How to Transform Expert Knowledge into Evidence for Health Technology Assessment? Optimising Expert Elicitation Techniques

ISPOR Europe 2024 Speaker

Exhibit Hall Theatre presented by:

Adelphi ADELPHI VALUES | PROVE Expertise in Access and Value Evidence Outcomes

Part of Adelphi in Real World, Value and Outcomes

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Monday 18th November 2024
12:15pm – 12:45pm

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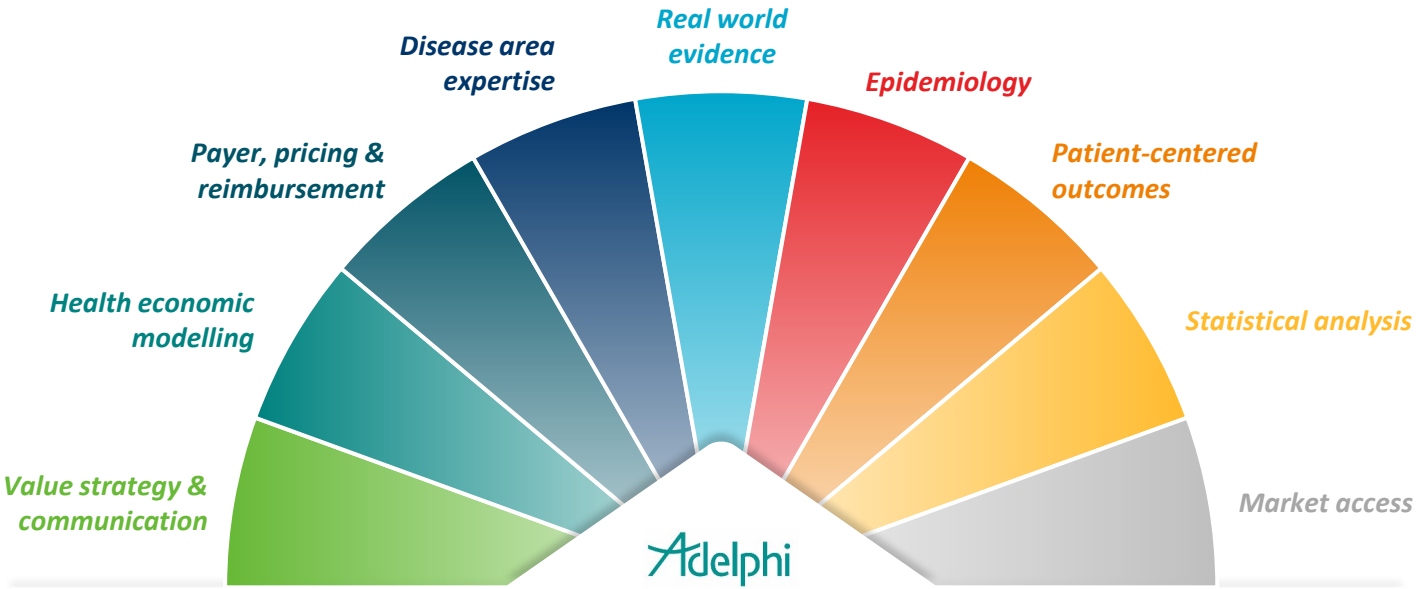

in Real World, Value and Outcomes

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Payer

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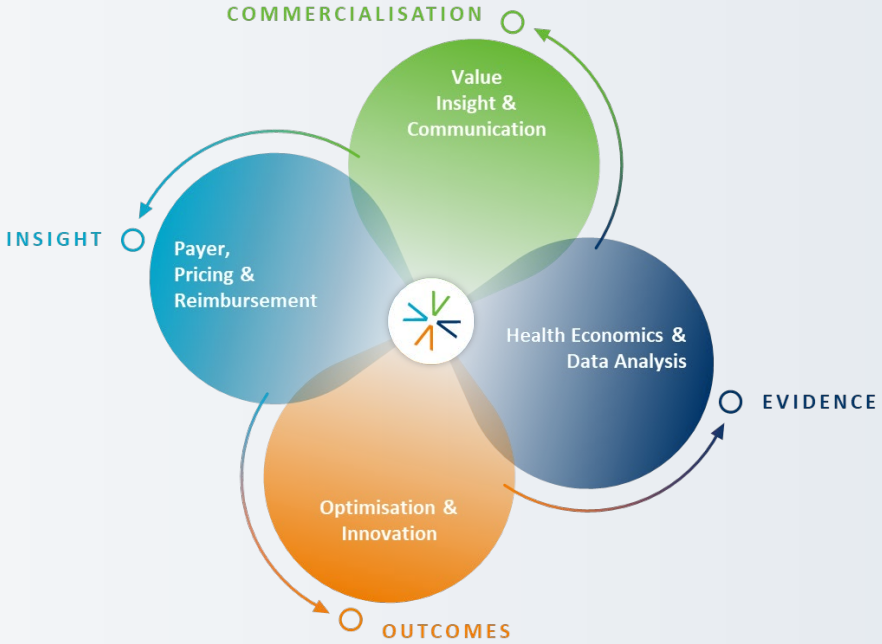

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Introducing Expert Elicitation

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Introducing Expert Elicitation Techniques

Expert elicitation

Expert elicitation (quantitative)

This form of expert elicitation seeks to obtain beliefs from experts in a quantitative form, for example uncertain quantities, or durations and probability distributions

- Structured expert elicitation
- Delphi panels
- MCDA

or

Expert elicitation (qualitative)

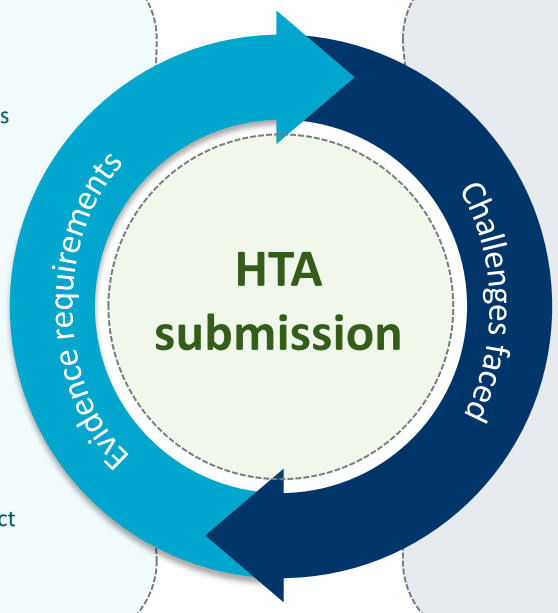
This form of expert elicitation seeks to obtain qualitative information from experts

- Advisory boards
- Interviews and focus groups
- Delphi panels

Challenges faced with evidence requirements for HTA submissions

Evidence requirements:

1. Burden of illness
2. Comparative effectiveness
3. Cost-effectiveness
4. Budget impact
5. Safety profile
6. Quality of life
7. Real-world evidence
8. Unmet medical need
9. Patient and societal impact
10. Economic models



Challenges faced:

1. Data gaps
2. Comparative effectiveness
3. RWE limitations
4. Uncertainty in long-terms
5. Variability in QoL data
6. Complexities in models
7. Heterogeneous population
8. Bias and confounding
9. Time/resource constraints
10. Rapidly evolving evidence

Expert elicitation

Support evidence needs in HTA submissions when empirical data is limited or lacking.

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How to Transform Expert Knowledge into Evidence for Health Technology Assessment Evidence?

	Summary of elicitation techniques			
	Traditional elicitation	**Consensus-based**	**Utility preference-based**	**Structured expert elicitation**
Goal	Individual expert judgements	Achieve group consensus	Quantify preferences or utility values	Gather structured, unbiased estimates
Process structure	Unstructured, individual input	Multiple rounds with feedback	Ranking/scoring based on preference	Structured protocols, combining individual and group
Data output	Independent judgements	Consensus-based estimates	Utility scores/rankings	Aggregated, probabilistic judgements
Common use case	Initial assessments, exploratory studies	Forecasting, clinical guidelines development	Health economics, decision analysis	HTA, regulatory submissions, risk assessments
Example research questions	*To explore key stakeholders' perception of an emerging therapy* *To explore key stakeholders perception of value messages and narratives*	*To elicit consensus recommendations regarding optimisation of treatment pathways* *To inform treatment guideline development*	*Determining stakeholder preference for different health states or conditions* *To explore stakeholder preference and trade-offs for potential risks and benefits associated with a therapy*	*To quantify uncertainty on parameters for inclusion in economic modelling.* *To generate point estimates and probabilities in relation to treatment durations and/or stopping rules.*

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Transform Expert Knowledge into Evidence for Health Technology Assessment Evidence: *Focus on Structured Expert Elicitation (SEE)*

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Introducing Structured Expert Elicitation

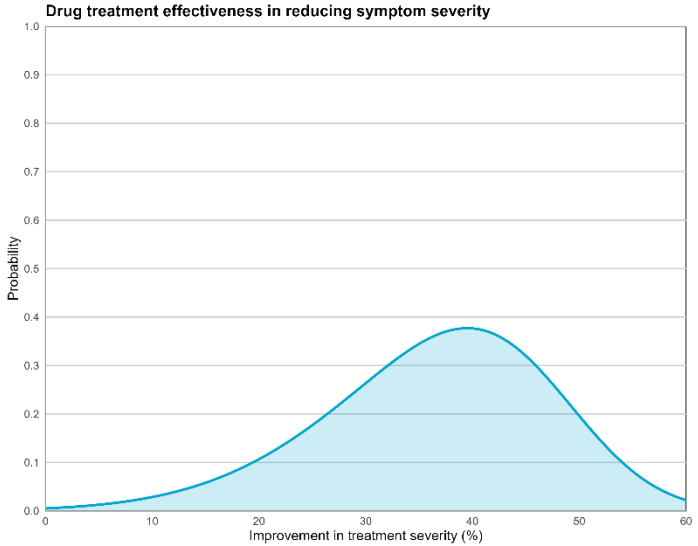
"The process by which the beliefs of experts can be formally collected in a quantitative manner"

Medical Research Council Protocol, Bojke et al. (2019).

Process flow:

1. Define objectives and scope
2. Design the elicitation protocol
3. Identify and recruit experts
4. Training of experts
5. Conduct elicitation
6. Aggregation of expert judgements
7. Analyse and document results

Example output:



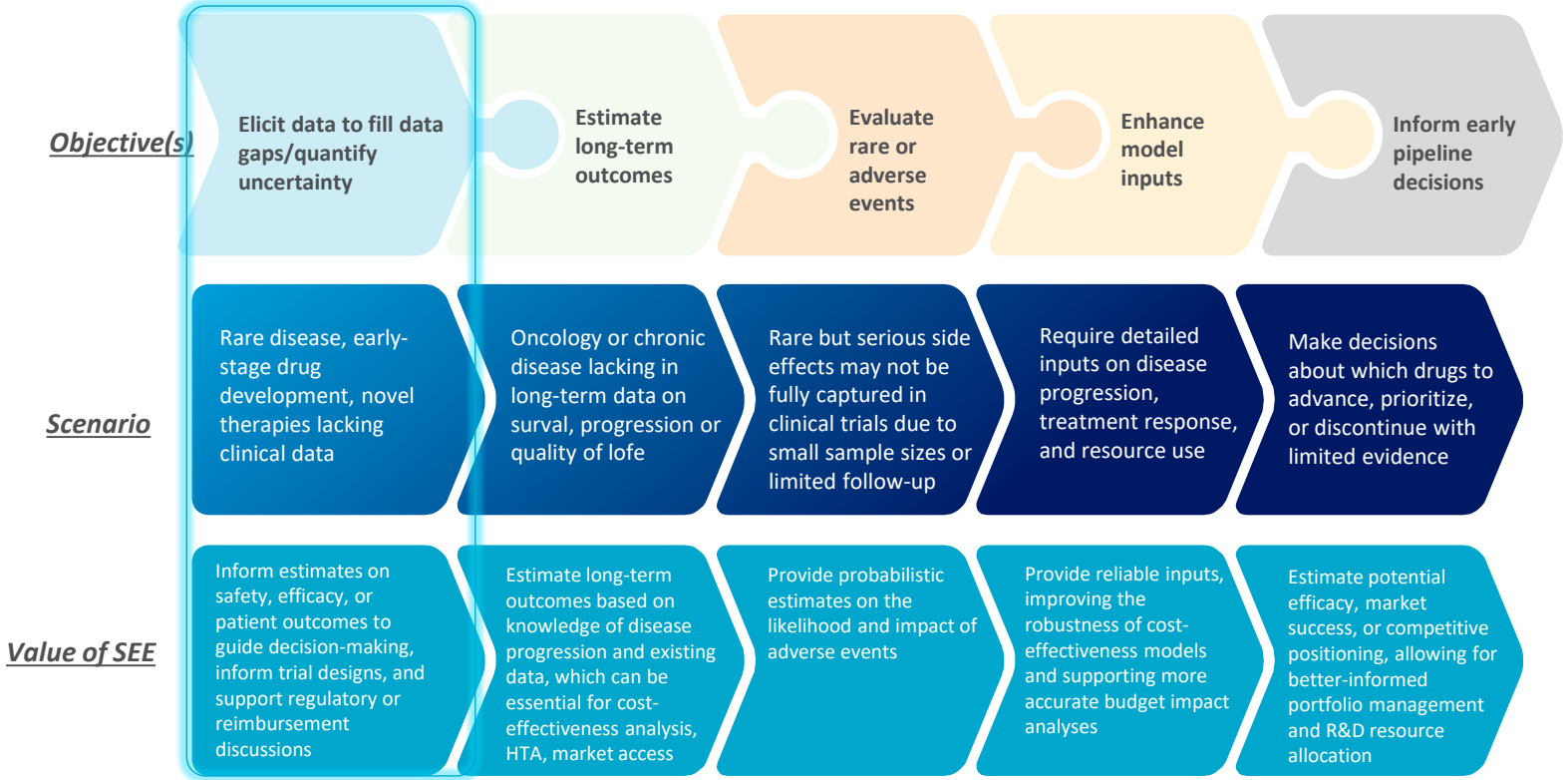
Examples of key considerations at each stage for SEE

Category	Consideration	HTA challenge addressed
Define objectives and scope	Identify the gaps/uncertainties to define a specific measurable scope	Defining a precise objective can improve the robustness of HTA models and mitigate reliance on assumptions
Design the elicitation protocol	Develop a structured process to guide the elicitation including identification of the mode of administration, level of elicitation, feedback and revision, opportunity for revision and collection of rationales. Identify whether facilitation is required. Describe whether the exercise will be piloted.	Developing a structured protocol reduces subjective influence and variability which is particularly important for HTA where consistent and unbiased expert input is crucial.
Identify and recruit experts	Identify who would qualify as an expert for this research and the number of experts needed. Consider experts with substantive expertise and how to ensure normative expertise. Should blinding be considered to minimise bias?	Expert selection ensures the elicited judgments reflect real-world applicability and provide HTA-relevant insights which may not be fully captured in trial data e.g. adherence rates, resource use etc.
Training of experts	Provide training to ensure experts understand the process and to minimise cognitive biases.	Contributes to the reliability and validity of HTA outcomes by ensuring that expert judgments are as accurate and consistent as possible. This helps address the overarching HTA challenges of maintaining robust, reliable data inputs and mitigating assumptions, making the assessments more dependable and aligned with real-world applicability.

Examples of key considerations at each stage for SEE

Category	Consideration	Overcoming HTA challenge
Conduct elicitation	Conduct the elicitation, where experts are asked to make judgments about the uncertain quantities	Clear guidance on the elicitation helps experts focus with minimal ambiguity, reducing the influence of personal bias and variability. This leads to more consistent judgments, which are critical in HTA for decision-making on uncertain topics, such as estimating health outcomes or costs.
Aggregation of expert judgements	Decide whether to use mathematical or behavioural aggregation. Consider weighting experts based on their expertise or calibration scores. Combine individual judgements into a collective estimate. Capture the range or distribution of judgments to reflect uncertainty in the aggregate results	By capturing the range and distribution of opinions, this approach accounts for uncertainty, which is crucial in HTA, where diverse expert opinions might exist. This step ensures that the final aggregated judgment is more robust and less influenced by outliers or individual biases.
Analyse and document the results	Summarize the purpose, questions, and methods used. Provide details on the number of experts included, selection, and relevance. Display aggregated judgments with central estimates and uncertainty ranges. Explain how outliers and potential biases were managed. Relate results to objectives, discuss limitations, and offer recommendations or implications.	In HTA, where decisions can impact policy and funding, this level of documentation allows stakeholders to interpret the data in context, relate it to objectives, and assess the reliability of the conclusions. This stage also addresses potential limitations and biases, offering recommendations that add value to the HTA process.

Practical scenarios



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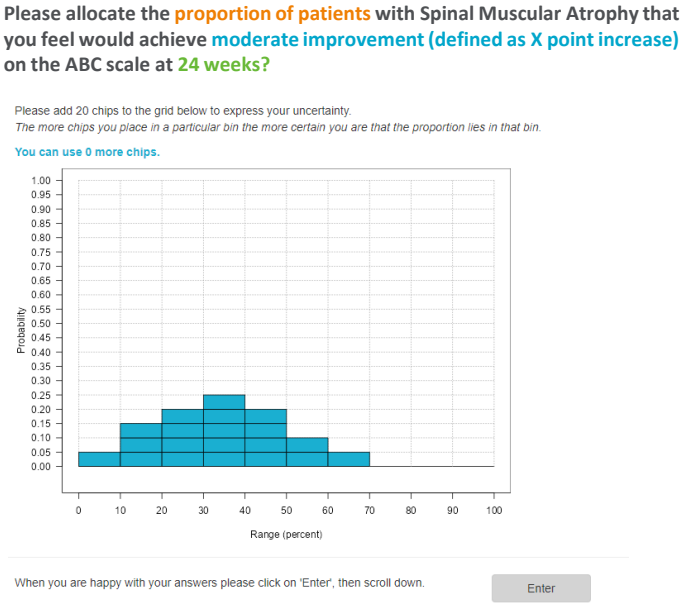
Practical scenarios: Example use case

Example research objective:

- To estimate long-term outcomes using the ABC Scale for motor function in Spinal Muscular Atrophy at 24 weeks.



Common limitations identified by HTA bodies and how to overcome these

- Quality of reporting
- Lack of additional justification and/or critique by experts included
- Lack of exploration of uncertainty or alternative explanations
- Over reliance on trust and overt willingness to accept expert opinion
- Lack of acknowledgement of bias and mitigation efforts
- Consideration of the level of influence normative expertise has on the study

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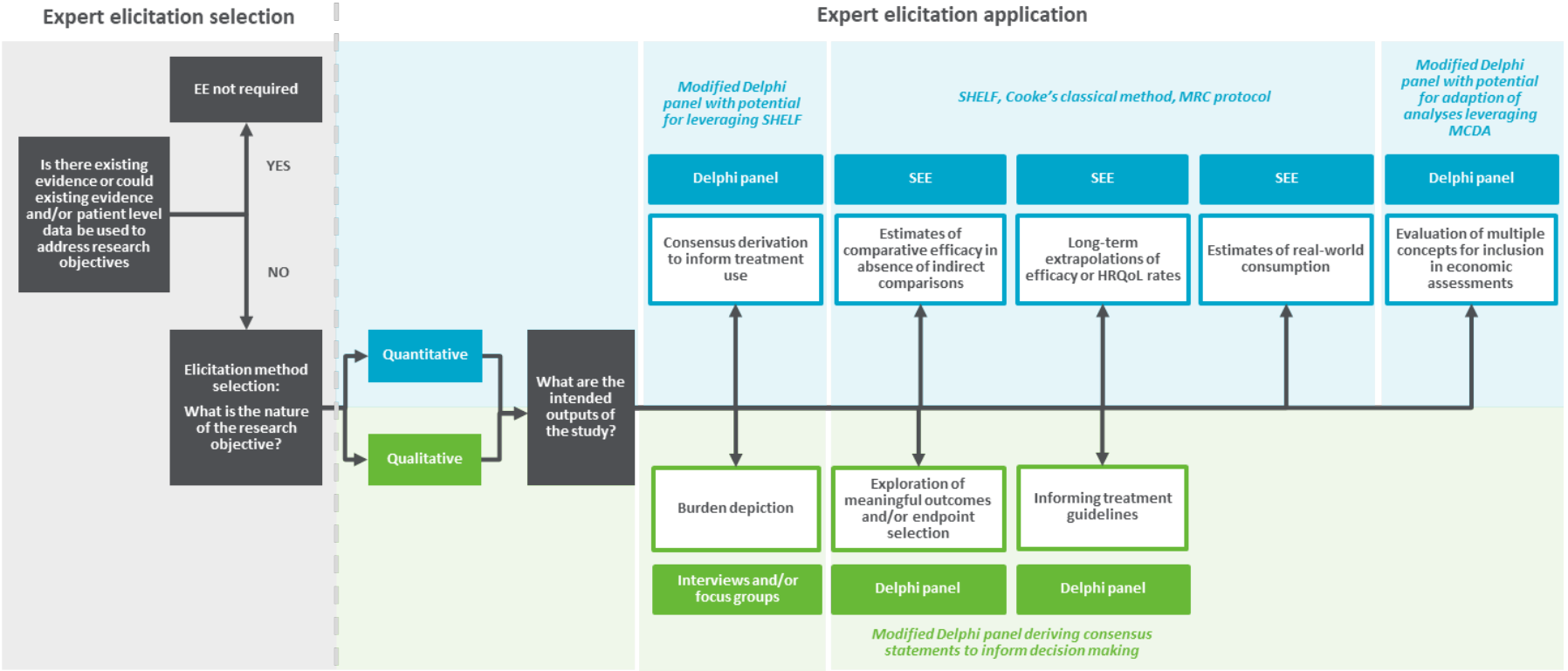
Transform Expert Knowledge into Evidence for Health Technology Assessment Evidence:
Selecting the right technique



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Case study

An HTD needs efficacy data to populate a cost-effectiveness model of its new product A in rare skin condition for submission to NICE. The pivotal RCT included a randomised comparison versus comparator B, the newest alternative, as recommended by regulators and a study versus placebo. However, NICE had requested that an older treatment, referred to as treatment C, that is widely used within the NHS be used as a comparator.

Question:
How would you generate data to demonstrate the efficacy of treatment A versus treatment C?

Answer 1: SLR and ITC

An extensive SLR only identified low quality data of treatment C versus placebo, or treatment B versus treatment C, in small populations and therefore it is unlikely that this data will be comparable. The ITC feasibility showed that a quality ITC able to be used to populate the model was not feasible.

Answer 2: SEE

An SEE was designed to reflect the structure of the model asking the experts to elicit the efficacy for patients still on treatment at each relevant time points.

- Three comparators were selected to account for cognitive load (acknowledging the maximum number of data points to be elicited over 2 hours): Treatments B, C and D, a treatment widely used off-label.
- A widely used scale reflecting RCT endpoints was chosen to elicit efficacy and uncertainty
- Expert elicitations were consistent and supported by qualitative statements about relative efficacy of treatments.

We'd now like to invite questions from the audience

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Thank you!

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Please come and visit our booth **1421** to continue the conversation with our speakers

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