FEEDBACK ON ECONOMIC MODELS FROM THE PAN-CANADIAN ONCOLOGY DRUG REVIEW (PCODR) EXPERT COMMITTEE: AN UPDATE

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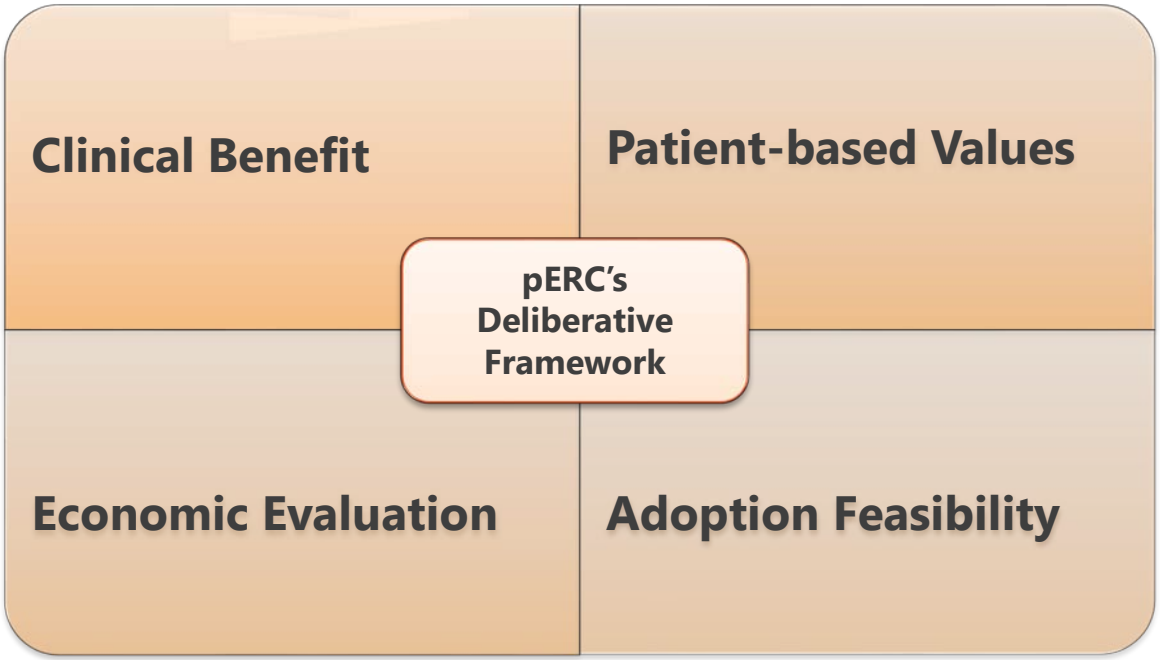
IMPORTANCE OF ECONOMIC EVALUATION TO PERC'S DELIBERATIVE FRAMEWORK

- The pan-Canadian Oncology Drug Review (pCODR) brings consistency and clarity to the assessment of oncology drugs and guides drug-funding decisions

- Receiving a positive recommendation from the pCODR Expert Review Committee (pERC) is critical for optimal market access



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OBJECTIVES

- To analyze the comments provided on the economic evaluation by the pCODR final recommendations document

- To provide guidance to manufacturers on how to improve future submissions to pCODR

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METHODS

- Recommendations from inception of pCODR (2012) to December 2014 (N=36) were assessed in previous work presented at ISPOR 2015
- This analysis provides an update to the previous work
- pCODR recommendations from inception to March 2017 were evaluated
- The final recommendation document was assessed and the economic evaluation section was thoroughly examined
- The following information was extracted and analyzed:
  - Recommendation
  - Model type
  - Incremental cost effective ratio (ICER)
    - Manufacturer's submitted estimate
  - Major comments on the economic model

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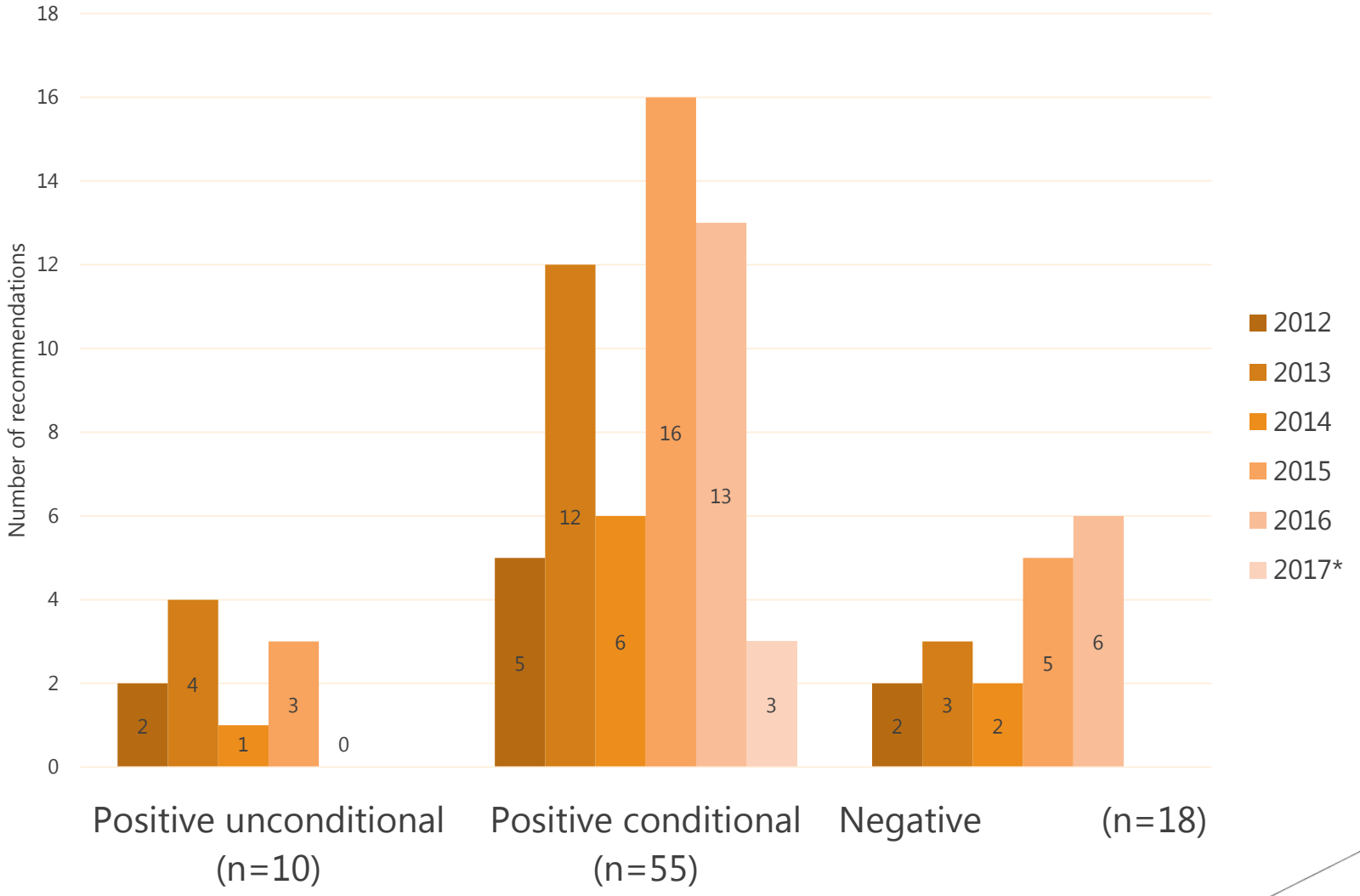
RESULTS

83 RECOMMENDATIONS EVALUATED



*Only three months data available for 2017

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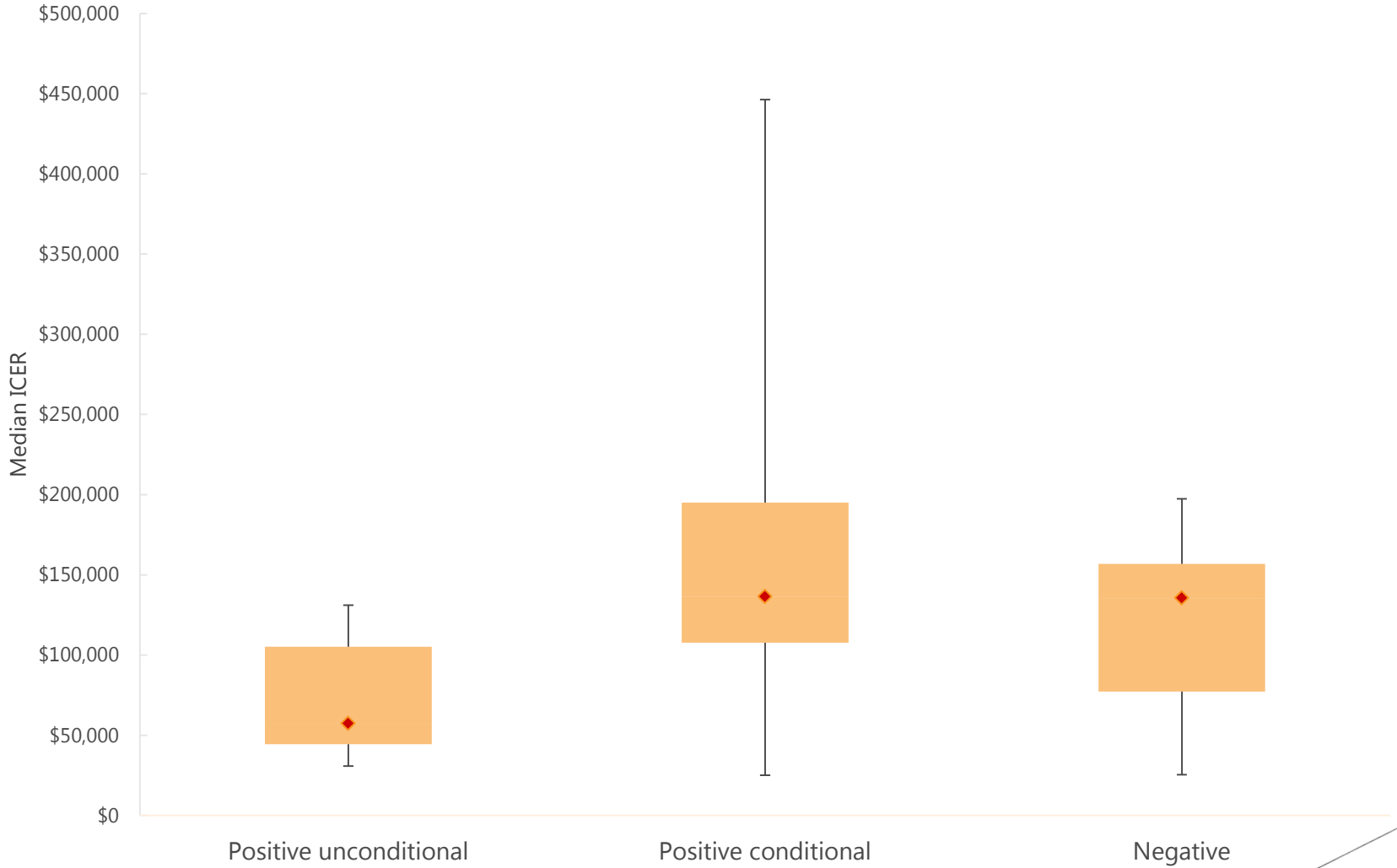
THE MAJORITY OF SUBMISSIONS INCLUDED BOTH A CEA AND CUA

- Most common economic evaluations submitted were cost-effectiveness and cost-utility models

Type of economic evaluation	Number of recommendations
Cost-effectiveness and cost-utility model	52
Cost-utility model only	25
Cost-effectiveness model only	4
Cost-minimization model only	2

MEDIAN ICERS FOR CONDITIONAL AND NEGATIVE RECOMMENDATIONS WERE SIMILAR



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UNCERTAINTY THE MOST FREQUENT AREA OF CRITICISM

Critique	Frequency
Uncertainty in clinical outcomes/effectiveness	22
Lengthy time horizon	15
Lack of direct comparison/uncertainty in NMA	8
Inadequate model structure	6
Invalid clinical assumptions	5
Potential wastage	3
Fundamental flaw in modelling technique	3

FOCUS ON NEGATIVE RECOMMENDATIONS

- A total of 18 negative recommendations from 2012-2017

- Types of economic models:
  - Cost-effectiveness and cost-utility: 10
  - Cost-utility only: 8

- Main reason given for negative recommendation:
  - Not cost-effective: 8
  - Uncertainty in clinical outcomes/effectiveness: 5
  - Uncertainty due to lack of direct comparative data: 2
  - Fundamental flaws in the model structure: 2
  - Lengthy time horizon: 1

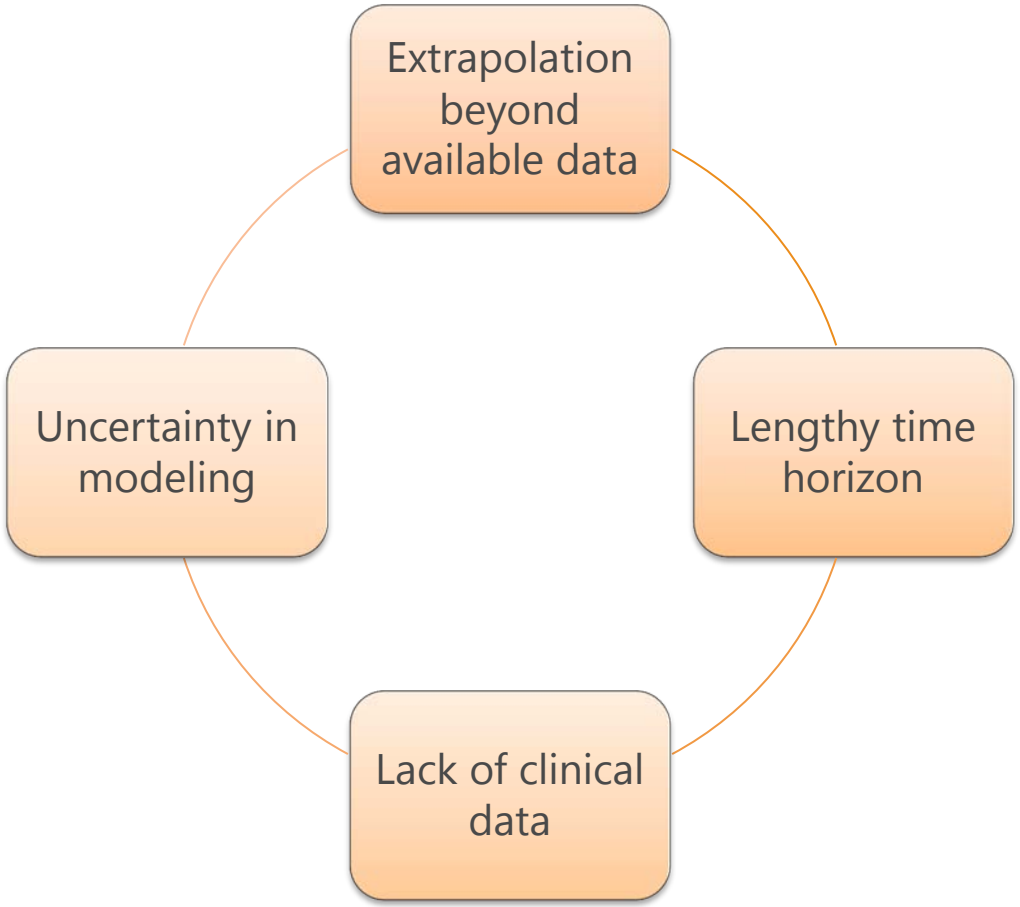
DISCUSSION

OVERVIEW OF RESULTS

- As would be expected, the median ICER was lowest for products receiving positive unconditional recommendations
- Conditional and negative recommendations had similar median ICERs
- The most common criticisms were:
  - Uncertainty in clinical outcomes/effectiveness
  - Lengthy time horizon
  - Lack of direct comparison/uncertainty in NMA
- There were no major differences between the criticisms of models receiving negative recommendations and the overall criticisms
  - It is possible that time horizon was less frequently criticized

UNCERTAINTY IN MODELING

- "All models are wrong, but some are useful" – George E.P. Box



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MINIMIZING RISK OF PCODR CRITICISM

Critique	Strategy for avoiding criticism
Lengthy time horizon	Scenario Analysis Multiple time horizons
Uncertainty in clinical outcomes/effectiveness	Weigh maturity of data vs. early submission
Lack of direct comparison/uncertainty in NMA	Comparative trials NMA methods
Inadequate model structure	Clinician input Literature review
Invalid clinical assumptions	Clinician input Literature review
Potential wastage	Adopt conservative approach for wastage
Fundamental flaw in modelling technique	Follow guidelines

LOOKING AHEAD: NEW CADTH GUIDELINES

- The 4th edition CADTH Guidelines address issues related to these criticisms
  - Time horizon
  - Discount rate of 1.5%
  - Uncertainty regarding clinical outcome/effectiveness
- Is it time to update NMA guidelines?
  - CADTH guidelines have not been updated since 2009
  - NICE guidelines updated September 2016
- Extrapolation beyond the trial period
  - Reference case: "best estimate of the duration and magnitude of clinical effect beyond the period for which data are available"[1]
  - External validity for extrapolation

[1] Guidelines for the economic evaluation of health technologies: Canada. 4th ed. Ottawa: CADTH; 2017 Mar

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ECONOMIC EVALUATION IS **ONE** COMPONENT OF THE PERC DELIBERATIVE FRAMEWORK

- The economic model is heavily reliant on clinical data, and the most common criticisms of the modelling work is related to uncertainty in the clinical data

- Products that are not cost-effective may still be recommended conditionally
  - Unmet need
  - Patient values

- Many of the common criticisms could be avoided if best practices and guidelines are followed

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