Online Advanced Methods for Cost-Effectiveness Analysis

Presentation 3: Population decision models: effectiveness evidence
3.6: Network meta-analysis: introduction

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Objectives

- Limitations of pairwise meta-analysis
- Taxonomy of comparisons
- Indirect comparisons, the building blocks

Recognition of limitations of conventional approaches to synthesis for decision making

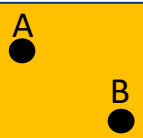
- Increased recognition of potential limitations for decision making purposes
  - The technologies of interest may not have been compared in head-to-head trials
  - Even when head-to-head RCTs exist, additional evidence maybe considered relevant
  - Decisions often relate to multiple technologies (n>2)

Implications

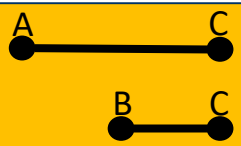
- May need to consider direct and indirect evidence
- Conventional methods of meta-analysis need extending to accommodate more complicated evidence structures
- Recognition that indirect and mixed treatment comparisons potentially offer a solution

A taxonomy of comparisons

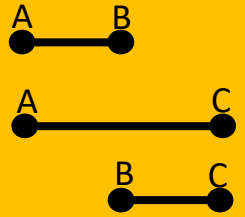
Direct Comparison



Naive or Unadjusted Indirect Comparison:
Absolute effect estimates from individual trial arms.



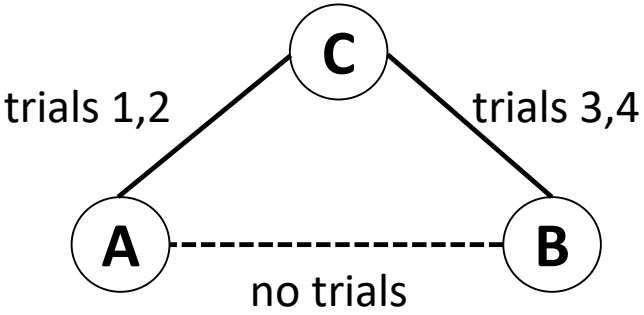
'Adjusted' indirect comparison:
Difference between relative treatment

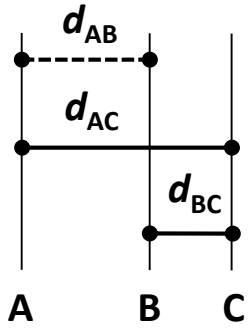


Network Meta-Analysis:
Adjusted Indirect comparison extended to more complex networks of trial evidence

Indirect and Mixed treatment Comparisons

- IC and MTC (or NMA) methods (generalisation of meta-analysis methods) allow comparisons of strategies not directly assessed within individual primary studies, ***without breaking within-study randomisation***
- No head to head evidence on *A* v *B* (comparison of interest)
- Treatment *C* is a common comparator of *A* & *B*
- Then $d_{AB\_ind} = d_{AC\_dir} - d_{BC\_dir}$, this is an *indirect comparison* of *A* vs *B*





$d_{AB} = d_{AC} - d_{BC}$

Summary points

- Conventional approaches to synthesis, like meta-analysis, present limitations for decision making
- IC and NMA are extensions of standard pairwise MA
- Indirect comparisons and network meta-analysis are valid approaches to enable the synthesis of all of the evidence