



Navigating the maze of standard and novel population-adjusted indirect comparison (PAIC) methods



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HEOR Theater 2, Hall X1



Florint Kroj, Yannan Hu, Sophia van Beekhuizen, Bart Heeg



Presenting from 1:30 PM – 2:30PM

Background



Standard methods for indirect comparisons and **network meta-analysis** make **strong assumptions** about similar between/cross-trial patient characteristics.



In the presence of individual patient-level data for at least one trial, alternative approaches that can **adjust** for differences in the **populations** can be used to indirectly compare treatments.



NICE has previously suggested **methods for population-adjusted indirect comparisons**:

- MAIC
- STC

Objective



Recent studies have evaluated the performances of MAIC/STC methods or proposed alternative **novel PAIC** methods.



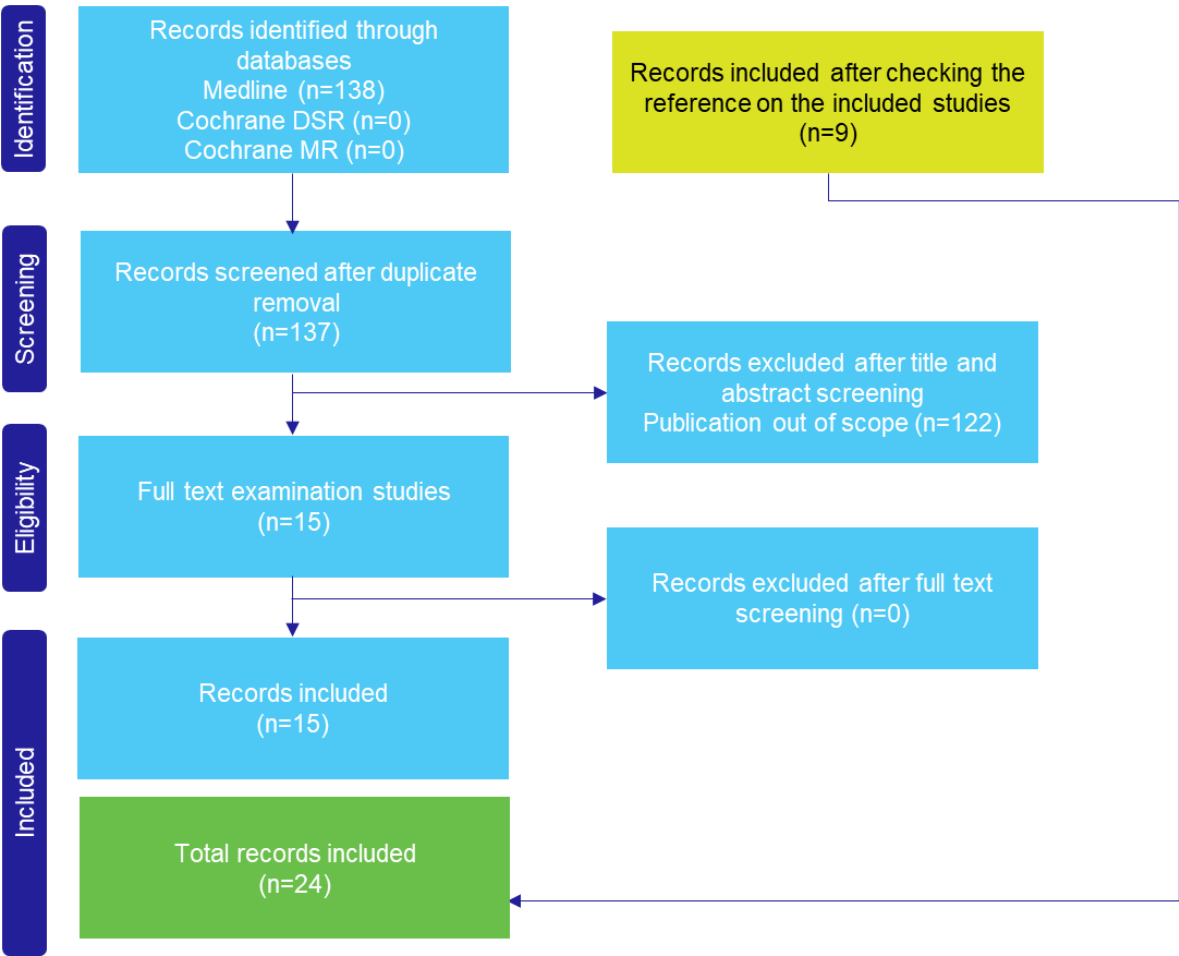
This **study aimed** to present a **full picture** of published PAIC methods, **summarise** their **advantages** and **disadvantages** and make **recommendations** for future steps.

Methods



- 1. MEDLINE; 2. Cochrane database of systematic reviews; 3. Cochrane methodology register
- Peer-reviewed publications comparing or introducing PAIC methodologies
- Conference abstracts and health technology assessment submissions were not searched.
- Only publications in English that were published after 2010 were included.
- Screening was performed by one reviewer.
- Publication details, methodology for population, study type/objective
- References of the included studies were searched for additional relevant studies.

Results



All searches were run on 27 May 2022.



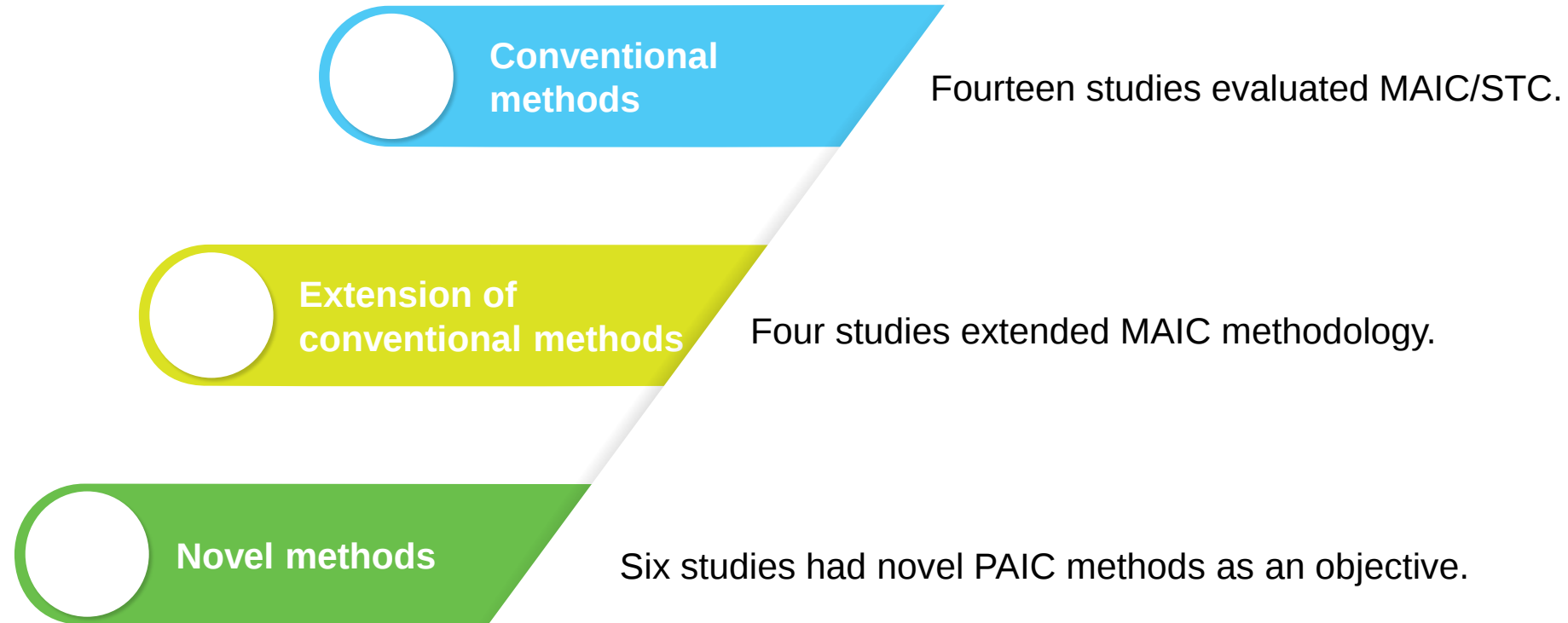
Database search = 15 studies
Cross-reference = nine studies



Eligible studies were grouped in three categories.

Results (cont.) – Publication Categories

Twenty-four studies were identified.



Results (cont.)

Conventional
methods



Methods **increasingly being used** as listed in NICE guidelines³.



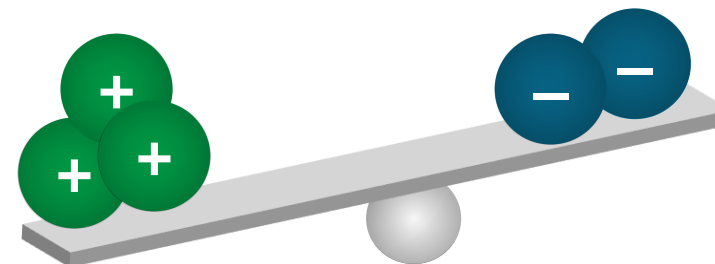
Literature suggests that **outcomes** from MAIC/STC to be **interpreted with caution**⁴⁻⁷.



Overall, the use of MAIC/STC methods come with a certain level of **uncertainty** and **further testing** of the methods is **required**³.

Advantages

- Reduced cross-trial differences
- Less-biased outcomes
- Options for more targeted comparisons



Disadvantages

- Hard to satisfy assumptions
- Deviation from the assumptions that could result in biased estimates

References: 1. Signorovitch et al. 2010, PMID: 20831302; 2. Signorovitch et al. 2012, PMID: 22999145; 3. Phillippo et al. 2018, PMID: 28823204; 4. Ishak et al. 2015, PMID: 25795232; 5. Leahy et al. 2019, PMID: 31368653; 6. Weber et al. 2020, PMID: 32659160; 7. Jiang et al. 2020, PMID: 32993519

Abbreviations: MAIC, matched adjusted indirect comparison; NICE: National Institute for Health and Care Excellence STC: simulated treatment comparison

Results (cont.)

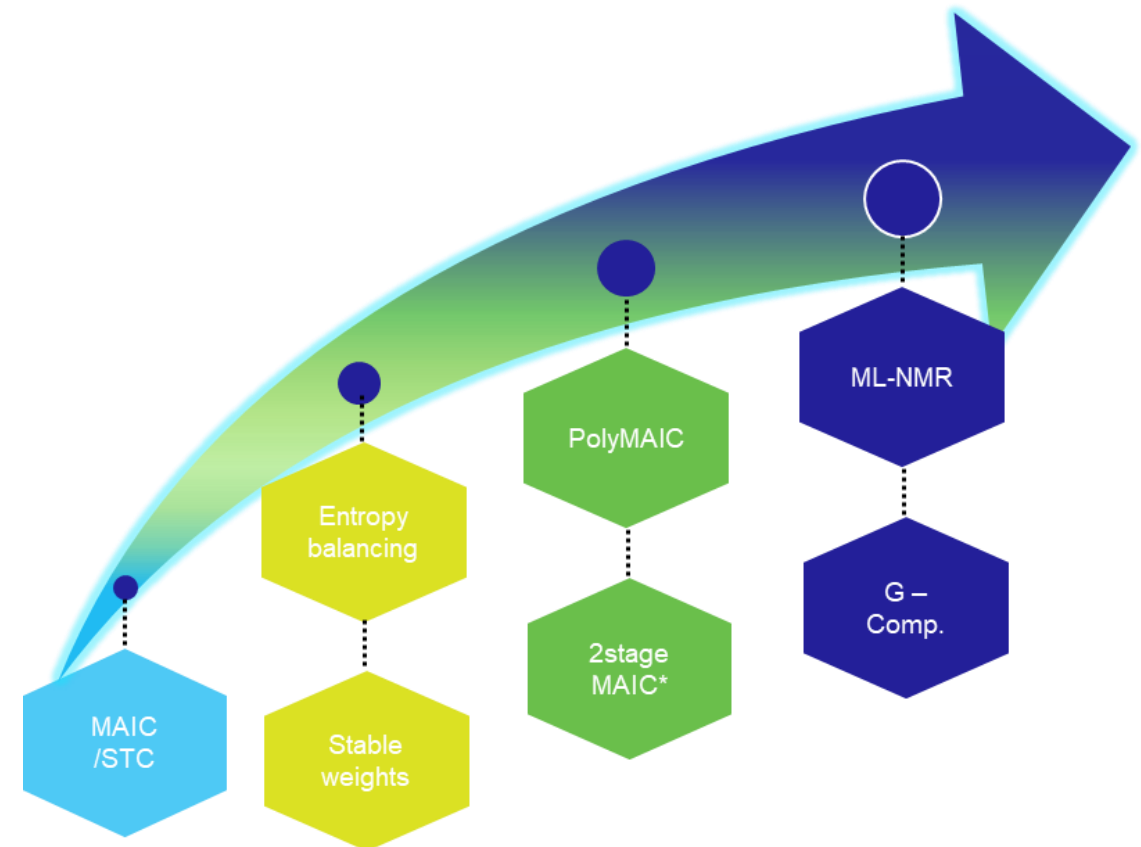
Extension of
conventional methods



Extended methodologies could be **useful** under certain conditions¹⁻².



The extended methods still do **not address** the main **difficulties** that generally surround PAIC approaches.



References: 1. Jackson et al. 2020, PMID: 33131206; 2. Alsop et al. 2022, PMID:35506464

Results (cont.)

Novel methods



ML- NMR presented many **advantages** over conventional PAIC approaches¹⁻².

- Used for any size of network
- No need for additional assumptions



Parametric G-computation is considered as an **enhanced version** of STC³.

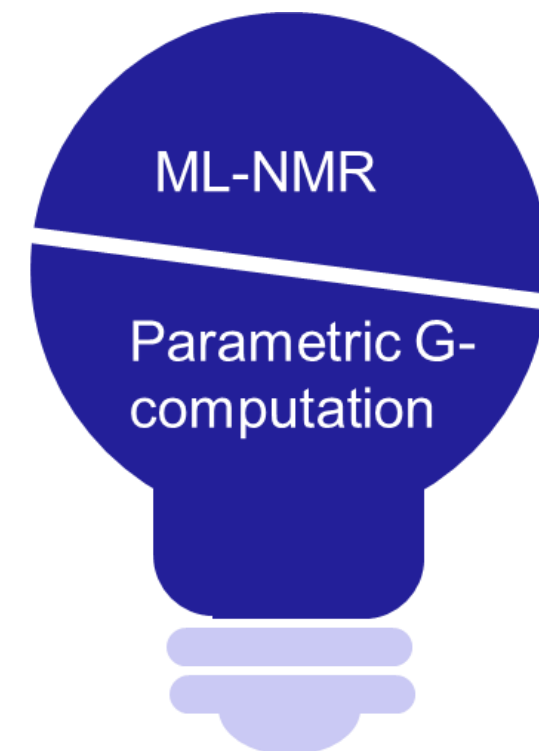
- Allows extrapolation beyond covariate space



Under certain circumstances, ML-NMR and parametric G-computation could **replace** the use of conventional PAIC.



However, the novel methods remain **largely untested**.



References: 1. Phillippo et al. 2020, PMID: 33015906; 2. Phillippo et al. 2020, PMID: 32684669; 3. Remiro-Azocar et al. 2022, PMID: 35485582

Conclusions



PAIC methodologies remain to a great extent **untested** and come with additional **uncertainty**.



Even though a number of PAIC approaches are listed in literature; there is **no clear consensus** on which methodology fits best on each case.



Decision making in health care will **greatly benefit** from **guidelines** that consider all PAIC approaches and recommend which methodology fits best on each case.

Thank you.