

# Trust the Experts? Acceptance of Expert Elicitation in the National Institute for Health and Care Excellence (NICE) Single Technology Appraisal (STA) Process

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## OBJECTIVES

- This study aimed to evaluate the current use, reporting, and acceptance of expert elicitation in National Institute for Health and Care Excellence Single Technology Appraisals, to understand the role it plays in health technology decision making.

## BACKGROUND

- Expert elicitation is commonly used in health economic evaluations where empirical evidence is lacking or poor.
- However, there is a lack of published guidance on its use and reporting standards, including when submitted as part of the Single Technology Appraisal (STA) process to the National Institute for Health and Care Excellence (NICE).
- As such, approaches to its use and reporting have the potential to vary considerably. Furthermore, the acceptability of its use by Evidence Review Groups (ERGs) and/or NICE Committees has not been systematically reviewed.

## METHODS

- All STAs published between October 2018 and April 2019 were reviewed (n=25).
- Where expert opinion was used to inform parameters (e.g. model inputs or assumptions), key information was extracted, including the method of elicitation, type of parameter, the use of additional justification from the manufacturer to support the expert opinion input, and any variation in scenario analyses.
- Any criticisms by the ERG related to these parameters or to expert elicitation more generally were also extracted.

## RESULTS

### Type and use of expert elicitation

- Twenty-three of the 25 STAs reviewed (92%) reported use of expert elicitation. There were 173 expert elicitation-informed parameters identified, gathered through five different forms (Figure 1).

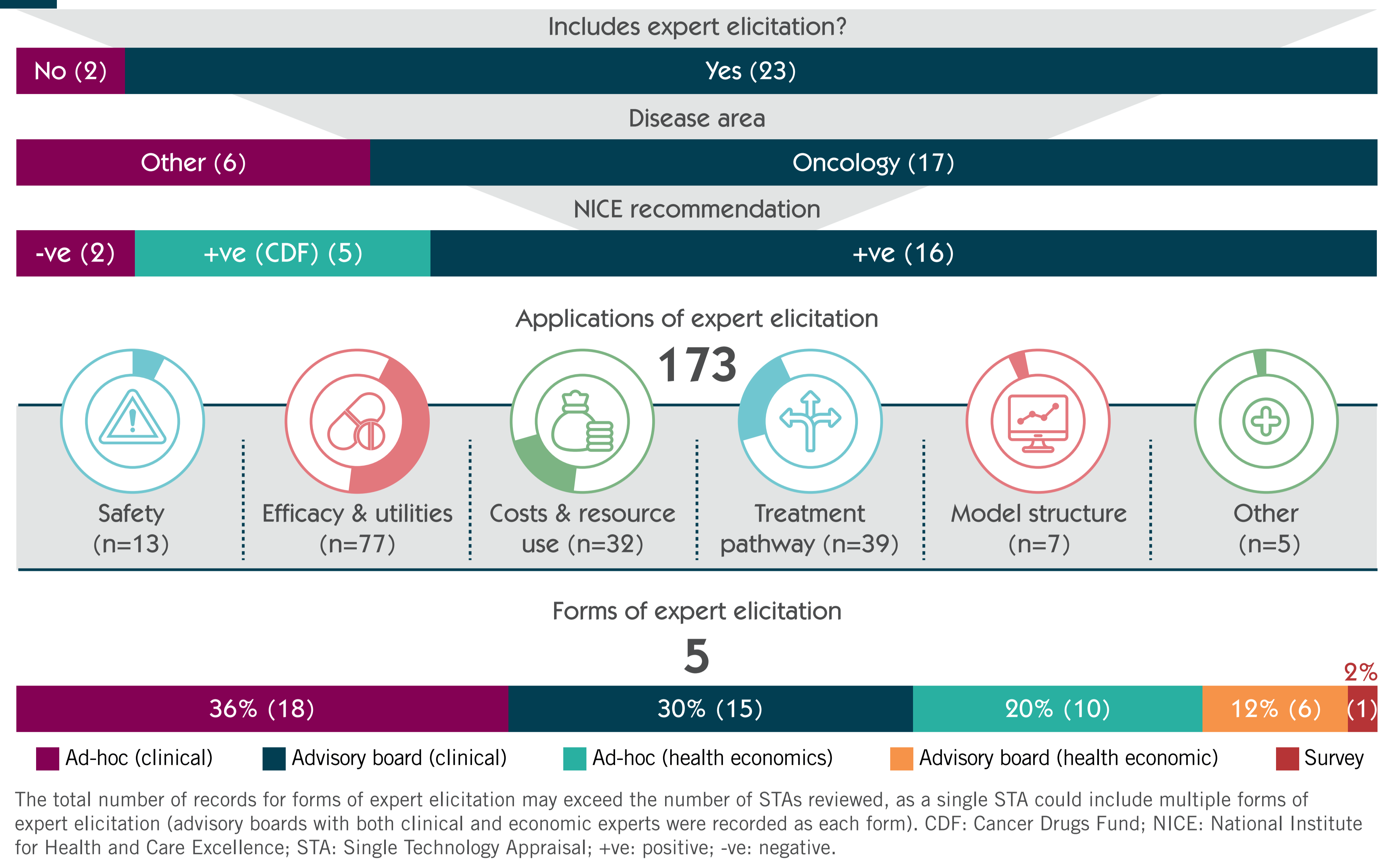
### Quality of reporting and uncertainty

- Reporting quality of expert elicitation methods varied substantially. Only four STAs included specific detail on the method (e.g. providing questionnaires or transcripts). The number of experts consulted was more likely to be reported for advisory boards (75%) vs ad-hoc validation (36%). The mean number of experts at advisory boards was four, with more experts included for clinical advisory boards (n=5) than economic (n=2).
- 60% of parameters were unsupported by additional justification from the manufacturer (e.g. guidelines, published literature, previous STAs or statistical reasoning) and 66% were not varied in scenario analyses.
- Substantial uncertainty in the Incremental cost-effectiveness ratio (ICER) was observed when deriving inputs from expert elicitation; variation of parameters in scenario analyses had an effect on the ICER (i.e. >1% increase or decrease) for 68% and 61% of parameters with and without additional justification, respectively (Figure 2).

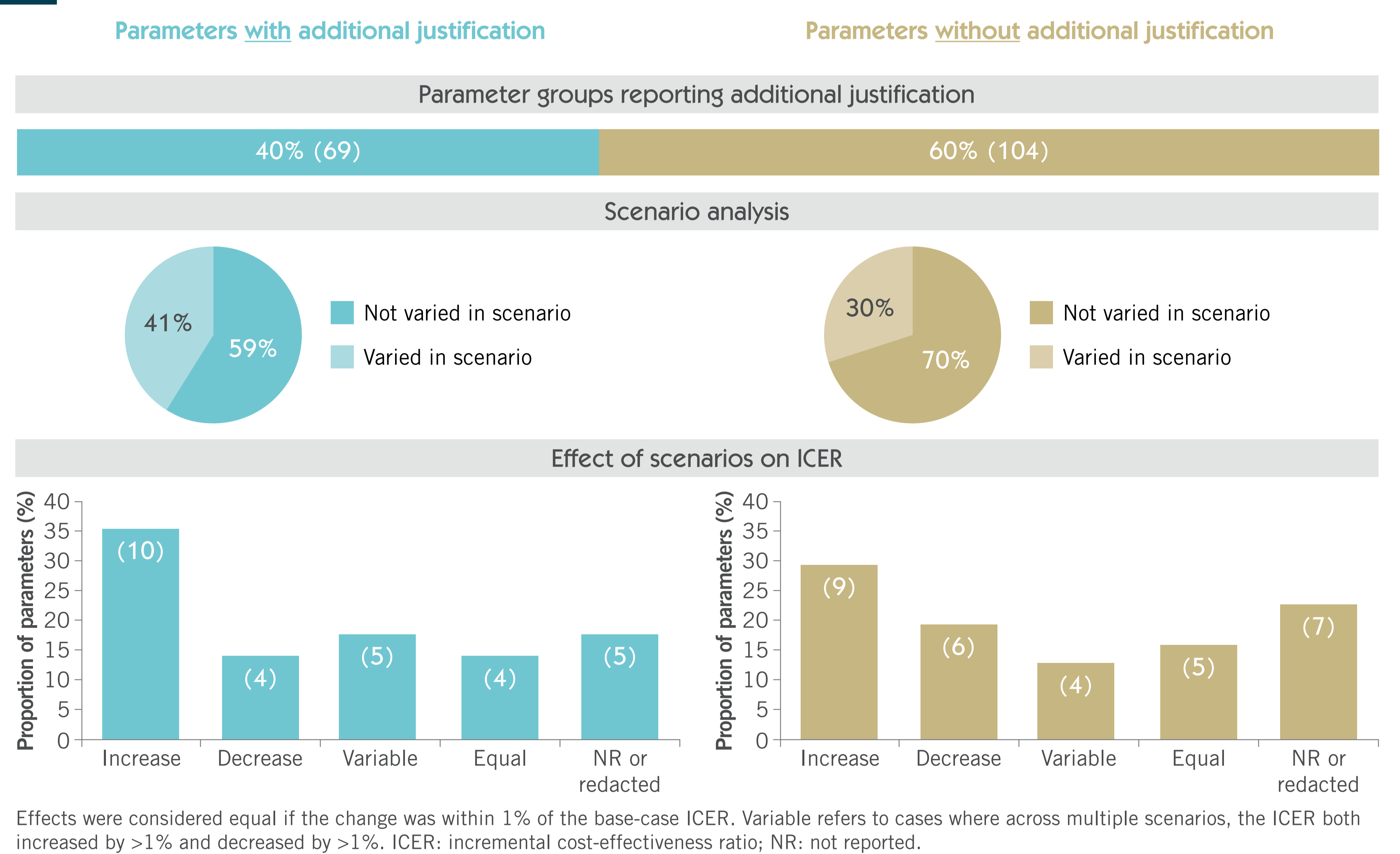
### ERG criticism

- Of the parameters informed by expert opinion without any scenario analysis conducted (n=114), the ERG only commented on 18% (n=20) (Figure 3). In contrast, when the manufacturer had varied the parameter in a scenario (n=59), ERG criticism was more likely (37%; n=22; p=0.004).

## 1 Frequency and type of expert elicitation in STAs from October 2018 to April 2019



## 2 Additional justification and exploring uncertainty in STAs with expert opinion



- Similarly, more frequent ERG criticism was seen for inputs for which additional justification was provided (28%; n=19) compared to those that did not (22%; n=23); however, this was not statistically significant (p=0.689).
- Where reported (n=47), the majority (81%; n=38) of parameters varied in scenario analyses had an effect on the ICER; however, only 45% (n=17) were discussed by the ERG. When parameter variation resulted in equal ICERs (within 1%; n=9), ERG criticism was even less likely (11%; n=1; p=0.065).

## CONCLUSIONS

- Although expert opinion is commonly used as part of economic evaluations in NICE STAs, the level of reporting and extent of accompanying analyses varies substantially; there is a frequent lack of justification or exploration of alternative scenarios for expert informed parameters in company submissions.
- ERGs only comment critically on a small proportion of parameters informed by expert opinion, and criticism is more likely when uncertainty is explored by the manufacturer through scenario analysis or when the ICER is shown to be impacted; ERGs may interpret these analyses as a suggestion of increased uncertainty, focusing their attention.

## RECOMMENDATIONS

- Further recommendations and guidance from NICE on the use of expert elicitation would help ensure its consistent reporting and critical appraisal across submissions.
- More consistent critique of expert informed parameters, regardless of whether they have been explored in scenarios or been supported with additional justification, may help incentivise improved reporting standards by manufacturers.

## Acknowledgements

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## 3 ERG criticism of expert elicitation in STAs

