

Systematic Approaches to Assessing Physician Decision-Making Practices and Treatment Preferences

Workshop

May 16th, 2022

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Washington, DC, USA Area and Virtual

Panelists

			
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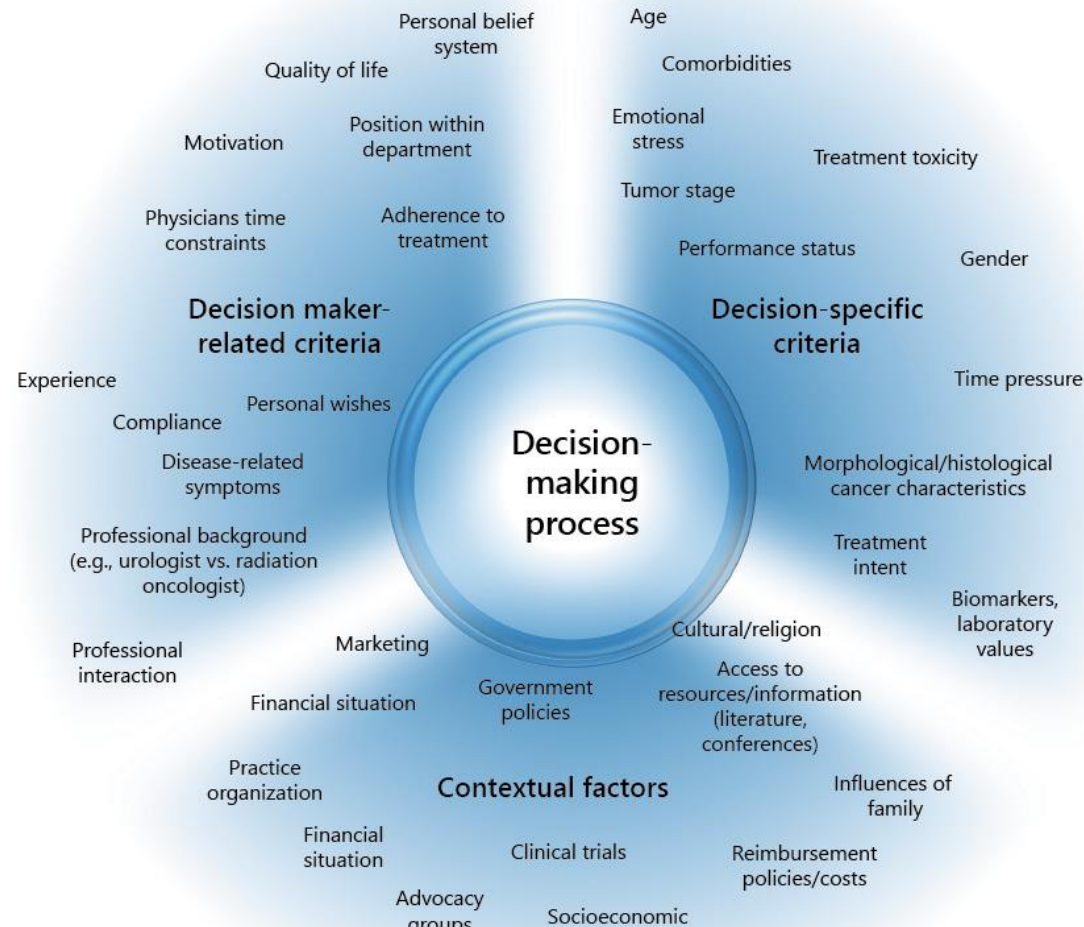
The role of physician preferences in treatment decision-making

Katharine Batt, MD

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Decision-Making in Oncology: Where to Begin?



- Complicated landscape
- Rapid therapeutic advancements
- Expansive literature base

How do we stay current given the immense demands around practicing oncology today?

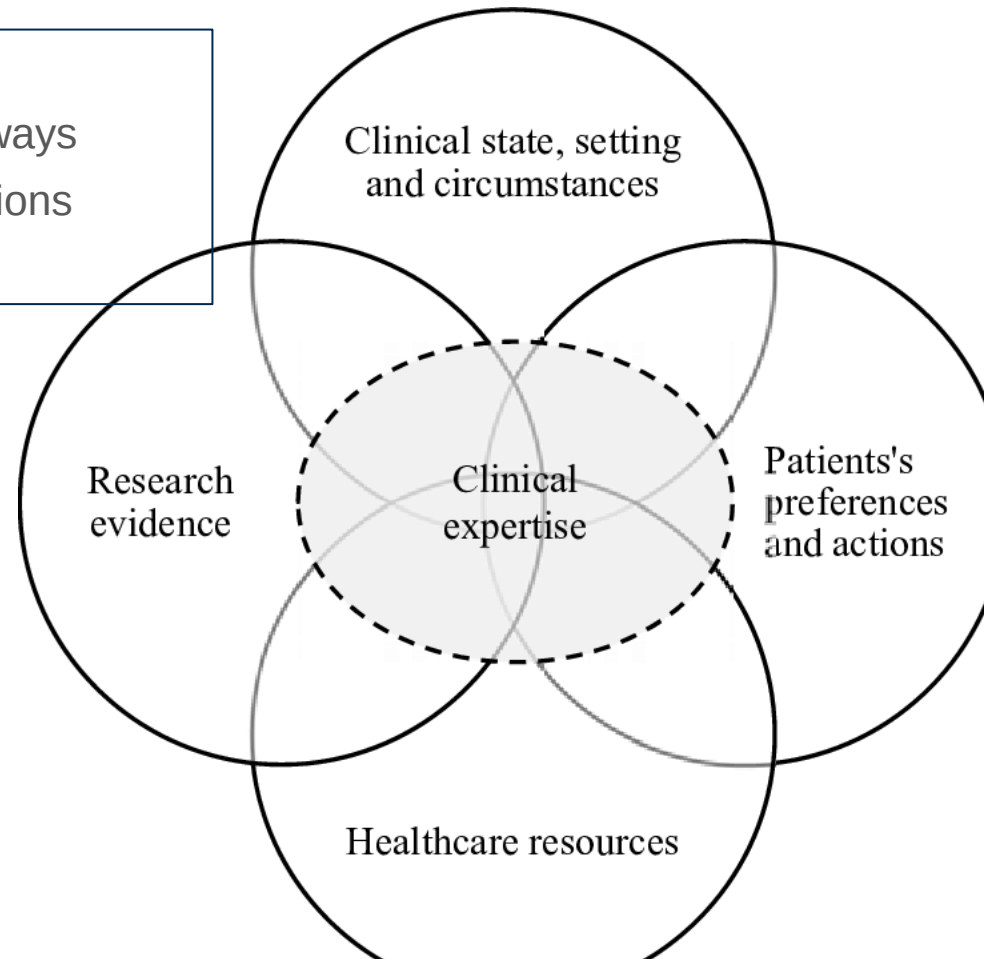
Decision-Making in Oncology: Heterogeneity

Payors:

- Standardized treatment pathways
- Cost-effective, EBM interventions
- Extensive insured population

Providers:

- Current knowledge
- Experience treating disease
- Anecdotal outcomes
- Empathy
- Communication style



Patients:

- Disease type, stage, characteristics
- Health literacy
- Socioeconomic situation
- Trust in provider/care setting

How can physicians make the best treatment recommendation while balancing heterogeneity of the patient, research, healthcare system and themselves?

Decision-Making in Oncology: Heterogeneity (cont)

original article

Annals of Oncology 19: 2067–2078, 2008
doi:10.1093/annonc/mdn418
Published online 28 July 2008

Heterogeneity in cancer guidelines: should we eradicate or tolerate?

G. Pentheroudakis¹, R. Stahel², H. Hansen³ & N. Pavlidis^{1*}

¹Department of Medical Oncology, Ioannina University Hospital, Ioannina, Greece; ²Clinic and Polyclinic of Oncology, University Hospital, Zürich, Switzerland; ³The Finsen Centre, Copenhagen University Hospital, Copenhagen, Denmark

Received 4 February 2008; revised 31 May 2008; accepted 9 June 2008

Decision-Making in Oncology: Heterogeneity (cont)

original article

Annals of Oncology 19: 2067–2078, 2008

Heterogeneity of Treatment Effect

G. Pen

¹Department
Centre, Cop

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JAMA Guide to Statistics and Methods

December 14, 2021

Heterogeneity of Treatment Effect Estimating How the Effects of Interventions Vary Across Individuals

Derek C. Angus, MD, MPH^{1,2}; Chung-Chou H. Chang, PhD²

» Author Affiliations

JAMA. 2021;326(22):2312-2313. doi:10.1001/jama.2021.20552

Decision-Making in Oncology: Heterogeneity (cont)

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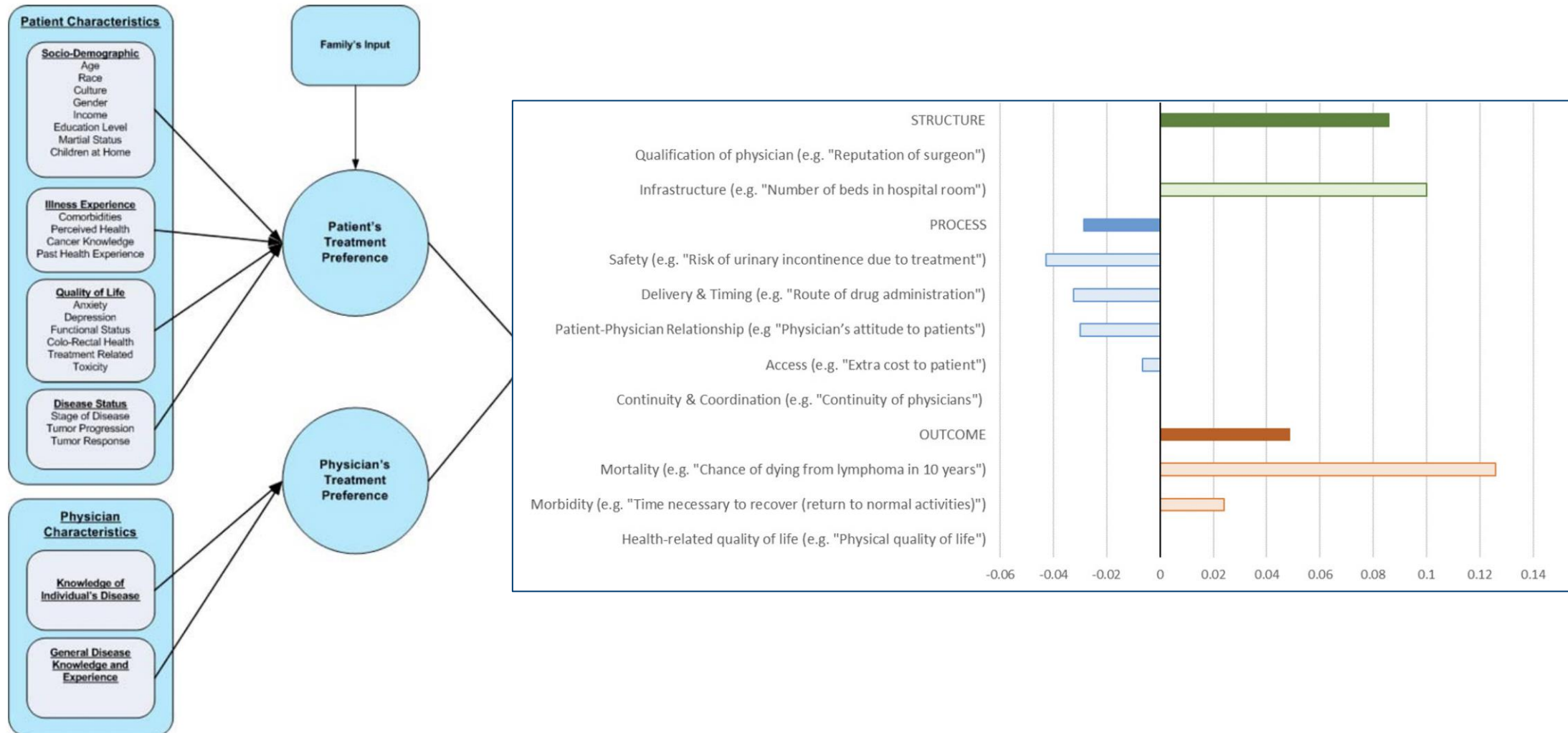
Open Access

Research

BMJ Open Do patients and health care providers have discordant preferences about which aspects of treatments matter most? Evidence from a systematic review of discrete choice experiments

Mark Harrison,^{1,2} Katherine Milbers,² Marie Hudson,^{3,4,5} Nick Bansback^{2,6}

Decision-Making in Oncology: Heterogeneity (cont)



Decision-Making in Oncology: Preferences and Barriers

Physician

- Time
- Knowledge of disease and understanding of/comfort with available treatments
- Communication style
- Bias
- Discordance in guidelines

Patient

- Ability to understand disease
- Access to medicines
- Relationship with provider
- Socioeconomic status
- Value system around healthcare

Healthcare system

- Hospital formulary
- Step-through therapy within hospital
- Patient disease priority
- Support staff for patient/providers

Payor

- Restrictions to access
- Access to specialists
- Ease of physician reimbursement
- Copays

Physicians bring their own preferences and limitations to the patient encounter but must negotiate obstacles introduced by the practice environment. How can we more easily maneuver this situation and still contribute to effective, shared decision-making?



Health Economics
& Outcomes Research



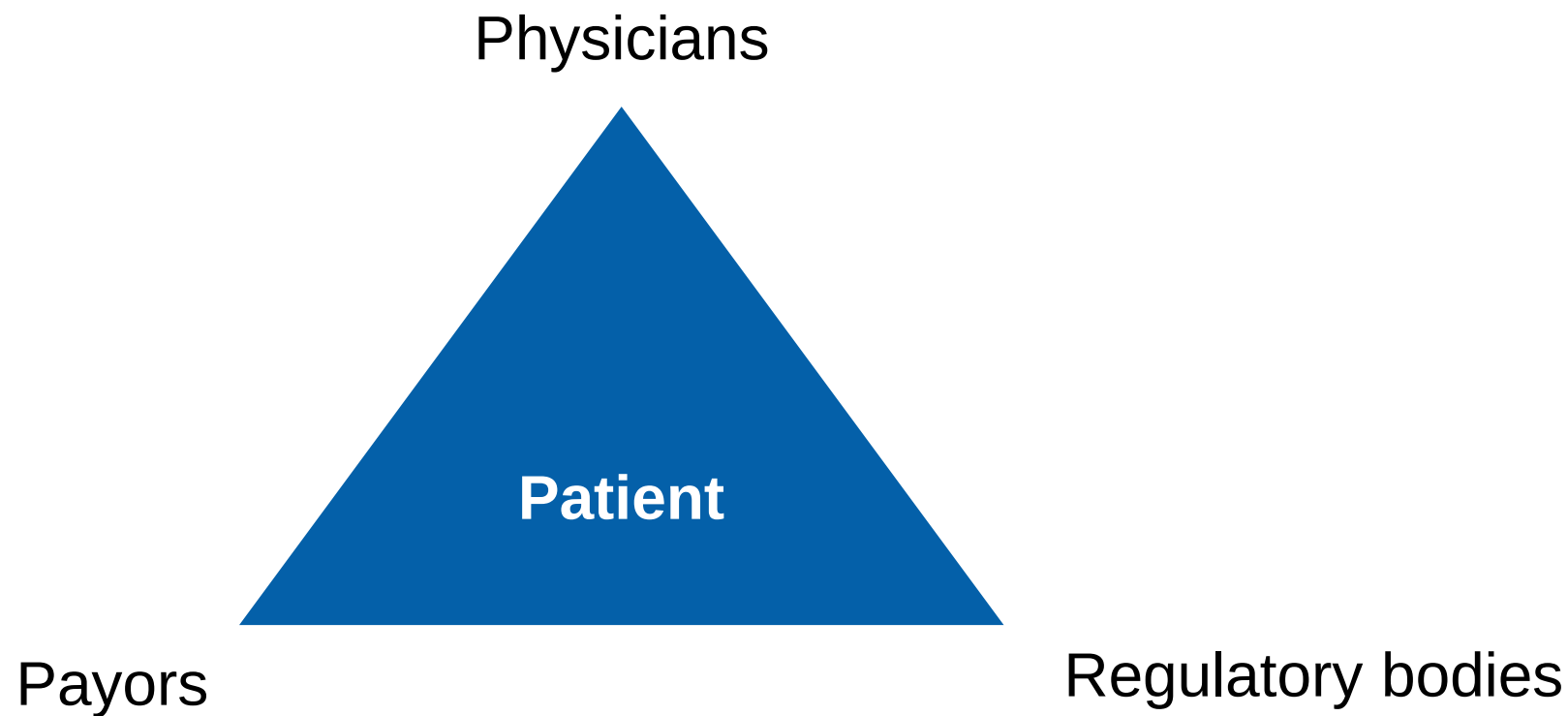
Patient and Physician Preferences

Batul Electricwala, PhD

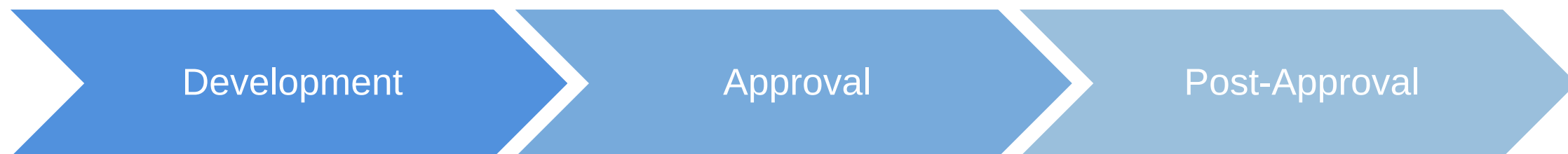
Director, Health Economics & Outcomes Research

Meeting the Patient Unmet Need

“The best drug is one that a patient takes”



Incorporating Patient and Physician Preferences in Drug Development



Filling an unmet need



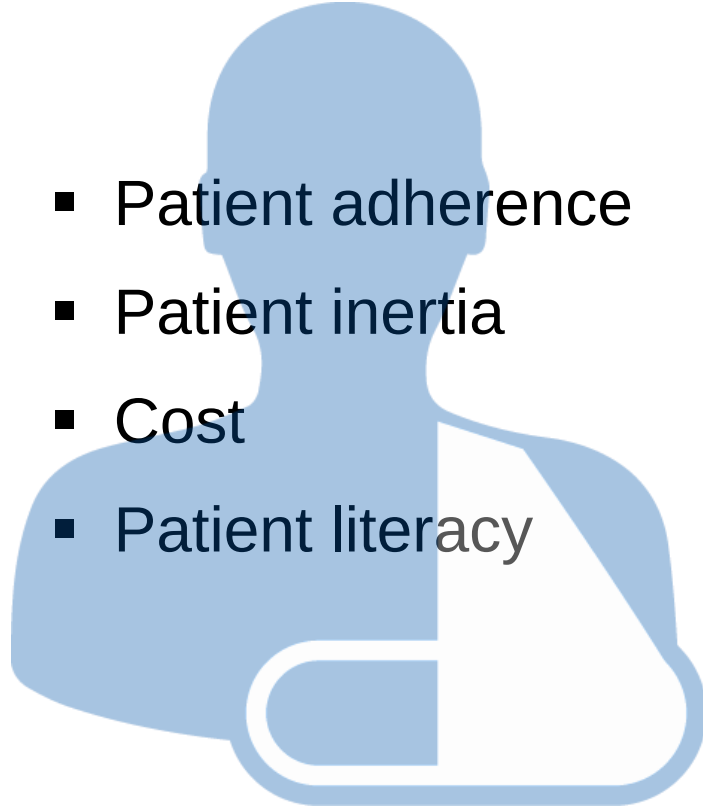
Differentiation in a crowded treatment landscape



Incorporating patient and physician voice in the value narrative

Key Hurdles to Optimal Treatment Pathways

Patient level



- Patient adherence
- Patient inertia
- Cost
- Patient literacy

Physician level

- Competing comorbidities
- Administrative burden
- Physician inertia
- Incorporating most recent guidelines/treatment recommendations
- Cost burden for patients

Talking to physicians – the power of mixed-methods research

Suepattra May-Slater, PhD, MPH

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As the landscape becomes more crowded, selecting the “best” treatment option becomes more challenging



1997 (15)

- Anastrozole
- Cyclophosphamide
- Docetaxel
- Doxorubicin
- Fluorouracil
- Goserelin
- Letrozole
- Megestrol
- Methotrexate
- Paclitaxel
- Pamidronate
- Tamoxifen
- Thiotepa
- Toremifene
- Vinblastine

2022 (44)

- Abemaciclib
- Ado-Trastuzumab Emtansine
- Alpelisib
- Anastrozole
- Atezolizumab
- Pamidronate Disodium
- Capecitabine
- Cyclophosphamide
- Docetaxel
- Doxorubicin Hydrochloride
- Epirubicin Hydrochloride
- Eribulin Mesylate
- Everolimus
- Exemestane
- Fam-Trastuzumab Deruxtecan-nxki
- Fluorouracil Injection
- Fulvestrant
- Gemcitabine Hydrochloride
- Goserelin Acetate
- Ixabepilone
- Lapatinib Ditosylate
- Letrozole
- Margetuximab-cmkb
- Megestrol Acetate
- Methotrexate Sodium
- Neratinib Maleate
- Olaparib
- Paclitaxel
- Paclitaxel Albumin-stabilized Nanoparticle Formulation
- Palbociclib
- Pamidronate Disodium
- Pembrolizumab
- Pertuzumab
- Pertuzumab, Trastuzumab, and Hyaluronidase-zzxf
- Ribociclib
- Sacituzumab Govitecan-hziy
- Talazoparib Tosylate
- Tamoxifen Citrate
- Thiotepa
- Toremifene
- Trastuzumab
- Trastuzumab and Hyaluronidase-oysk
- Tucatinib
- Vinblastine Sulfate

Drugs approved to treat breast cancer

Source: FDA.gov

HEOR evidence helps to determine which interventions are best...

...by generating evidence to ascertain treatment effectiveness and guide treatment decisions



OR



- Comparative effectiveness research
 - *Drug A is more effective than Drug B*
- Cost-effectiveness analysis
 - *Treatment C is more cost-effective than Treatment D*
- Centralized treatment decision-making
 - *All patients with Condition G should be prescribed Treatment H*
- Precision medicine to optimize therapeutic benefit
 - *Patients with Mutation K should receive Treatment L*

What are key drivers of decision-making for clinicians?

Clinicians draw on many data points to determine what is best....including what is in the best interest of the patient



What matters most to a physician about a particular treatment?

Efficacy and effectiveness

Treatment toxicity or side effects

Insurance coverage: navigating authorizations and approvals

Relative value units for reimbursement



What prevents a physician from prescribing a particular medication that is deemed most beneficial?

Patient level factors (e.g. co-morbidities)

Impact of treatment on patient or caregiver HRQoL

Treatment adherence

Patient burden including access and ability to pay for treatment



What does a physician take into consideration as they devise a treatment plan or recommend treatment?

Previous experiences (success or failure) with treatment

Burden on staff to support treatment (e.g. patient education or device maintenance)

Patient treatment goals and satisfaction

What is qualitative health research?

The collection and systematic analysis of non-quantitative (e.g. non-numerical) data



- Designed to **capture individuals' experiences** of health, illness, behaviors, opinions and perspectives, i.e. “soft” data focusing on the social and experiential aspects of health and health care.
- Quantitative approaches identify trends, patterns, and advanced metrics – but are limited in their ability to **represent the experiences, perspectives and opinions** of stakeholders
 - May not fully capture or illuminate the importance physicians may place on a particular treatment
- Qualitative research often **captures** the “**why**” and the “**how**”
 - Provides insights through a deeper, and more holistic understanding of a treatment, its impact, and its potential value
 - Provides valuable context to supplement the results of quantitative research, allowing for a more effective application and use of treatment
- Serves as a **valuable tool** to inform **quantitative** data collection **design**.

Melding qualitative research with quantitative methods

Focus groups or in-depth interviews

- Identify and understand new concepts
- Explore factors that are most salient or valuable to a patients (or stakeholders)
- Hypothesis generating



To inform formal surveys

- Preferably built on concepts derived from qualitative work
- Able to use validated instruments/measures
- Able to drill down to key notions and concepts of interest
- Hypothesis testing







Formative “on the ground” research that elicits physician experiences and perspectives in real time

Mixed-methods research as a way to incorporate physician preferences in economic models

Marlon Graf, PhD, MPP

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What is a Discrete Choice Experiment (DCE)?



Preferences are latent and unobservable.

We only observe the signals of preferences, i.e., choices

Ex: an Individual who prefers an apple over an orange would choose to purchase an apple over an orange



Traditionally, to estimate preferences, a researcher would observe choice behavior



However, this is not feasible for products not accessed through a traditional market, such as pharmaceuticals



A discrete choice experiment simulates market behaviors so a researcher can measure choice and find preferences



DCEs present respondents with repeated choice scenarios/questions comparing two or more hypothetical options

Isolating preferences for treatment attributes while allowing for an estimation of overall treatment value

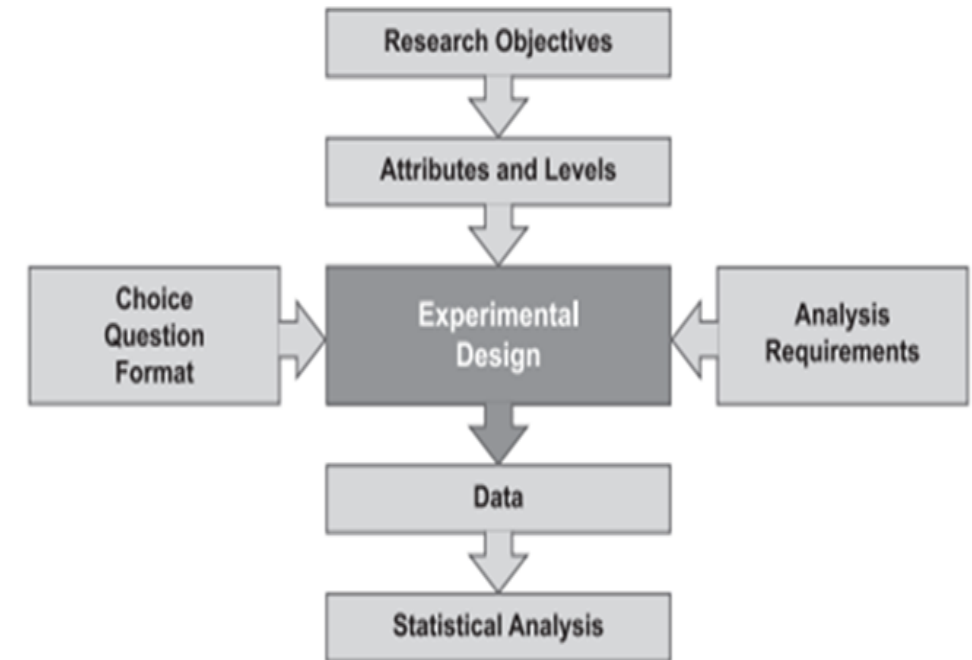


- **Quantify preferences for healthcare products and programs**
 - Determine whether patients value a specific attribute of a new treatment, e.g., increased ease of use or decreased side effects
- **Quantify and compare valuations of various products to key stakeholders, e.g., patients, physicians, & caregivers**
 - Compare physician willingness to pay (WTP) for different treatments with different dosing regimens, route of administration, and side effects
- **Rank products and or product attributes**
 - Determine which attributes of a therapy patients most value

DCE Methodology

- DCEs should follow **ISPOR's best research practices** for DCE applications in health, employing all recommended steps depicted.^{1,2}
 - Targeted literature review will inform study design and survey development.
 - Statistical analyses and result interpretations will be performed in accordance with guidelines from ISPOR's task force on statistical methods for discrete choice experiments.³

Key Stages in Developing a DCE, from ISPOR Best practice Guidelines

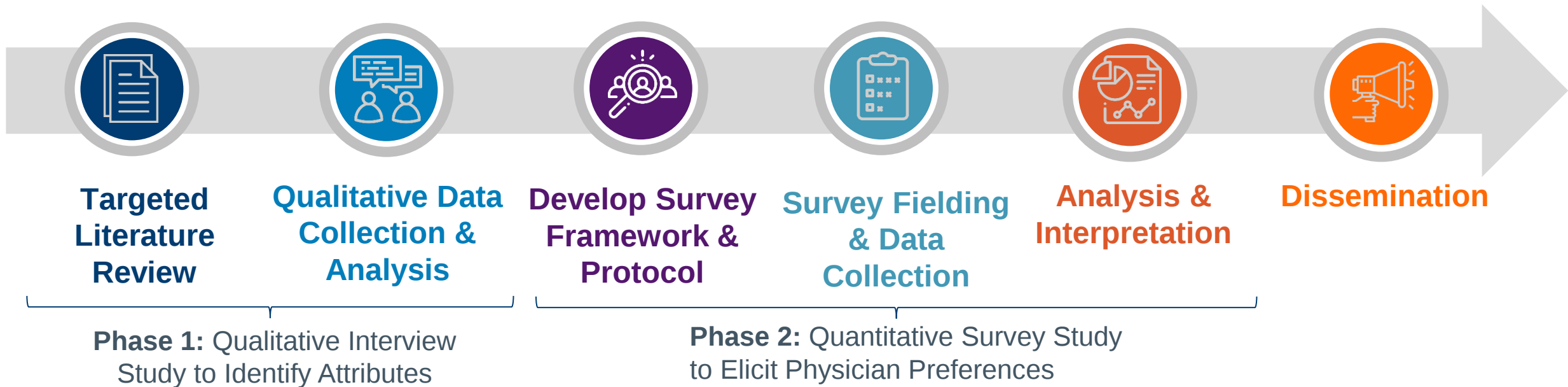


1. Bridges et al. (2011). Conjoint analysis applications in health—a checklist: a report of the ISPOR Good Research Practices for Conjoint Analysis Task Force. Value in health, 14(4), 403-413.

2. Johnson et al (2013). Constructing experimental designs for discrete-choice experiments: report of the ISPOR conjoint analysis experimental design good research practices task force. Value in health, 16(1), 3-13.

3. Hauber et al (2016). Statistical methods for the analysis of discrete choice experiments: a report of the ISPOR conjoint analysis good research practices task force. Value in health, 19(4), 300-315.

Conducting Discrete Choice Experiments



Purpose of expert elicitation

Overview from O'Hagan 2019



A need for expert opinions and judgment

Essentially no aspect of scientific investigation in which judgment is not required.

Judgment is necessarily subjective, but should be made as carefully, as objectively, and as scientifically as possible.



Expressing knowledge in the form of a (subjective) probability distribution for uncertain quantities

Distributions play an important role in statistical inference (e.g., as prior distributions in a Bayesian analysis) and in evidence-based decision-making (e.g., as expressions of uncertainty regarding inputs to a decision model).



Beware of naive questioning that can engender cognitive biases in the experts' judgements.

To capture expert knowledge as objectively as possible in the form of a probability distribution, elicitation needs to be structured to minimize bias.

Research has led to development of carefully designed elicitation protocols, which set out procedures for the elicitation to follow.

Delphi panel best practice guidelines developed by RAND/UCLA

Three-round expert elicitation process

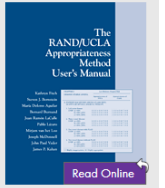
- **Step 1:** Conduct targeted literature review to inform questionnaire development
- **Step 2:** Identify Delphi Panel Participants
- **Step 3:** Conduct 3 Delphi rounds (*see below*)
- **Step 4:** Analyze results and disseminate

The RAND/UCLA Appropriateness Method User's Manual

by Kathryn Fitch, Steven J. Bernstein, Maria Dolores Aguilar, Bernard Burnand, Juan Ramon LaCalle, Pablo Lazaro, Mirjam van het Loo, Joseph McDonnell, Janneke Vader, James P. Kahan

Related Topics: Evidence Based Health Practice, Health Care Quality, Medical Professionals

[Citation](#) [Embed](#)



Round 1

- 45-60 minute online survey of 20-25 likelihood, ranking and parameter estimation questions.
- Round 1 also includes a demographic questionnaire, recording key information on panel participants.
- **Round 1 objective:** Establish baseline estimates of participant assessments of key uncertainty areas of interest.

Round 2

- Online discussion round in place of the traditional Round 2 discussion.
- Participants presented with aggregate Round 1 responses and asked to provide comments and thoughts in the Round 2 discussion forum over a 3- week period.
- Participants able to comment directly on the materials provided and respond to remarks made by other participants once they log-into the password-protected platform.
- **Round 2 objective:** pressure-test aggregate group results and obtain participant rationale and feedback.

Round 3

- Re-administer the original online survey and track movement in participant responses.
- **Round 3 objective:** Obtain final participant assessments of key uncertainty areas of interest and identify areas of agreement and disagreement.



[Patient](#). 2020; 13(1): 11–21.

Published online 2019 Sep 23. doi: [10.1007/s40271-019-00389-4](https://doi.org/10.1007/s40271-019-00389-4)

PMCID: PMC6957573

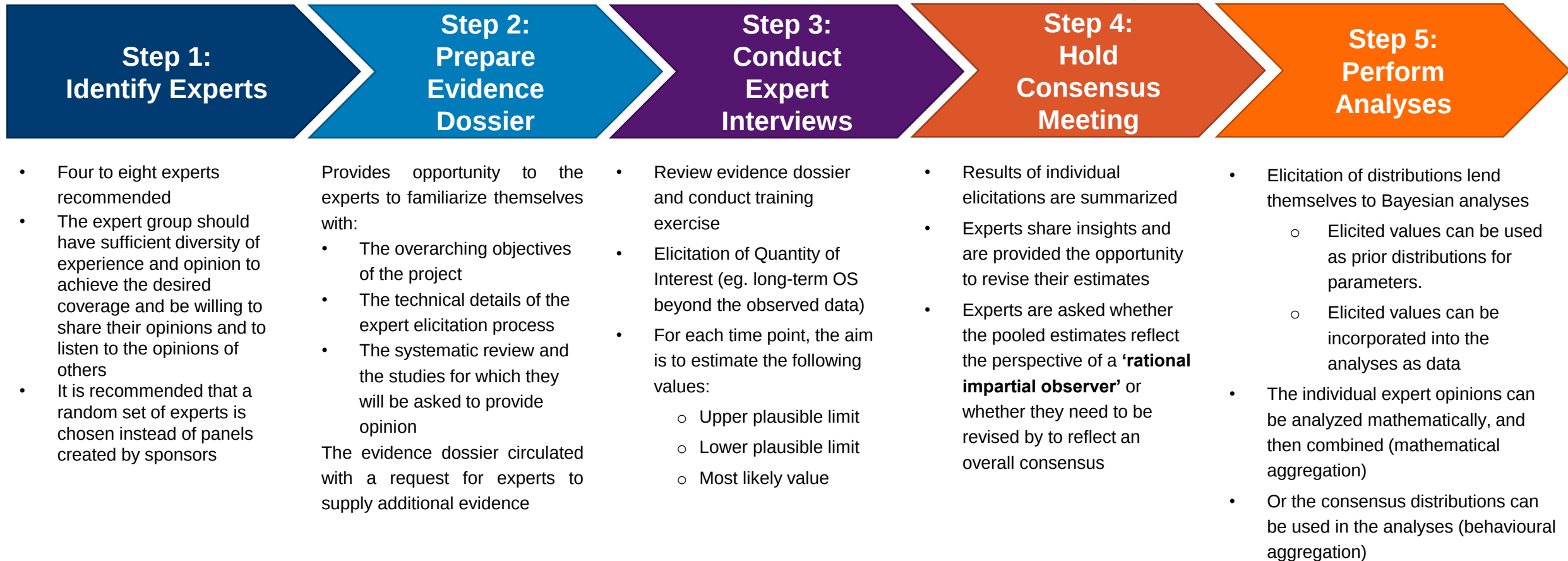
PMID: [31544219](https://pubmed.ncbi.nlm.nih.gov/31544219/)

Practical Considerations in Using Online Modified-Delphi Approaches to Engage Patients and Other Stakeholders in Clinical Practice Guideline Development

[Dmitry Khodyakov](#),¹ [Sean Grant](#),^{1,4} [Brian Denger](#),² [Kathi Kinnett](#),² [Ann Martin](#),² [Holly Peay](#),³ and [Ian Coulter](#)¹

Sheffield Expert Elicitation Framework (SHELF)

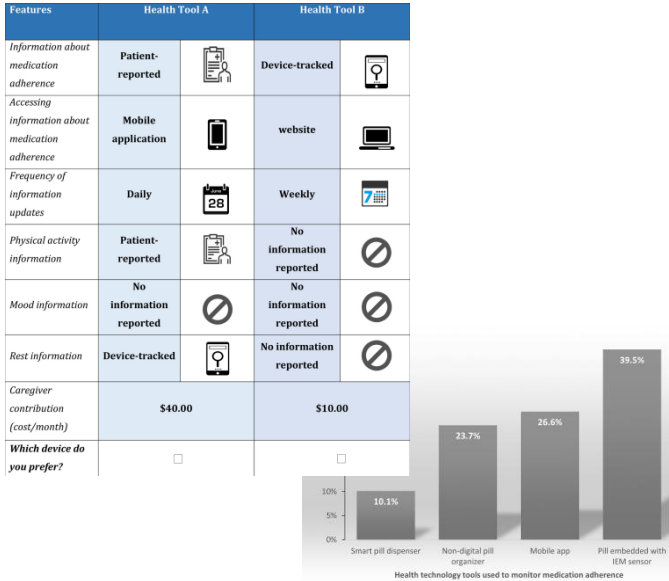
Five-step expert elicitation process to elicit uncertain quantities



Sample expert elicitation output and insights

Discrete Choice Experiments

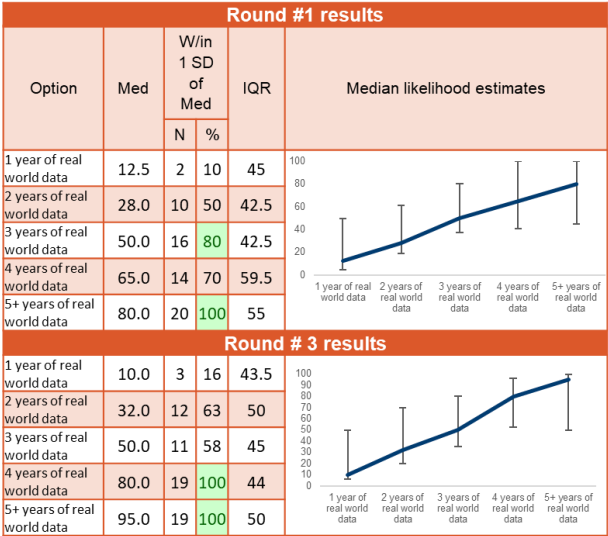
Estimating the willingness-to-pay (WTP) for medication adherence monitoring tools among caregivers of SMI patients:



Forma, Felicia, et al. "Are caregivers ready for digital? Caregiver preferences for health technology tools to monitor medication adherence among patients with serious mental illness." Digital health 8 (2022): 20552076221084472

Delphi Method

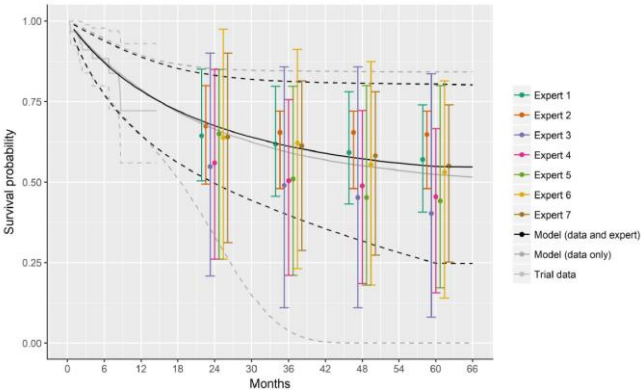
Assessing the likelihood that a particular number of years of “real world” data on safety and efficacy may lead payers to either restrict or expand access to one product over another in hemophilia A:



Graf, Marlon, et al. "Understanding the evolution of coverage policies for prophylaxis treatments of hemophilia A without inhibitors: a payer Delphi panel." Journal of Managed Care & Specialty Pharmacy 27.8 (2021): 996-1008

SHELF Framework

Projecting survival long-term survival for children and young adults with relapsed or refractory acute lymphoblastic leukemia receiving CAR-T therapy:



Cope Shannon et al. Integrating expert opinion with clinical trial data to extrapolate long-term survival: a case study of CAR-T therapy for children and young adults with relapsed or refractory acute lymphoblastic leukemia. BMC Med Res Methodol. 2019;19:182.

Feel free to reach out with any additional questions!

			
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THANK YOU

We look forward to staying in touch.

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a precision value & health team