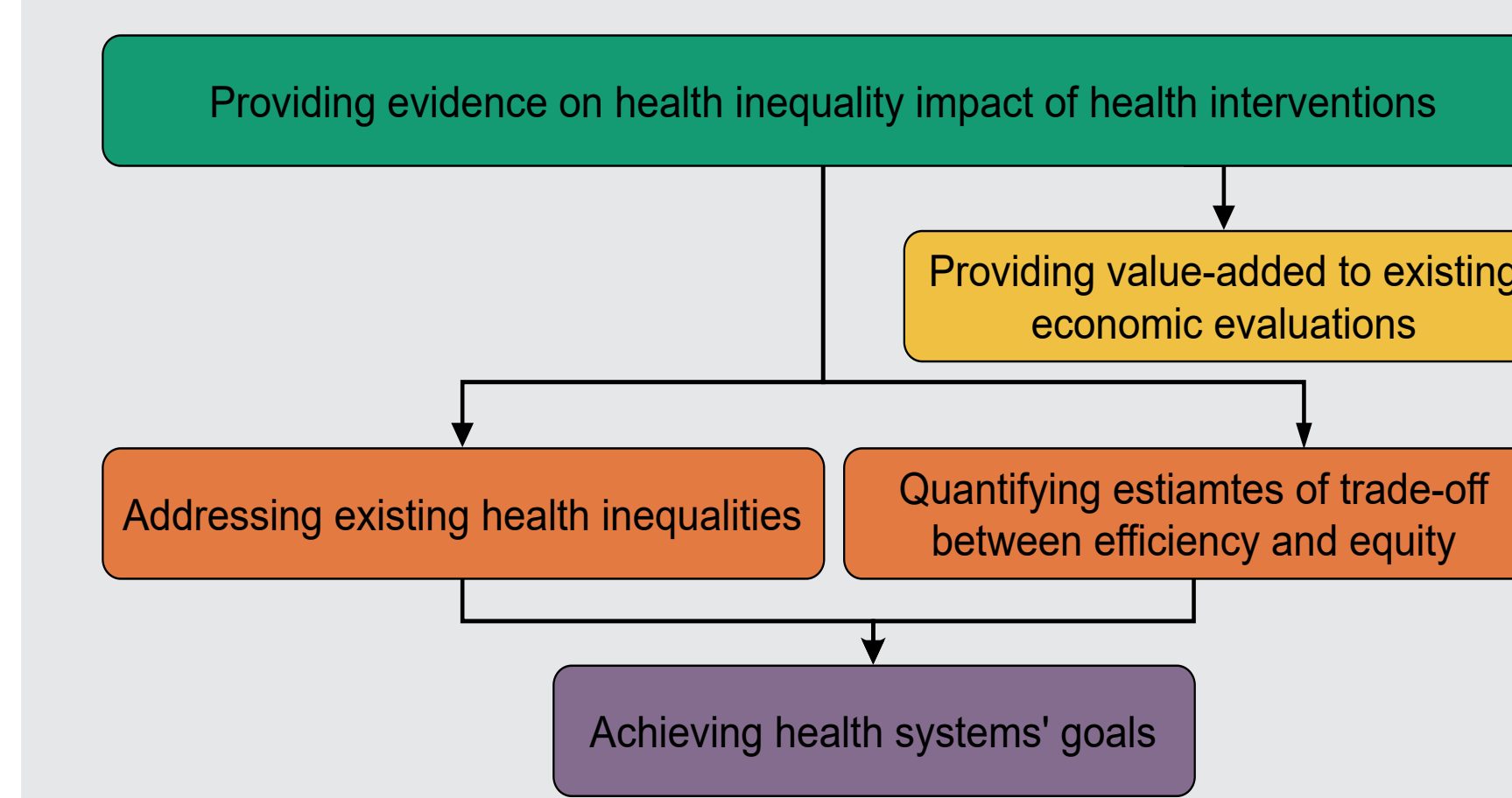


Fig 8 : Themes of rationales for conducting ECEA and DCEA

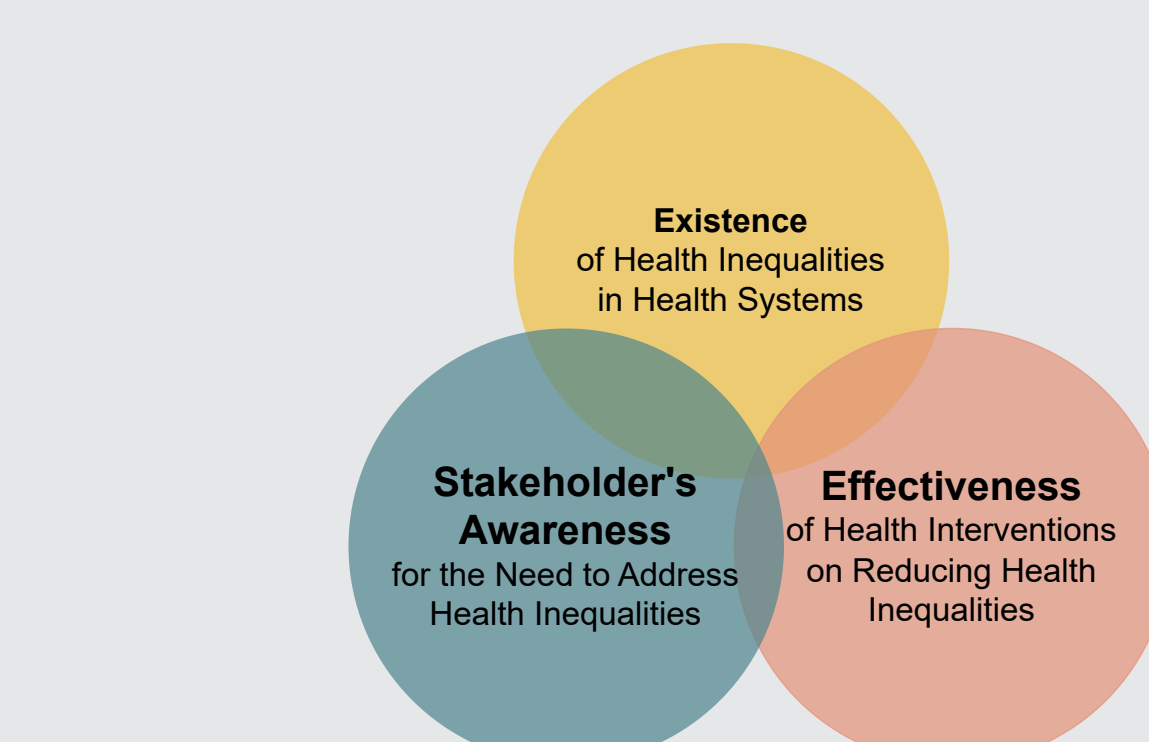


Fig 9 : Framework to evaluate potential of conducting relevant and meaningful ECEA and DCEA

DISCUSSION & CONCLUSIONS

Discussion

- ECEA and DCEA have a common outcome of interest, which are distributional effects attributable to an intervention
- DCEAs are frequently conducted in relatively-high income countries
- ECEAs are more common in relatively-low income countries as low income countries value financial risk protection
- Types of intervention and areas of disease were not restricted to methods used
- The interventions of interest are more likely to impact the public rather than particular groups of the population
- If the outcomes focus on financial risk protection, ECEA is a suitable technique
- If opportunity costs and a trade-off between efficiency and equity are of interest, DCEA should be selected
- The rationales for conducting ECEA and DCEA were to (i) provide evidence on health inequalities, (ii) to add value to existing economic evaluations, (iii) to address existing health inequalities, (iv) to quantify the trade-off between efficiency and equity, and (v) to achieve the health system's goals
- Limitations: we did not consider all types of equity-informative cost-effectiveness analysis

Conclusions

- Equity-informative CEAs have been increasingly conducted to inform policymakers on the value of a health intervention in reducing health inequalities which is beyond the conventional CEAs.
- Stakeholder engagement is vital to ensure that these analyses align with policymakers' needs
- We emphasized the importance of systematically incorporating health equity as part of health technology assessment and decision making

REFERENCES

- Raine, R., et al., Evaluating health-care equity.
- Ward, T., et al., Incorporating Equity Concerns in Cost-Effectiveness Analyses: A Systematic Literature Review. *Pharmacoeconomics*, 2022. 40(1): p. 45-64.
- Verguet, S., J.J. Kim, and D.T. Jamison, Extended Cost-Effectiveness Analysis for Health Policy Assessment: A Tutorial. *Pharmacoeconomics*, 2016. 34(9): p. 913-923.
- Asaria, M., S. Griffin, and R. Cookson, Distributional Cost-Effectiveness Analysis. *Medical Decision Making*, 2016. 36(1): p. 8-19.
- Sassi, F., L. Archard, and J. Le Grand, Equity and the economic evaluation of healthcare. *Health Technol Assess*, 2001. 5(3): p. 1-138.
- Johri, M. and O.F. Norheim, CAN COST-EFFECTIVENESS ANALYSIS INTEGRATE CONCERNS FOR EQUITY? SYSTEMATIC REVIEW. *International Journal of Technology Assessment in Health Care*, 2012. 28(2): p. 125-132.
- Dukhanin, V., et al., Integrating social justice concerns into economic evaluation for healthcare and public health: A systematic review. *Social Science & Medicine*, 2018. 198: p. 27-35.
- Lal, A., et al., Inclusion of equity in economic analyses of public health policies: systematic review and future directions. *Australian and New Zealand Journal of Public Health*, 2018. 42(2): p. 207-213.
- Avanceña, A.L.V. and L.A. Prosser, Examining Equity Effects of Health Interventions in Cost-Effectiveness Analysis: A Systematic Review. *Value in Health*, 2021. 24(1): p. 136-143.
- Ward, T., Mujica-Mota, R. E., Spencer, A. E., & Medina-Lara, A. (2022). Incorporating Equity Concerns in Cost-Effectiveness Analyses: A Systematic Literature Review. *Pharmacoeconomics*, 40(1), 45-64. <https://doi.org/10.1007/s40273-021-01094-7>