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
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**
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 = $\lambda$

Cost ($\$$) vs. Health (QALYs) graph with points A, B, C, D, E, F, and G.
Slope = \lambda

Net health benefit
Slope $= \lambda$

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/?6099 or scan the barcode with your phone or tablet.
Slope = $\lambda$

Net health benefit