Issue Panel 18

How to deal with model uncertainty at the planning stage of cost-effectiveness?:
Tips from Global Experience

Presentation for

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Agenda

- Australian Cost Effectiveness Analysis Guidelines

- Uncertainty in the “Guidelines”

- Sources of Uncertainty

- Tips on handling uncertainty

- Conclusion

- Questions........
Australia’s CEA Guidelines – a short history

- Draft guidelines issued in August 1990 – that’s 28 years ago
- CEA mandatory in 1993, but v3.0 in Nov 1995 were first clear set of guidelines
- Version 5.0 Sept 2016
- Public Summary Documents in July 2005

Australia’s CEA Guidelines – uncertainty issues

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<th>Year</th>
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Where is “uncertainty” dealt with?

Section 3A.9 Uncertainty Analysis (Analyses)

- Models and Supporting Document are provided in the submission but are not publicly available
- Review of Public Summary Documents and PBAC Outcomes

- 3A.9.1 Identifying and defining uncertainty in the model
  - Parameter uncertainty
  - Translational uncertainty
  - Structural uncertainty

- 3A.9.2 Presentation of univariate sensitivity and scenario analyses

- 3A.9.3 Presentation of multivariate and probabilistic sensitivity analyses

- 3A.9.4 Summary of the uncertainty analysis
Sources of Uncertainty

- Time horizon
- Extrapolation method
- Duration of treatment effect
- Inclusion/exclusion of AEs
- Health states included
- How parameters change over time
- Link between surrogate and final outcomes
- Model specific structural parameters

Tips

- Currently no standard approach to assessing uncertainty
- It is difficult and time consuming
- Does have an impact on the ICER
- Conduct sensitivity analyses to assess assumptions
- Identify potential sources of structural uncertainty when developing model
- Compare model with published models
  - Review Published Summary Documents and PBAC Outcomes
- Consider what’s likely to be important or of interest
Why does it matter?

Outcomes from the July 2018 PBAC Meeting

Positive Recommendations

“Uncertain” n=3

Drug/Indication n=27

First Time Rejections

“Uncertain” n=14

Drug/Indication n=12

Subsequent Rejections

“Uncertain” n=3

Drug/Indication n=3


But, remember.......  

“Essentially, all models are wrong, but some are useful”

George E P Box (1919-2013)
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