NVTAG

Nederlandse Vereniging voor Technology Assessment in de Gezondheidszorg

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Why a symposium about Structured Expert Elicitation (SEE)

- Structured expert elicitation (SEE) is the process of extracting expert knowledge about some uncertain quantity or quantities and formulating that information into probability distributions
- Use of SEE has been advocated by NICE England; CAD Canada; ZorgInstituut [1]
- January 2024: Update of Dutch guideline for economic evaluations in healthcare
  - Mandatory use of Structure Expert Elicitation
  - NVTAG: webinar on Structured Expert Elicitation: 24th of June 2024
- To provide our members with knowledge about different SEE methodologies and to improve their understanding and confidence around the application of SEE in their work

Snapshot from paragraph Dutch economic evaluation guideline

3.4.2 Expert elicitation

Expert elicitation involves obtaining quantitative values from experts.[24] For example, they may provide an estimation of a certain input parameter of an economic evaluation, such as the time an intervention is used, or a distribution of various follow-up treatments. Various structured methods exist for expert elicitation, such as the Sheffield Elicitation Framework (SHELF) method, the Delphi method, and the Cooke method.[26, 27, 25, 28] The use of a structured method is obligatory. These methods start with an individual elicitation, by an interview or questionnaire. A fixed interval method or a variable interval method can be used to request parameter values.[29] In addition to point estimates, these methods also enable to generate a distribution around the parameter values. Various tools are available for requesting estimates from experts.[30, 27]

In order for experts to answer the questions properly, a number of sample questions must be used to prepare them for the use and application of distributions and probabilities.[31] Steps

must be taken, for each requested parameter, to verify whether the outcomes actually reflect the experts' thoughts.[31] The manual by Horscroft et al. describes various ways to do this.[32]

After collecting the estimates of the individual experts, the outcomes must be combined, or aggregated. This can be accomplished through mathematical aggregation or behavioural aggregation.[29] When it comes to mathematical aggregation, the individual estimations are combined using an algorithm. In the case of behavioural application, interaction takes place between the experts in order to generate an outcome through consensus. This can be accomplished through giving feedback on the answers provided by the other experts (the Delphi method), or by organising an expert panel (the SHELF method). Both methods require not only a point estimator to be aggregated, but also a distribution. These distributions must then be included in the deterministic sensitivity analyses and the probabilisticanalysis (see **paragraph 4.7**).

Snapshot of the Dutch guideline for economic evaluations (2016)

3.4 Expert opinion

Where data are clearly lacking, it is recommended to ask a **panel of experts** to provide data for 'input' in a model or for the design of a model. One of the common methods to organize expert panels is the Delphi method. If an expert panel is consulted, **the way in which the experts were selected must be clearly explained so that their expertise and independence can be verified**. **The following information should be provided: the data collection method, the process through which consensus, where needed, was achieved, and the analysis method**. Furthermore, the data provided by the expert panel should be specified and the impact of uncertainty on the results must be elucidated through sensitivity analyses.

Current practice [FROM]

- Registration holder makes assumptions on parameter values and asks experts whether they agree with it:

  - 'Based on data obtained from 12 weeks study x we assume that long term term projections are y (e.g., survival of patients with multiple myeloma;

  - Impact of risk factors on progression in dementia) are xyz

  Writing a summary of the minutes of an expert meeting:
  - 'one of the experts said …'

- Parameter assumptions can subsuquentely be used in economic modelling and thereby increasing the uncertainty around the outcomes

Disadvantages with current practice:

- Low transparency

- Validation not possible

- Hardly any guidance on how to execute how to report:
  - How many experts?
  - Who were the experts?
  - Conflict of interest?
  - What is/should be their expertise?
  - Etc.

Towards use of a more transparent methodology to estimate parameter values

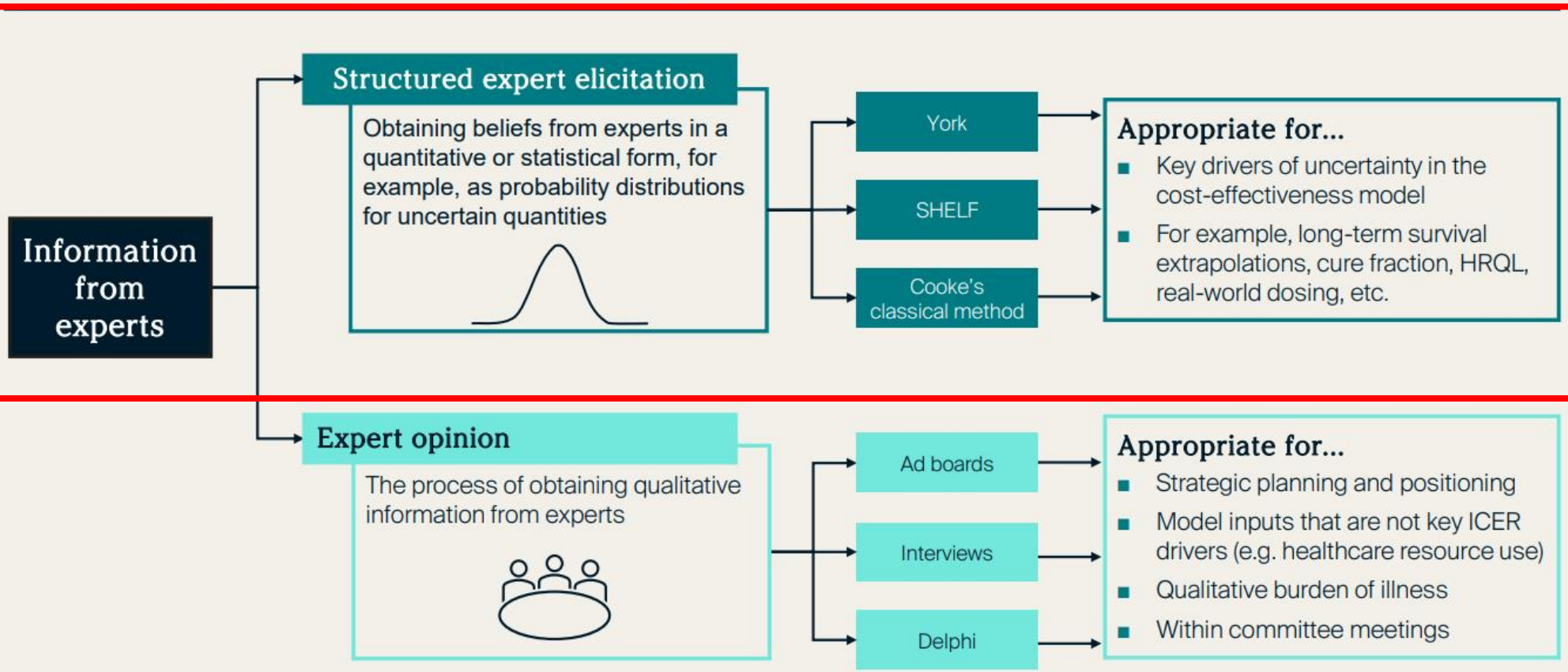
- Revised 'Guideline for conducting health economic evaluations' (ZIN, 2024)
- Expert consultation can be used to obtain relevant data for economic evaluations, when no other evidence is available
- Lowest form of evidence (but sometimes hard data from trials/well developed studies is just not available)
- Improve reporting

Table B3: Reporting criteria for an expert elicitation

Criterion	Description
Research rationale	The reasons why a consultation with an expert is needed must be described.
Research question	All input parameters for which experts are to be consulted must be described.
Type of parameter	The type of input parameter (for example ratios, probabilities, distributions etc.) must be described.
Composition of expert panel	The composition of an expert panel must be described. The description must clearly indicate which area of expertise each member represents and the centre they are affiliated to.
(Conflicting) interests	Possible conflicting interests must be described for each expert using the KNAW declaration of interest.
Elicitation method	A description must be provided of how the data is to be collected (for example by an interview or a questionnaire).
Clarification/training	The use of clarifying and training material for the experts must be reported and made available.
Questions/assignments	The actual questions asked of the experts must be reported.
Feedback	It must be reported how, for each question, it has been verified whether the answer actually reflects the thoughts of the expert and/or the expert has revised his/answers following this feedback.
Aggregation method	The aggregation method used must be described.
Performance of experts	The weighting of the outcomes of the various experts and how this has been applied must be described. Differential weighting (on the basis of seed

Today, we will focus on the quantitative part

Figure 1
Comparison of structured expert elicitation with other methods to gather expert opinion



Key: HRQL, health-related quality of life; ICER, incremental cost-effectiveness ratio; SHELF, Sheffield Elicitation Framework.

References: Bojke et al. 2021[1]; Peel et al. 2018.[2]