Advancing the methods of cost-effectiveness analysis

Why it's time to move on from ICERs and thresholds

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“Quick Quiz”

- Consider a CEA with 3 strategies
  - Strategy A costs $10,000 and provides 1 QALY
  - Strategy B costs $11,000 and provides 101 QALYs
  - Strategy C costs $11,100 and provides 100 QALYs
  
- Strategy C is dominated, A and B are not
- The ICER of B (vs. A) is just $10 per QALY
- Suppose we are willing to pay $50k per QALY

Which is more cost-effective, A or C?
What is the problem?

- Our current approach to CEA is largely founded in a “winner takes all” context.
- Many of our existing methods reflect this:
  - We “rule out” strategies through dominance or extended dominance if they are not the most CE.
  - We use CEACs to represent the probability that each strategy is the most CE at given thresholds.
- In many circumstances this approach is inappropriate and our methods insufficient.

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What is the solution?

• Where we have multiple strategies, ideally we would like to be able to do three things:
  1. Determine the most cost-effective (CE) strategy
  2. Rank the strategies from most CE to least CE
  3. Determine how much more or less CE each strategy is compared to other strategies

• ICERs can only help us with the first of these
• If we use other well-established methods we can easily achieve all three

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Another “Quick Quiz”

• Consider a CEA with 7 strategies
  • Strategies A to D lie on the efficiency frontier, from the cheapest (A) to most expensive (D)
  • Strategy E is dominated by B
  • Strategy F is extendedly dominated by B and C
  • Strategy G is dominated by C
• $\lambda$ lies between ICER of C and ICER of D
• Referring only to the CE plane provided, rank the strategies from most to least CE
Slope = $\lambda$
Slope = $\lambda$

Net health benefit
Slope = $\lambda$

Health (QALYs) vs. Cost ($)

- Net health benefit
- Net monetary benefit

Net monetary benefit ($)
Conclusions

• ICERs can determine the most CE strategy
• But they do not allow us to rank strategies, nor do they show how much more or less CE each strategy is compared to others
• By plotting indifference curves with a slope of \( \lambda \) on the CE plane we can do all three
• This is consistent with using net benefit
Thank you!

For a PDF copy of this presentation and a list of references please visit theta.utoronto.ca/?8620 or scan the barcode with your phone or tablet.
Slope = $\lambda$

Net health benefit