Science of Patient Input (SPI) Webinar Series

From Stories to Evidence: Quantitative patient-preference information to inform product-development and regulatory reviews

MDIC's Science of Patient Input Project is pleased to present this three-part webinar series designed to shed light on how to convert the patient experience into usable evidence for regulatory and non-regulatory applications.

Who should watch?

- Medical device and medical product developers interested in incorporating patient preferences at various stages of the total product life cycle.
- Patient groups interested in initiating patient preference studies
- Regulators interested in understanding patient preference data

After each webinar, MDIC will provide a brief recap and links to additional resources.

If your company would like more information on getting started in this area, please visit our resource page at mdic.org/spi/resources/ or contact SPI Program Director, Stephanie Christopher at schristopher@mdic.org.

Part Three:

The Basics of Discrete Choice Experiments to Elicit Patient Preferences:

Results and Analysis

Originally Recorded on April 19, 2018

Speakers:

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Watch the webinar and download the slides here: http://mdic.org/mdicx/#StoriesEvidencepart3

Summary:

A discrete choice experiment (DCE), also known as choice-based conjoint analysis, is a choice-based method to elicit preferences. In a DCE, respondents indicate choices among hypothetical alternatives that consist of a combination of features (attributes). The statistical analysis of the pattern of choices indicates the relative importance of the features.

The International Society for Pharmacoeconomics and Outcomes Research **(ISPOR) Checklist for Stated-Preference Applications in Medicine** is a useful resource for DCE design and analysis. The checklist outlines a 10-step process for developing preference studies, from defining the research question to presenting the study (Figure 1). (*View the checklist here*)

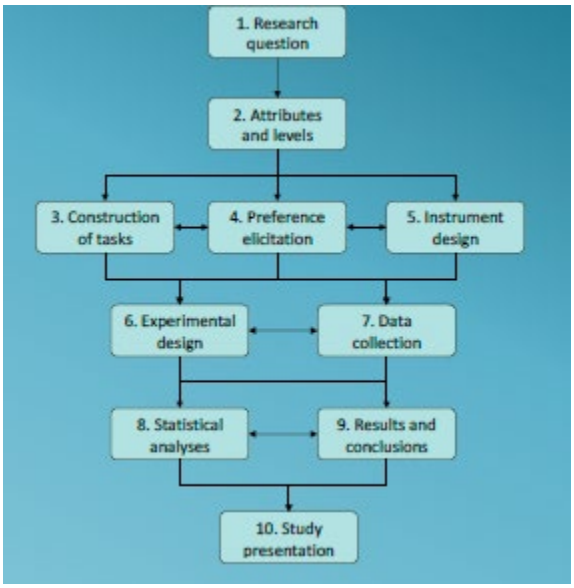

Figure 1. Checklist from the ISPOR Good Research Practices for Conjoint Analysis Task Force. https://www.ncbi.nlm.nih.gov/pubmed/21669364

In this webinar, experts from the Duke University School of Medicine discussed ISPOR checklist steps seven and eight, which relate to data collection and analysis:

7. **Data Collection**
8. **Statistical Analyses**

Note: Steps 1-6 are covered in the second webinar in this series.

Data Collection

The conceptual basics of the use of utility equivalence between treatment-related benefits and risks to measure risk tolerance were covered, including a discussion of maximum acceptable risk and minimum acceptable benefit.

Watch the basics, starting at 12 min

Methods to Elicit Preferences

Although several preference elicitation methods exist, the Innovative Medicines Initiative (IMI) PREFER Initiative, which "looks at how and when it is best to perform and include patient-preference in decision making during the drug life cycle," has outlined four "families" of preference elicitation methods:

- Discrete choice-based related techniques
- Threshold related techniques
- Rating related techniques
- Ranking related techniques

Watch the discussion of preference elicitation methods, starting at 21 min

Statistical Analyses

Evaluating Internal Validity of Preference Data

To turn patient stories (preferences) into evidence, we must establish the validity of the data we collect. Stated preference methods rely heavily on internal validation, which includes assessments of **face**, **content**, and **predictive validity** because revealed preference data for comparison do not typically exist. Methods for measuring these different types of validity, examples of validity test failures, and tips for interpreting these failures were discussed.

Watch the discussion of validity and see examples of how data can fail validity tests, starting at 28 min

Analysis Methods

The analysis method employed will depend on which method "family" was used to elicit the preferences. For discrete choice experiment (conjoint-analysis) data, four methods of analysis exist: **conditional logit**, **random-parameters logit (RPL)**, **hierarchical Bayes (HB)**, and **latent-class analysis**.

Watch the discussion of analysis methods, starting at 52 min

The ISPOR Conjoint-Analysis Statistical Analysis Task Force also released a report on best practices for analyzing discrete choice experiment data, which may be of use during analysis.

Read the ISPOR best practices report on the analysis of discrete choice experiments

Where Can Patient Preferences Inform the Development Lifecycle?

As discussed in the first webinar in this series, there are many applications for patient preference studies to inform development across the medical device total product life cycle. In this webinar, additional applications of patient preference studies for Fragile-X Syndrome, Alzheimer's Disease, and Atrial Fibrillation were discussed.

Watch the discussion, starting at 1 hr 4 min

Related Links:
MDIC PCOR Project Workshop: Using Parkinson's Patient Preferences to Re-Define Statistical Significance Levels in Clinical Trials

Update on CDRH's Patient-Centered Initiatives

MDIC Patient-Centered Benefit-Risk (PCBR) Framework

MDIC Science of Patient Input (SPI) Project Page

Other Webinars in this Series

- Part 1: *Quantitative Patient Preference Studies Across the Total Product Life Cycle*
- Part 2: *The Basics of Discrete Choice Experiments to Elicit Patient Preferences: From Research Question to Experimental Design*